University of Hawai'i at Mānoa
Center for Indo-Pacific Affairs

INDO-PACIFIC OUTLOOK

Volume 1, Issue 2 | January 17, 2024

Improving Public-Private Partnerships on Undersea Cables: Lessons from Australia and Its Partners in the Indo-Pacific

By Hayley Channer

Abstract

This article examines the recent increase in government efforts to supply Pacific Island nations with undersea cables, focusing on Australia, the US, and Japan. Drawing from conversations with industry representatives from hyperscalers, national telecommunications companies, and Pacific region operators, it outlines private sector views on how to improve public-private partnerships (PPPs) and identifies three areas for improvement. First, government and industry views regarding the development of global cable architecture, security, and supply should be aligned. Second, government consortia and regulatory regimes should be better coordinated to make it easier for businesses to operate. Third, government policy over the lifespan of the cable should be stabilized to help ensure industry efforts will not be undermined by changes in government. These findings have implications not only for Australia, Japan, and the US but also for other countries looking to forge smoother collaborations with the private sector on undersea cables in the future.

INTRODUCTION

As strategic competition between the United States and China intensifies, undersea communications cables are emerging as a key battleground. Undersea cables carry upwards of 95 precent of the world's internet traffic and are the global arteries that underpin today's modern, digitally enabled societies [1]. These cable networks are ripe for strategic competition because they provide critical communications infrastructure that is vulnerable to espionage, and they are caught in the geopolitics of development assistance and industrial policy.

While American, French, and Japanese companies used to dominate the industry, Chinese companies are rapidly growing their presence, which has caused concern in Australia and its partner countries. In the last two decades, Chinese companies such as HMN Tech and others have built or repaired a quarter of the world's cables [2]. Alongside this explosive growth, China's national security law affords Beijing the power to compel China-based cable companies to provide access to network data. This provides the Chinese Communist Party (CCP) scope to conduct cyber warfare, espionage, and intellectual property theft [3]. Recognizing the growing significance of undersea cables to the security of individual nations and broader region, the Australian government—sometimes independently and sometimes in partnership with the United States and Japan—has recently invested in a handful of cable projects and telecommunications providers in its immediate region of the South Pacific.

Investing in subsea cables and telecommunications infrastructure in the Pacific Islands serves multiple purposes at once. As well as providing developing countries with greater digital capacity and enhanced opportunity for economic growth, strategically, it crowds out Chinese-owned cables, reducing Beijing's espionage capability. However, given the small population of the Pacific Islands (2.3 million) and the region's expansive geography, building cables and accompanying landing stations to service this region is not commercially viable [4]. Because private operators lack the business case to establish dedicated cables and landing stations in the Pacific, governments must strike public-private partnerships to achieve their objectives.

The rising security concerns associated with cables and increased interest from governments in PPPs are creating friction points between the public and private sectors. Australia, the United States, Japan, and others are imposing new security requirements and legislation on industry and seeking to build cables where they are not commercially viable, such as in the Pacific. The cable game is also changing with the scale and type of private companies controlling the industry shifting. Where in previous decades most cables were owned and operated by national telecommunications companies, now major global technology companies are increasingly building new cables and buying-up most capacity on this infrastructure [5]. The so-called "hyperscalers" Google, Meta, Microsoft, and Amazon are purchasing approximately 66 percent of available capacity. The dominance of these "Big Tech" firms in the cable industry is expected to grow.

> The rising security concerns associated with cables and increased interest from governments in public-private partnerships are creating friction points between the public and private sectors.

How can governments and the private sector enhance their cooperation for mutual benefit? This article examines the recent increase in government efforts to supply Pacific Island nations with undersea cables, specifically focusing on Australia, the US, and Japan. Drawing from conversations with industry representatives from hyperscalers, national telecommunications companies, and Pacific region operators, it outlines private sector views on how to improve PPPs on cables going forward. Its findings have implications not only for Australia, Japan, and the US but also for other countries looking to forge smoother collaborations with the private sector on undersea cables in the future.

