

# Telecommunication security in the Pacific region

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## The telecommunication sector in the Pacific

The telecommunication sector in the Pacific consists of companies that provide services and governments that legislate relevant rules, often with an independent regulator that sells spectrum and ensures compliance. For consumers, the main devices used are mobile telephones, the internet, and landline telephones powered by an infrastructure that includes undersea, underground and overhead internet cables, telecommunication towers, and internet exchange points.

Across the Pacific region, there has been:

dramatic growth in the uptake of mobile technology since around 2005, fuelled by competition, market liberalisation, network expansion, introduction of pre-paid mobile services and [the] sale of more affordable mobile devices (Watson et al. 2017:117).

Nonetheless, user uptake remains below potential, with only:

38 per cent of the population [was] subscribed to a mobile service as at the end of 2018, [and] this trails the average for least developed countries (44 per cent) (GSMA 2019:3).

There is substantial variation between countries, with the highest uptake of mobile telephony in Fiji (84 per cent), followed by Palau (67 per cent), New Caledonia (66 per cent), and Guam (65 per cent), and the lowest uptake in Marshall Islands (11 per cent), the Federated States of Micronesia (17 per cent), Kiribati (19 per cent), and Tuvalu (24 per cent) (GSMA 2019). The most populous country in the region is Papua New Guinea (PNG), also home to the largest number of people who do not own mobile telephones (Highet et al. 2019).

Despite the expansion of mobile telephone networks, internet access has remained expensive and unreliable (Cullen and Hassall 2017). In 2020, new undersea internet cables are predicted to increase bandwidth availability and speeds and possibly reduce prices in several countries. The Coral Sea Cable links PNG and Solomon Islands with Australia, while the Manatua Cable connects Samoa, Niue, Cook Islands and French Polynesia. In addition, mobile networks are transitioning from voice calls and text messaging to an increasing focus on mobile internet capability, allowing Pacific Islanders to access the internet using mobile devices. Deployment of advanced mobile networks and the availability of cheap smartphone handsets are predicted to enable a third of the region's population to have mobile internet access by 2025 (GSMA 2019). In addition, office workers in urban areas are increasingly likely to have internet access at desktop computers in their workplaces.

Social media platforms allow internet users to interact with one another, share photographs, distribute videos, voice their opinions, and re-distribute materials they have received. Such platforms have grown in popularity in recent years: 'as of November 2012, there were approximately

700,000 Pacific Island Facebook users' (Cave 2012:7). By November 2018, there were about the same number of Facebook users (approximately 750,000) in PNG alone (Highet et al. 2019).

## The Boe Declaration and the telecommunication sector

The Pacific Islands Forum's 2018 Boe Declaration on Regional Security included reference to information sharing – which could be aided through the use of telecommunications – and called for an increasing emphasis on cybersecurity 'to maximise protections and opportunities for Pacific infrastructure and peoples in the digital age' (Pacific Islands Forum Secretariat 2018:n.p.). Increasing access to telephones and internet connectivity provides opportunities, but also creates security risks including cyber-attacks and transnational crime.

## Telecommunication sector regulation

Telecommunication access supports many kinds of communication and enables communication that can be viewed as 'good' – such as telehealth, remote learning and co-ordination of logistics. Telecommunication access also enables communications that are criminal or deemed to be 'bad' – such as harassment, bullying, and child abuse. Criminal use of telecommunication requires responses from law enforcement, while other beneficial use can invoke personal or community responses, or legislative changes and policy shifts. It is worth noting that telecommunications can also be used to report crimes, for example, through a police telephone hotline in Lae, PNG (Putt et al. 2020).

Pacific Island governments and donor partners generally view telecommunication access as beneficial, although there are concerns about negative impacts. In particular, social media platforms are viewed with concern. Pacific Island governments have attempted to regulate social media by devising legislation to prosecute cybercriminals and in some cases have tried to restrict access or threatened to do so (Kant et al. 2018). As Singh has explained:

while governments could be accused of censorship, they have some real concerns about social media abuse, and the damage to individuals, communities and society (2020:55).

