APEC Seminar on 'Increasing the Competitiveness of the Telecommunications Sector'

9th August 2018
Port Moresby, Papua New Guinea

KEY OUTCOMES AND POLICY REPORT

Australia hosted a Seminar focused on 'Increasing the Competitiveness of the Telecommunications Sector' in Port Moresby on the 9th of August. This seminar was funded through Australia's APEC Services Competitiveness Roadmap Initiative. It brought together 47 participants and 12 experts to participate in experience sharing and practical change management exercises. The seminar was facilitated by Eduardo Pedrosa and Dr. Peter Lovelock.

The objectives of the symposium were to:

- Explore the economic and social benefits of a liberalised telecommunications services sector;
- Understand better the role of competition in all sectors of the telecommunications value chain;
- Build capacity through exposure to case studies, global good practices, and lessons learnt through information sharing;
- Explore the role of new technologies in the telecommunications sector and opportunities for inclusion and growth of telecommunications and digital economy services;
- Identify the linkages between the telecommunications sector and a digital economy framework, both from an infrastructure and a governance perspective.

The seminar was opened by Mr Benedict David, Australia's Deputy High Commissioner (Acting) to Papua New Guinea. Mr David spoke about the importance of connectivity within the APEC region and the opportunities presented by rapid advancement of digital technologies to expand access to health, education and financial services. Mr David also highlighted the significant relationship between Australia and Papua New Guinea as evidenced through the current investment initiates for backbone infrastructure such as the Coral Sea submarine cable. The increase in broadband connectivity in PNG that such investment will enable presents significant opportunities to increase access and affordability if employed through a competitive and open regulatory environment.

The subsequent morning sessions of the seminar focused on improving network access and connectivity as well as the opportunities presented through emergent technologies. A diverse group of key experts from APEC member economies, the private sector and academia presented a rich set of narratives and case studies exploring the relationship between infrastructure, data and services delivery. Consistently noted was that the benefits of the digital economy are both social *and* economic, and that this needs to be borne in mind in looking at good regulatory practices and frameworks. Access to and understanding data enables

service provision whilst reform and liberalisation allows competition whilst growing businesses and improving access and affordability.

The infrastructure that undergirds and empowers the digital economy has opened the telecommunications sector up to a number of other vertical services sectors (e.g., delivery of financial, education, healthcare, etc., services). However, while bearing these other sectorial impacts in mind has become increasingly important, success in telecommunications still relies on good policy planning and reform encompassing the four pillars of:

(i) International communications network access (including cables and gateways),

(ii) Backbone infrastructure,

(iii) Last mile access and;

(iv) The enablement of end user device utilization.

Across these four pillars the barriers to connectivity can be boiled down to the three fundamental issues of availability, awareness and affordability. Noting that the cost of connectivity within the APEC region is still *comparatively* high.

Rapid technological development presents possible solutions to these barriers and the work of the private sector in developing connectivity solutions should be embraced within the APEC region. The seminar heard presentations on the utilization of TV White Spaces (TVWS), high altitude pseudo satellites (HAPS); Over-The-Top (OTT) applications, and new device access, net neutrality and non-zero rating, consumer protection and mobile number portability.

The employment of innovative solutions combined with an open, competitive and enabling regulatory environment gives economies the best chance at reducing cost barriers and thus increasing the trade, social and economic opportunities presented through connectivity.

The afternoon sessions shifted the focus from APEC wide case studies and presentations to the challenges and enablers for reform in PNG. The speaker from PNG's telecoms regulator, the National Informational and Communications Technology Authority (NICTA), Mr. Kila Gulo-Vui elaborated on many of the key issues in the domestic context.

The PNG government is committed to transforming the digital economy as evidenced through the APEC 2018's theme ***'harnessing inclusive opportunities and embracing the digital future'.***

While PNG still has a long way to go in developing and progressing it's telecommunication sector, it has also already come a long way in a relatively short time frame. The first phase of liberalization for the sector was 2007-2010 when pro-competitive legislation was introduced and commercial licenses granted to the private sector. In the ten years since, mobile usage has grown from 100,000 subscribers to 3.8 million.