GROWING ENGAGEMENT WITH UNDERSEA CABLES BY AUSTRALIA AND ITS PARTNERS

In the Indo-Pacific, the US, Japan, and China—and to a lesser extent Australia—have provided new undersea cables and digital connectivity to small island nations for which cable connectivity is not commercially viable, or which are vulnerable due to a lack of redundancy. Multiple reasons motivate these developed countries to invest in new cables. The governments of the US, Japan and China are naturally predisposed to take an interest in this industry given their countries are home to the largest undersea cable firms globally—SubCom, NEC Corporation, and HMN Tech respectively. These companies design, manufacture, deploy, maintain, and operate cables, although many other industry players exist. While Australia boasts no national cable company, its government has a vested interest in increasing the security and prosperity, and hence reliability and security of communications of its neighbouring developing countries

Australia has greatly increased its engagement on undersea cables in recent years. Since the mid-2010s, Canberra has been "stepping-up" its engagement in the Pacific, a region it sees as "deeply entwined" in Australia's future [6]. Due to their proximity to the Australian continent and the vast ocean territories they administer, Canberra sees Pacific nations' security as fundamental to its national interests. However, Pacific Island nations are highly vulnerable to communications disruptions due to natural disasters, shipping, boating, and fishing, and few communications lines are available to them [7]. Development experts have asserted that Internet penetration within Pacific Island communities is among the lowest of any region in the world [8]. Given the link between digital connectivity and economic prosperity, the natural and human risks to cable infrastructure, and concerns around greater Chinese influence and access, Australia is focused on being the partner of choice for Pacific communications infrastructure.

In recent years, Australia's Department of Foreign Affairs and Trade (DFAT) has embarked on several cable projects to better connect Pacific Island countries. Beginning in 2018, DFAT invested A$200 million to fund the Coral Sea Cable System connecting Solomon Islands and Papua New Guinea with the Australian mainland, the most expensive cable project that Australia has financed to date [9]. Canberra had not originally planned to fund the cable. Australia's involvement was triggered by its concerns over the cable initially being delivered by a subsidiary of Chinese firm Huawei, with the landing station located in Sydney and the potential for Beijing to plug into Australia's telecommunications backbone [10]. That same year, the Australian Government had banned Huawei from bidding to supply its 5G network citing national security concerns [11].

> "Due to their proximity to the Australian continent and the vast ocean territories they administer, Canberra sees Pacific nations' security as fundamental to its national interests."

Perhaps recognizing the growing reach of Chinese telecommunications companies and Beijing's expanding influence through its Belt and Road infrastructure initiative, shortly after taking over the Coral Sea Cable project, DFAT announced a new Australian Infrastructure Financing Facility for the Pacific (AIFFP) [12]. Since its establishment in 2019, the AIFFP has committed to support three cables in the Pacific (see Table 1) [13]. Australia is building the Palau spur cable in partnership with the United States and Japan as the first initiative under their Trilateral Infrastructure Partnership [14]. The East Micronesia Cable (EMC) was announced as the second project under this partnership in June 2023. Facilitated by the AIFFP, the EMC will connect the Federated State of Micronesia, Kiribati, and Nauru [15]. Australia is also providing advisory support to the Timor-Leste South Cable.

In addition to Australia-Japan-US trilateral efforts, Australia has also partnered with India via the Quad to increase Indo-Pacific regional connectivity. In May 2023, the Quad launched its Partnership for Cable

Table 1. Cable Projects Announced by the Australian Government (2018–2023) [19]

Year Announced	Cable Project	Sponsor Countries	Industry Partner(s)	Cost (AUD)	Status
2018	Coral Sea Cable	Australia	Vocus Group and Alcatel Submarine Networks	$200 million	Completed
2019	Timor-Leste South Cable	Australia (advisory support to cable only)	Vocus Group and Alcatel Submarine Networks	$7.2 million	Ongoing
2019	Palau Cable	Australia, Japan, US	Belau Corporation	$15.5 million	Ongoing
2023	East Micronesia Cable	Australia, Japan, US	NEC Corporation	$135 million	Announced
2023	Hawaiki Nui cable & South Pacific Connect	Australia, US	Google, Vocus, APTelecom, Hawaiki Nui	$103 million	Announced

Connectivity and Resilience with the intention to "bring together public and private sector actors to address gaps in the infrastructure and coordinate on future builds" [16]. Although Quad countries have not committed to build new cables, they plan to provide technical assistance and capacity building to developing countries, which should lead to improvements in regional communication.