For instance, the government of PNG introduced a cybercrime law in 2016 that 'allows the prosecution of people who publish defamatory material or incite violence on social media, raising concerns that it could be misused to punish legitimate speech' (Freedom House 2019:n.p.). Critics have pointed out that the law does not include wording that 'protects freedom of expression, specifically critical political discourse' (Kant et al. 2018:70). Addressing such concerns, Dawidi has argued that the law is:

not the result of some sinister ploy by the Government to shut out our right to freedom of speech (which in any case, is a qualified Constitutional right) or opinions on corruption (2016:n.p.).

In Nauru, Facebook was blocked for nearly three years (Kant et al. 2018) and in 2020, similar bans were proposed in Samoa (Wilson 2020) and Solomon Islands (Kekea 2020). In 2018, the then PNG Communication Minister Sam Basil threatened to ban Facebook – a suggestion that received widespread criticism within the country (Kant et al. 2018, Matsakis 2018). A policy of mandatory mobile telephone registration has limited certain people's access, at least temporarily (Watson 2020).

## **Challenges for telecommunication companies in the Pacific**

For telecommunication operators in the region (or those considering entering the region), there are a number of challenges, including small populations, low population densities, widely dispersed islands, and the need for access to sufficient spectrum (GSMA 2019). In PNG, telecommunication companies face these challenges and are also hindered by: mountainous terrain; very limited electricity provision; low adult literacy rates; high costs of infrastructure maintenance; re-fuelling and upgrades; frequent infrastructure vandalism; and disputes with landowners at tower sites (Highet et al. 2019, Watson, Miller and Schmidt 2020).

## **Market competition, liberalisation and persistent monopolies**

Twenty years ago, most Pacific nations had only one telecommunication company in operation. Since then, there have been efforts to increase competition – a process known as market liberalisation – across PNG, Fiji, Vanuatu, and Solomon Islands (Foster and Horst 2018, GSMA 2019, Watson 2011). Not all efforts at market liberalisation have, however, been successful – an effort to introduce competition in Marshall Islands has had no success as yet (GSMA 2019).

Introducing competition creates consumer choice, leading to reductions in retail prices. Sometimes – coinciding with privatisation of a state-owned entity – competition can also lead to an expansion of network coverage, increased availability of telephone services, and increased efficiency (World Bank 2005). For example, after competition was introduced to the telecommunication sector in Vanuatu, access to telecommunication services increased, 'reducing the costs of doing business and expanding business opportunities' (Basnett and Brien 2009:54).

According to the GSMA – a peak body for mobile telephone companies – 'the most favourable market structure for promoting investment and innovation is one with two or three mobile operators' (2019:11). In the Pacific region, small populations in island nations and territories, coupled with low population density, make it difficult for markets to support more than one or two players, thus limiting market competition (GSMA 2019). Out of 23

countries and territories, 13 have only one active mobile operator and Guam is the only country to have four mobile operators (GSMA 2019). In PNG, Digicel is the only company offering mobile network coverage in rural areas, resulting in an effective monopoly because consumers there do not have the option of using other service providers (Suwamaru 2015, Watson and Fox 2019).

There are numerous reasons why persistent monopolies are concerning. Monopolies present potential security risks because the people in such locations are dependent on one company for all of their telecommunication needs. If the company experiences technical failures, becomes insolvent, or decides for any reason to leave that market, the citizens may be left with no telecommunication services. As Suwamaru has explained, a monopoly coupled with a weak regulatory environment could mean that 'citizens may be subject to the whims of the incumbent [...], with associated likely impacts on price and choice' (2015:1–2).

## **Telecommunication sector vulnerabilities**

Aside from regulatory, operational and market issues, the Pacific region's telecommunication sector faces two key vulnerabilities that could threaten the sector's long-term viability and sustainability – natural disasters and cybersecurity.

The Pacific region is prone to natural disasters and their frequency and severity are likely to increase due to climate change (Australian Department of Defence 2016, Barnes 2020, Conroy 2019). In addition, PNG and other Pacific nations experience earthquakes and volcanic eruptions due to tectonic plate movements. Earthquakes have been known to damage undersea and underground cables (Wall 2020). Overhead cables and towers are also vulnerable to storms, cyclones and landslides. Flooding can make roads impassable, meaning re-fuelling and maintenance vehicles cannot reach telecommunication towers to keep them functioning. For instance, in Central and South Bougainville, vehicles often need to ford rivers to complete their journeys and this can be impossible if there has been heavy rain upstream (Watson et al. 2020).