Mr. Gulo-Vui further explained that infrastructure is the main constraint for PNG. It is now necessary to facilitate investment and infrastructure development to increase coverage.

There is an expectation that the increased broadband capacity that will be achieved through the Coral Sea submarine cable will increase access and affordability, with PNG looking toward a unified license regime to enable this.

Pathways to Reform

The final two sessions of the day moved away from presentations and best practice learnings toward a facilitated change management and next steps exercise. Five challenges were identified and participant groups set about tackling these challenges to promote a competitive and inclusive telecommunications sector.

The five identified areas were:

(i) International connectivity

(ii) Accessibility and affordable access

(iii) Innovation through technology

(iv) Regulatory requirements

(v) Inclusion

Each group was given three key questions to address: (i) what is the key opportunity in the particular area being looked at; (ii) what is the best practice supporting such an opportunity; and (iii) what is the key challenge to achieving the breakthrough opportunity or to overall area being looked at.

International Connectivity:

The international connectivity area looked at submarine cables, satellites, landing stations and all other aspects of international access. Key challenges identified included the lack of adequate bandwidth and the high cost of infrastructure access. A reform pathway to address this could include a regulatory approach that established governance for fair and open access to incoming bandwidth, and to function best would require a comprehensive strategy looking at the entire infrastructure supply/demand ecosystem.

Other key areas focused upon by the group included ensuring distribution of incoming bandwidth and distributed access, the need to set up a competitive framework that linked domestic conditions with international provisioning, and recognizing that a sharing mindset and set of practices was often a new development which may require behaviour change and therefore would likely require a clear governance framework around it. This latter point included the need to look into shared infrastructure and pricing arrangements.

Best practices considered were the use of incentives and levies, pooling access and regulating access prices, along with setting up a separated wholesale network provider and a number of retail providers able to access the wholesale system on clear access provisions.

Accessibility and affordable access:

The group looking at the domestic market and ensuring the broadest possible affordable access adopted a different approach, consciously focusing on the need to understand the market demand – including *nascent* market demand – as well as the market potential. This latter aspect became the focus for the group as they looked at the need to enable the rollout of health, education and financial services through efficient use of

the entire network resource, including spectrum (and new approaches to spectrum) through the benefits of a liberalised market.

Key benefits identified included universal access and, in particular, access for low income users. But, again, this was principled upon access to particular services such as education and healthcare, and not simply communications access.

Best practices considered drew from a very broad range of possibilities mirroring the earlier sessions in the day, such as efficient use of spectrum through TV White Spaces, as well as the use of drones and HAPS. Interestingly this group also settled on the need to look at shared infrastructure, suggesting a theme, particularly for a resource-constrained market such as PNG.

In the end though this group very clearly defined itself through the link of the telecommunications infrastructure, the need for a liberalized and competitive regulatory regime, and the emerging digital economy. These three were seen to be inherently interconnected, and to get the mix right there needed to be comprehensive, top-down appreciation of the drivers of the domestic digital economy.

Innovation through technology:

The starting point for the group looking at innovation and new technologies was that reform requires a strong focus on the societal opportunities created through innovation and the digital ecosystem because innovation has the potential to revitalize rural communities, health services and productivity (among others). Reform pathways, it was concluded, need to include light-touch and nimble, or responsive, regulation and should therefore consider new developments such as regulatory sandboxes, and free economic or trade zones.

Key opportunities considered included the enablement of service delivery mechanisms in the health and education sectors (as examples), nurturing innovation is disparate and remote communities, and bringing to market new incentives and structures. A key challenge as well as significant opportunity identified and focused upon was the existing digital divide. A key best practice therefore advocated was the use of relevant and effective literacy and capacity programs (e.g., digital and financial literacy).

Key challenges noted by this group and echoed by others was the importance of ensuring the free flow of data – both across sectors and across economies; cybersecurity and data protection issues, particularly to ensure citizen safety, and addressing anxieties as well as opportunities around the future of work given disruptive technologies.