The most recent announcement on cable projects came in October 2023 when Australia and the US announced the Hawaiki Nui cable and the South Pacific Connect cable initiative [17]. Worth A$103 million, the project involves two new cables and a new interlink cable with the potential to connect nine Pacific Island countries including Papua New Guinea, Timor-Leste, and Solomon Islands [18].

Considering the growing involvement of the Australian, US, and Japanese governments in cable projects in the Pacific over recent years, coupled with the long-term nature of delivering this infrastructure, the public and private sectors are embarking on deeper and expanded cooperation in the coming years. This new era of both heightened security concerns and pressing development and economic imperatives to deliver cables is compelling governments and private industry to work together at speed but with different priorities and not always aligned views. Improving the interactions between government and private sector players is in the interests of both parties. To this end, the following section outlines some industry perspectives on working with the Australian, Japanese, and US governments and suggests ways companies are seeking to improve PPPs in the future.

AREAS FOR IMPROVEMENT ON PUBLIC-PRIVATE PARTNERSHIPS

Due to strategic, security, and commercial sensitivities, cable and telecommunications companies are understandably hesitant to offer candid views regarding where their engagement with government could improve. However, drawing on a small sample of interviews with industry stakeholders who have been willing to discuss PPPs, this article identifies three areas for improvement. First, government and industry views regarding the development of global cable architecture, security, and supply should be aligned. Second, government consortia and regulatory regimes should be better coordinated to make it easier for businesses to operate. Third, government policy over the lifespan of the cable should be stabilized to help ensure industry efforts will not be undermined by changes in government. These areas for improvement relate not only to the efforts of the Australian, Japanese, and US governments but also have broader relevance for other countries attempting to navigate new PPPs on undersea cable networks.

Aligning Public and Private Approaches to Cable Architecture, Security, and Supply

Government officials are driven by the national interest, paying attention to strategic, security, diplomatic, and development objectives. The private sector, on the other hand, is understandably motivated by commercial imperatives. Therefore, it is unsurprising each brings different interests to their partnerships. In particular, public and private actors commonly take a different perspective on how to structure undersea cable architecture, how to "de-risk" communication and data flows, and the amount of adequate connection supply required for redundancy.

First, some in industry argue that Australian and partner government efforts have prioritized strategic signalling over a genuine, concerted effort to improve regional communication access and availability. They are concerned by what they perceive as ad hoc cable announcements and delivery by governments. Some industry representatives perceive the Australian government as making only small investment contributions that augment the existing communications infrastructure without changing the overall balance of the architecture [20].

One example cited relates to Australia's acquisition of telecommunications company Digicel Pacific in 2021. Digicel is the largest telecommunications operator in several Pacific Island nations, and Australia decided to purchase Digicel to crowd out a possible Chinese takeover [21]. Media reports suggest Chinese firms such as China Mobile, ZTE, Huawei or China Telecom may have been interested in acquiring Digicel [22]. The cost for Australia to acquire Digicel Pacific was US$1.3 billion—Australia's largest ever single foreign policy investment [23]. After the deal was concluded, the United States and Japan offered US$50 million each in credit guarantees in the event that the Australian industry partner, Telstra, defaulted [24]. However, due to the low likelihood of default by Telstra, some in industry saw the US and Japanese credit guarantee offer as hollow and prioritizing signalling over substance [25].

Given the large expense to acquire a stand-alone phone company operating in the Pacific—which did not block Chinese-linked companies from operating in the region—some Pacific cable experts contend the investment did not impact the overarching telecommunications landscape enough to be justified [26]. Although Digicel Pacific does command a large market share, Chinese companies like China Mobile, ZTE and Huawei can continue to operate. That said, a noteworthy development is that Digicel Pacific has announced its intention to replace its Chinese-owned Huawei networks with Finnish-owned Nokia infrastructure, meaning a further reduction in Chinese access to Pacific infrastructure [27]. In addition, Telstra's shareholders and beneficiaries, including the Australian government, stand to benefit from Digicel Pacific's revenue, which is reported at A$719 million in 2022–2023 [28].