Cybersecurity is an important area of concern, due to the technology now available in the Pacific region. As stipulated in the Boe Declaration, cybersecurity requires an increased emphasis. An expected rise in internet access due to the launch of new undersea internet cables in the Pacific region 'will require dramatic and rapid improvements to currently low levels of cyber maturity' (Australian Strategic Policy Institute 2017:4).

A computer emergency response team (CERT) had been established for the Pacific region in 2011, but its operations were suspended in 2014, due to lack of funding (Australian Strategic Policy Institute 2017). The Australian Government launched the Pacific Cyber Security Operational Network (PaCSON) initiative in 2018 that allows numerous Pacific nations, Australia, and New Zealand 'to share cyber security threat information, tools, techniques and ideas' (Department of Foreign Affairs and Trade n.d.:1). But even with this increased focus on transnational collaboration, there has been no meeting of the relevant

Pacific ministers since 2015 (Hogeveen 2020). Hogeveen posits this could be because cybersecurity is considered a national issue, rather than one requiring regional coordination, and he also speculates there may be a level of competition between Pacific nations that want to seize opportunities by advancing their technology expertise and capability (ibid). There are also gender implications to consider:

The rapidly evolving digital connectivity across the Pacific brings many opportunities – for increased access to market information, better educational resources and political voice. But there are also well-known downsides of increased digital access, no less relevant in the Pacific. Social networking can bring cyberbullying, and more intense surveillance of partners. Where inequity between the sexes is already high these vulnerabilities are magnified. Empowering women to be aware of the pitfalls, and to make the most of the opportunities will require them to be at the policy table and able to access information about digital security. (Gillies 2020:n.p.)

A review of the ‘cyber maturity’ of 25 countries in the Asia–Pacific region found that the four Pacific nations included were lowly ranked: Vanuatu was 17th; Fiji was 22nd; PNG was 23rd; and Solomon Islands was 25th out of 25 countries (Australian Strategic Policy Institute 2017). Within the region, ‘individual country responses to cyber-crime vary significantly, and most changes are quite recent’ (Kant et al. 2018:68). According to Hogeveen, numerous Pacific nations ‘have reviewed, or are currently reviewing, legislation related to data-sharing, cybersecurity and universal access’ (2020:3). Hogeveen (2020) assessed the cybersecurity preparedness of several Pacific Island nations by reviewing their policy settings and whether they have a CERT. Table 1 summarises these findings, with additional information on cybercrime legislation from Kant et al. (2018).

Cybersecurity has links to geostrategic competition and geopolitical tensions because Pacific countries import technology from third-party providers. For instance, Australia and several other nations have banned the Chinese company Huawei from participating in the rollout of their upcoming advanced mobile networks, mainly due to allegations ‘that the company’s products may purposely contain security holes that China’s government could use for spying purposes’ (Panettieri 2020). By contrast, the PNG State Enterprises Minister Sasindran Muthuvel has been quoted as saying that Huawei is currently the preferred communication equipment supplier for the country (The National 2020). It is understood that a driver of Australia’s decision to fund the Coral Sea Cable was that it did not want China’s Huawei providing an undersea internet cable to PNG and Solomon Islands. Australia provided a domestic cable within Solomon Islands, but Huawei has built a domestic cable within PNG, funded with a loan from China’s EXIM Bank.

Another example is a data centre constructed for the PNG government by Huawei through an earlier loan, which an Australian-funded report later deemed to be below expected cybersecurity standards (Grigg 2020a). China denied the implication that they were spying (Yafoi

2020, see also Braddock 2020). The PNG Communication Minister Timothy Masiu has labelled the data centre a failure (Moi 2020) and said the loan for its construction should not be repaid (Grigg 2020b). The debt for the data centre project is in addition to other debts owed to China for communication sector initiatives, including the domestic cable already mentioned (Wall 2020).