Regulatory requirements:

The group on regulatory requirements explicitly recognized that the revolution of digital technology and the evolution of convergent technologies has radically shifted the regulation landscape. Collaborative regulation is required to be able to meet this challenge and maintain a competitive and inclusive sector. This could include a broadening of regulatory scope from telecommunications and ICT toward a digital economy regulatory agency/landscape which would require balanced regulation and encourage innovation and liberalization.

The opportunity driver is that digitalization can be key to the simplification of economic processes (e.g., transport). And the need is to improve efficiencies across the economy. Therefore, the overarching question that the group sought to address became 'what is *role* of regulation?' When stated this way, it was recognized that it didn't apply only to telecommunication companies/providers or IT vendors, but also other sectors such as Fintech.

A key opportunity and best practice identified was therefore collaborative regulation. This means investing in the convergence of roles. In Russia, for example, they have moved from a Ministry of Telecommunications to a Ministry for the Digital Economy.

With digital technologies spreading to many other sectors regulation can be either bottom-up or top-down, but engaging in bottom-up regulation has risks. In a fast moving, increasingly networked, converging environment, there is a real challenge imposed on regulators: how to regulate new business models without losing gains? In such an environment the group emphasized the need to learn from other economies, while recognizing the different conditions in each economy.

This group too recognized the importance of ensuring data flows, but emphasized that, from a regulatory perspective, it was likely too early to be talking of harmonization. It was suggested that economies look to agree on principles but provide flexibility on how they are achieved.

Other areas considered as key opportunities included ensuring diversity, particularly gender diversity and the empowerment of youth and of Micro Small-Medium Enterprises (MSMEs); focusing on authentication methods and identity; the preservation of culture and national identity.

Finally, the group emphasized that the role of the regulator was to ensure that the vision that had been developed was being supported with clear 'rules of the road', and this echoed the sentiments of other groups that a first and necessary step was the development of a clear digital economy plan, which would then determine the way in which next steps – be they regulatory or otherwise – would be determined.

Inclusion:

The group began by identifying challenges to inclusion which included the high associated costs of connectivity/infrastructure and the rapid technological shifts throughout the sector. The benefits of inclusion, however, were identified to be equally high and included education, employment, health and financial inclusion. Significant opportunities were identified for developing economies to *leapfrog* as a result of greater freedom in the regulatory environment. To achieve this, reform pathways include sandboxing, collaborative regulation and innovation through trade negotiations.

Technology was identified as an enabler for inclusion however the challenges included a lack of awareness, low levels of literacy; affordability and discriminatory access for women due to high access costs. In this regard, pathways for reform identified included incentivized accelerator programs, shared value partnerships, capacity building in State Owned Enterprises (SOEs) and capacity building for women.

Two areas that immediately identified as requiring further exploration and capacity building were:

(i) The need to build the capacity of regulators to be able to transition to and fully access the opportunities presented through the digital economy. This could include 'common regulatory principles for the digital economy', and
(ii) Capacity building for inclusion through incentivized accelerator programs, shared value partnerships, capacity building in SOE's and capacity building for women.

LEARNING FROM EXPERIENCE: SELECTED CASE STUDIES OF REFORM AND INNOVATION

Thailand

Bob Fox, Chair Digital Economy / ICT group JFCCT with EABC, delivered a case study review of Thailand's reform experience.

Mr Fox's presentation included the Thai Telecoms Business Act, which follows a model compatible with the telecoms chapter in the GATS, structured around a handful of facilities-based licenses which enable the proliferation of a host of retail level services providers.

The market has developed up to and including the recently established Ministry of Digital Economy and Society, and over recent years seen strong growth in mobile and mobile broadband services due to competition. However, while fixed and mobile concessions were issued in Thailand to promote competition, the market has not evolved as was foreseen nor as would be seen to be ideal, becoming instead stuck in a partial concession mode. The SOEs remain largely responsible for rural fixed broadband, there is no nationwide broadband network, no organized wholesale market, and the government has yet to release a national spectrum plan.