Acknowledging the shortcomings and benefits of the deal, industry would generally welcome Australia and partner countries developing a substantive, "big picture" strategy regarding their approach to regional connectivity. In practical terms, this means considering the Pacific region as a whole, plotting out where new cables make sense for strategic and economic reasons, allocating adequate budget to support that vision, and executing the plan alongside industry over decades, rather than making new announcements of previously unknown projects. It is unclear whether there is an example of a country taking this approach to working with industry in this structured manner, possibly because election cycles complicate long-term regional infrastructure planning.

Second, government and industry can differ in their threat perceptions and responses to securing the cable network [29]. In terms of addressing the risk posed by the Chinese Communist Party (CCP) accessing data on Chinese-operated cables, some within private industry question the mitigation efforts of the Japanese, US, and Australian government in blocking any commercial engagement with Chinese telecom operators and cable system owners.

For example, Japan does not allow Chinese-built cables to land on its territory and, although not explicitly prohibited, Japanese officials privately discourage its telecommunications operators and

cable owners from purchasing submarine cable systems from Chinese firms like HMN Tech [30]. Similarly, the US government is considering a new Undersea Cable Control Act which could inhibit US telecom suppliers from forming relations with Chinese providers [31]. While Australia may not technically have any laws preventing Chinese cables landing on its territory, the fact that Canberra delivered the Coral Sea Cable System to prevent the original Huawei-affiliated cable proposal being deployed shows Australia is willing to use informal methods to deliver the same outcome [32].

While the above examples are understandable attempts by government to de-risk their cable systems, an emerging private sector view is that current official policies do not appreciate the commercial realities or impracticality of completely severing from Chinese telecommunications providers. Industry members have highlighted that rejecting any and all private-sector cooperation with China can have negative consequences. For example, Chinese telecommunications companies and cable system owners could end up exclusively using Chinese system suppliers such as HMN Tech without Japanese and American providers competing. This could allow Chinese system suppliers to become more dominant as a result. The private sector view is that simply prohibiting Japanese and American companies from working with Chinese cable owners narrows commercial opportunities and gives Chinese companies an opportunity to fill the void. This could potentially lead to the proliferation of more "untrusted" networks [33].

An obvious but integral way to address this issue is for officials and the private sector to commit to deeper and more regular dialogue. More frequent exchange of views between the two sides could give governments an opportunity to make their concerns clearer so that the private sector—cable system owners and suppliers and telecommunications operators — can discuss if those concerns are valid and reflect commercial and technical realities. These discussions should happen domestically within the US, Japan and Australia and their private operators before the three nations share this information amongst themselves. As it is likely all three countries will have varying approaches, they should seek to align their domestic parties as a first step.

"The private sector view is that simply prohibiting Japanese and American companies from working with Chinese cable owners narrows commercial opportunities and gives Chinese companies an opportunity to fill the void."

Third, the public and private sectors lack a common understanding of what constitutes adequate supply of cables. There are differences in perception and levels of knowledge between government officials and the private sector about the critical use cases for cables, such as the number of ways cables can be compromised and the amount of redundancy required.

Since public and private actors have differing opinions on critical supply, the two groups make different judgements about how many cables and what data transmission capacity provides enough redundancy. A discussion forum that brings together all the relevant stakeholders is required to create a shared understanding on the critical uses of cables, how they might be compromised during a conflict, and what capacity is enough to ensure critical supply. A similar recommendation for an interdisciplinary group of government regulators, security experts, and industry leaders to convene to discuss cable security has been made in the US context [34]. A key area for discussion could include the critical connectivity routes undersea cables should take.

Improving Intra- and Inter-Governmental Coordination and Regulation

Business also reports challenges related to lack of coordination between different national governments on cable delivery and regulation. Moreover, government agencies within the same country sometimes operate independently of each other, resulting in poor domestic coordination even before attempts are made to cooperate with other national governments and regional recipients. This

lack of domestic coordination on undersea cables has been identified in the United States. Experts such as Goodman and Wayland (2022) recommend that the US government establish a centralized team that that draws in relevant agencies and elevates digital infrastructure as a policy priority [35].