Table 1: Cybersecurity in the Pacific

Country	Policy settings	CERT status
Fiji	There is no cybersecurity strategy but there is a commission to oversee online safety. A 2018 bill ‘focuses on countering irresponsible social media use’ (Hogeveen 2020:17).	There is no national CERT.
Nauru	There is cybercrime legislation.	
Papua New Guinea	A 2016 bill targets cybercrime.	There is a national CERT.
Samoa	There is a national cybersecurity policy. Cybercrime has also been added to existing crimes legislation.	Scoping activities have been undertaken for a national CERT.
Solomon Islands	A working group is developing a national cybersecurity policy.	There is a design of a proposed national CERT.
Tonga	There is cybercrime legislation.	There is a national CERT.
Vanuatu	There is a national cybersecurity policy.	There is a national CERT.

Source: Based on Hogeveen (2020) and Kant et al. (2018).

## Large players in the Pacific

Although there are several players in the Pacific telecommunications market, the dominance of two mobile network operators means the region is reliant upon their continued operation.

Digicel was established by Irish businessman Denis O’Brien and commenced operations in Jamaica in 2001 before expanding throughout the Caribbean and to numerous countries in Central America over the next five years (Foster and Horst 2018). Digicel’s first Pacific market was Samoa in 2006, followed by its launch in PNG in 2007. Digicel also operates in Fiji, Tonga, Vanuatu, and Nauru. Digicel made a substantial investment to establish mobile networks in the Pacific and build goodwill through various initiatives – including sports sponsorship and the establishment of a philanthropic foundation in PNG (Foster and Horst 2018, Watson and Mahuru 2017, Watson and Seddon 2017). Within Pacific markets, Digicel’s dominance varies – it has 92 per cent market share in PNG (Highet et al. 2019) – but only a third of the market in Fiji (Foster and Horst 2018, McLeod 2020). As well as providing telecommunication services, in PNG, the company

also offers an online news service and pay television (Suwamaru 2015).

A weighty concern regarding the sustainability of Digicel's operations in the Pacific is the substantial burden of debt held by the parent company, Digicel Group. Denis O'Brien owns 99.9 per cent of Digicel Group (Brennan 2020a), which reportedly had a large debt of US\$7 billion as of June 2020 (McLeod 2020). Digicel Group offered its Pacific business as security to its creditors in a debt restructure (Needham 2020) that reduced its debt by US\$1.6 billion (Brennan 2020a). Credit ratings agency Moody's has reportedly suggested that the company is effectively defaulting on its loans (Brennan 2020b). Digicel Group has indicated that it expects a downturn in earnings due to the impacts of the novel coronavirus of 2019 (COVID-19) (Brennan 2020a).

Amalgamated Telecom Holdings (ATH) is a public company listed on the South Pacific Stock Exchange in Fiji with mobile networks in American Samoa, Cook Islands, Fiji, Kiribati, Samoa, and Vanuatu. ATH recently received funding from the Asian Development Bank to set up a new mobile telephone network in PNG (Asian Development Bank 2020). ATH has a partnership with Vodafone in some markets, sport sponsorship arrangements in Fiji and Samoa, and operates a philanthropic foundation in Fiji. According to a March 2020 financial statement, the company made a profit in the preceding year but paid no dividends and considers regulation a threat to those profits, stating 'profitability can be significantly impacted by regulatory agencies which govern the telecommunication sector' (Amalgamated Telecom Holdings 2020:48). The company also noted the uncertain impact of COVID-19, related travel restrictions and potential economic fallout.

In small states, governments may not be able to effectively regulate the market or 'have the capacity to enforce a licence breach against a company like Digicel, especially when the company has engaged a previously underserved population' (Logan and Forsyth 2018:19). In order for Pacific nations to maintain access to telecommunication services, it would be wise to balance the sustainability of corporations with scrutiny of their actions through regulatory oversight (Logan and Forsyth 2018).

## Conclusion

Availability of mobile telephones is a relatively recent phenomenon in many parts of the Pacific and is a noteworthy development, given limited landline telephone penetration. The internet has recently become more available. The telecommunication sector is crucial as an enabler of communication, which has an intrinsic value:

Communication has value of itself, not just as a means to other ends like increased access to markets or the achievement of development goals. (Watson 2011:277)

Telecommunication companies operating in the region face numerous challenges, including damage to infrastructure due to natural disasters, and an immature cybersecurity structure. Pacific governments would do well to balance the

need for cybersecurity with citizens' rights to freedom of expression. Various actors could work together to address the need for more robust and secure telecommunications networks and markets.

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