As such, there are many lessons which can be learnt from the Thai experience including:

- Established global norms in the telecom industry structure continue to be valid: network separation layers, wholesale value, and the establishment of an independent and effective regulator
- The emergence of a functioning digital economy relies on accessible and effective telecoms hard *and soft* telecoms infra
- The continuance of special state-owned enterprise exceptions is not helpful to competitive market development. SOE reform is a challenge, but avoiding it exacerbates problems. "Industry as a whole" strategy needed
- Mobile virtual network operators can introduce innovation and further competition and make the industry work for them.
- Removing barriers is necessary to be able to effectively cost and distribute international capacity
- Spectrum needs to be ample and affordable
- Developing a "Trusted Internet" requires a multi-stakeholder model of on-line governance.

Skylink Invent

Wilfred Amai, CEO of Skylink Invent, presented on the benefits of creating partnerships to enable invention and innovation for cost effective technology development, particularly for targeting the digital divide in emerging economies.

Skylink is in the process of researching and developing ICT technology solutions, such as the use of drones, that will transform trade in Papua New Guinea. It was this issue of using new, emerging, disruptive and cost effective technologies that was the core of Mr Amai's approach, and proved to be one of the key themes of the meeting and a flag issue for next steps.

Mr Amai presented on Skylink's three current focal areas:

(i) Rural satellite communications

(ii) Aerial communications platforms

(iii) Online education

Philippines

Ramonette B. Serafica, Senior Research Fellow, Philippines Institute of Development Studies presented on "Challenges and enablers for reform in telecommunications: The Philippines Case Study".

Ms Serafica begun by noting the success (and importance) of high quality telecommunication infrastructure in supporting the Philippines' globally leading IT-BPO sector – a sector that has proven to be deeply significant and contributory to the Philippines economy. And yet at the same time that the BPO sector enjoys state-of-the-art voice and data infrastructure (throughout the archipelago), including with redundant international gateways, the rest of the Philippines economy continues to experience uncompetitively high cost ICT services, poor average connection speed and low value for money.

An important consideration in understanding this dichotomy has been the role of the regulator in the development of the market. In the Philippines telecommunications is private-sector driven; there is no government-owned telecom operator, but the wireline voice and broadband markets have become dominated by two providers. There remain small, specialized players that provide limited broadband and VoIP services, as well as the country's last municipally-owned telephone companies, but overall the market has become dominated by the two key private sector players.

Recent policy reforms include:

- The creation of the Department of Information and Communications Technology (DICT) in 2016. DICT was established to be the primary policy, planning, coordinating, implementing, and administrative entity of the Executive Branch of the government to plan, develop, and promote the national ICT development agenda.
- Attached agencies include:
- National Telecommunications Commission (NTC);
- National Privacy Commission (NPC); and
- Cybercrime Investigation and Coordination Center (CICC)
- Also of relevance was the passage of Philippine Competition Act in 2015 and the establishment of the Philippine Competition Commission in 2016. The PCC is an independent quasi-judicial body mandated to implement the national competition policy, and enforce the PCA.

Policy reforms under way include:

- Mobile Number Portability (Lifetime Cellphone Number)
- Open Access in Data Transmission
- Amendments to Commonwealth Act No. 146 or the Public Service Act (PSA)
- The introduction of a third national telecommunications service provider to be selected and operational by 2019.

The case for independence:

Regulatory agencies should be created by law as such legal standing enhances its independence by precluding any legal interference. Regulatory agency commissioners or directors should be appointed to fixed terms of office and their terms of office should not coincide with the terms of governments and legislature. The powers and characteristics that regulatory agencies should possess are:

- Decision-making by a board of commissioners (vs. a single regulator)

- Have a stable and reliable source of revenue for their operations
- Offering competitive compensation packages and career opportunities
- The power to establish the administrative structure of the agency and make all relevant personnel decisions
- The authority to set rules and polices needed to carry out responsibilities
- The authority to promulgate a code of ethics applicable to its personnel and to those who conduct business at the agency
- Be able to retain the services of independent experts as needed and justified
- Participate in relevant professional, research, and educational groups, as well as regional and international cooperative regulatory organizations.

Peru

Rosa Castillo Mezarina, Competition Coordinator, OSIPTEL, discussed the Peruvian case study with a particular focus on mobile number portability.

Among public services, telecommunication services have been identified as the most important public service in Peru. Some of this is simply due to the contribution of the sector to GDP which, in Peru as of 2017 was 4.4%.

Currently, 80% of homes in Peru have internet connectivity through either mobile or broadband. Fixed line connectivity has been seen to be difficult to implement due to low density and complicated and challenging topography. Nevertheless, recent increases in competition enabled by changes in the regulatory environment has enabled a significant increase in both access and affordability,

Developments that increased competition between mobile operators have included:

- The entry of two new providers
- Mobile Number Portability (MNP) was relaunched in 2014, and further enhanced in 2018.
- A prohibition on handset blocking (reduced switching costs) (2014)
- An overarching regulation to expand mobile infrastructure (2015)
- The revision of termination rates (2018): levelled at $0.66 per minute as of 2018.
- The initiation of awareness projects to empower users: in particular, informing users of plan developments and improvements.

OSIPTEL has lately focused on the promotion of competition as the best way to increase consumer welfare. The focus in the future will be to empower consumers so that competitive intensity is maintained (e.g. informing about better plans that consumers could be using). The regulator also constantly evaluates market results, in order to propose new policies that could keep or increase competition.

Facebook

Tom C. Varghese, Public Policy Manager, APAC, Facebook, presented on the Telecom Infra Project (TIP), an engineering-focused initiative driven by operators, infrastructure providers, system integrators, and other technology companies that aims to reimagine the traditional approach to building and deploying telecom network infrastructure. Among a range of areas TIP currently focuses on two innovative solutions that were highlighted in the forum to increase access to ICT infrastructure: HAPS for remote and challenging terrains; Terragraph for urban connectivity.

HAPS enables direct connectivity solutions and is potentially very applicable to economies with remote and rural populations that are currently unconnected, but a focus area for Facebook has been promoting the use of HAPS as a backhaul solution to enable high capacity broadband to be delivered areas across economies. HAPS can deliver connectivity up to 100 km in diameter via small drones flying at an altitude of 20-25km. HAPS vehicles are designed to continuously circle in 3-5 km radius patterns for 3-12 month duration.

Terragraph is a 60 GHz wireless network which delivers rapid and cost-effective gigabit speeds to dense underserved urban areas. Its utilises small nodes on city street furniture (such as street lights) and high volume, low cost chipsets (WiGig).

Indonesia

Dr. Taufik HASAN, Indonesia Telecommunications Regulatory Authority (BRTI), presented a case study on connectivity challenges and solutions in the Indonesian context with an added elaboration of OTT participation in the economy and the development of Indonesia's draft OTT regulatory framework.

The geography of Indonesia, an archipelago of some 17,000 islands, many with very disaggregated populations and uniquely challenging topogoraphies, presents significant connectivity *and competition* challenges. This has led to high costs and low access. Dr Taufik presented three initiatives that are being pursued and implemented through Indonesia's regulatory regime.

First, the implementation of the national broadband plan through the continued extension of the Palapa Ring, a high bandwidth submarine cable that circles the Indonesian archipelago with feeder lines, and participation by private sector. The national broadband plan has three phases of development which aim to:

- Increase coverage in distant and remote areas;
- Provide more affordable telecommunication service universally; and
- Promote better competition in rural area.

Indonesia has also enacted mandatory mobile registration in 2018 which has led to a reduction in overall penetration numbers, a shift in the business models of the operators (from *Starter Pack* Sales to *Top Up*), with greater expected loyalty from customers to their mobile number. This is expected to also translate into better consumer protection and better revenue performance.

Indonesia is also in the process of introducing OTT regulations in order to create a level playing field between local and global players, assure legal certainty, protect customers' interest and contribute to the domestic economic growth and the overall welfare of society.

Whizspace

Dr Oh Ser Wah, Founder & CEO, Whizpace presented on the opportunities presented by TV White Spaces (TVWS) and dynamic spectrum allocation.

There are 2.4 billion people in the Asia Pacific who are not connected to the Internet. One solution to this connectivity challenge may be TVWS, the unused wireless spectrum in TV broadcast bands that can be made available for other users on a concurrent or secondary basis. TVWS works by using the empty channels in the Television Signals Spectrum to transmit data. This technology allows for the possibility of far more cost effective connectivity solutions largely using existing resources.