When an undersea cable project is being delivered in partnership by multiple governments, the coordination challenges increase. The Australia-Japan-US Trilateral Infrastructure Partnership and the Quad partnership with India provide examples [36]. Each government and its respective implementing agencies can possess different priorities, implementation approaches, and resource capacities. One industry representative described the dynamics between Australia, the US and Japan as "co-petition," with the three governments both cooperating and competing, rather than working in concert [37]. Again the solution here is more dialogue to align different governments, but not until they have coordinated domestically.

In addition to better inter- and intra-government coordination, regulations need to be aligned to provide the right enabling environment for business. The regulatory environment for undersea cables is complex, involving different jurisdictional zones and maritime, cyber, critical infrastructure and telecommunications policy [38]. Harmonising these separate moving parts as much as possible would support private sector efforts.

Increasing Policy Continuity to Ensure Project Stability

Increasing policy continuity across changes in government is a commonly held interest throughout the private sector across cable companies and telecommunications companies. Small, medium, and large firms all highlight the lack of continuity in governments' visions and ambitions over the lifespan of a single cable project as a major irritant in PPPs. As the number of government bodies involved in a single cable project increases, so too does the project complexity.

While some undersea cables connect domestically, often cables connect two or more countries, meaning at least two national governments in addition to subnational authorities can be involved. Since cable projects can take several years to complete, during that period there can be changes in government in recipient nations or delivery partners. Changes in government at any level can lead to project disruptions and new or changed requirements. For example, during the 18-month delivery of the Coral Sea Cable between 2018 and 2019, there was a change of government in Solomon Islands causing delays [39]. Similarly with the Timor-Leste South cable, public and private stakeholders were close to finalizing contracts when political instability ensued and a new administration in Dili was elected [40]. Changes in government can cause instability for cable and communications companies causing delays and additional expense, resulting in lower returns.

> "Changes in government can cause instability for cable and communications companies causing delays and additional expense, resulting in lower returns."

The private sector is understandably eager to reduce the instability caused by changes in government wherever possible. To support this outcome, continuity of ambition across successive governments is key. Prior to embarking on new cable projects, participant governments should have a healthy appreciation for and be mindful of cable lifespans outliving individual government terms—and plan for disruptions. In democratic systems, changes in government can and do happen frequently, so it is unlikely that currently serving governments can guarantee policy continuity. However, securing bi-partisan support for cable projects, contingency funding, and a robust business case can help provide some degree of stability for business.

THE FUTURE OF PUBLIC-PRIVATE PARTNERSHIPS ON UNDERSEA CABLES

To improve on the current track record for future projects, governments should take note of industry's concerns and try to improve cooperation. Members of the private sector have communicated that their projects are sometimes negatively impacted by the lack of a shared vision with government and poor government coordination and continuity. This article has touched on some ways to begin to address these hurdles. First, government and industry views regarding the development of global cable architecture, security, and critical use cases need to be better aligned. Second, government consortia and regulatory regimes should be coordinated to incentivise business more effectively. Third, continuity in government policy needs to be better protected for the lifespan of the cable.

> To improve on the current track record for future projects, governments should take note of industry's concerns and try to improve cooperation.

Although the data for this article was drawn from recent projects in the Pacific, these findings may have broader implications for other countries attempting to navigate new public-private engagement on undersea cable networks. To support better outcomes, development of shared vision or action, additional frameworks for communication, and greater attention to coordination would benefit both the public and private sectors and, ultimately, the recipients of these cable projects.

Hayley Channer is Director of the Economic Security Program at the United States Studies Centre at the University of Sydney.

This publication is part of a project on "Undersea Cables, Geoeconomics, and Security in the Indo-Pacific: Risks and Resilience" that was made possible by a grant from the Japan Foundation.

REFERENCES

[1] Justin Sherman, Cyber Defense Across the Ocean Floor: The Geopolitics of Submarine Cable Security, Atlantic Council, September 2021.
[2] Dale Aluf, China's Subsea-Cable Power Play in the Middle East and North Africa, Atlantic Council, May 2023.
[3] Arjun Kharpal, "Huawei Says it Would Never Hand Data to China's Government. Experts Say it Wouldn't Have a Choice," CNBC, March 5, 2019.
[4] The World Bank, "The World Bank in Pacific Islands," October 6, 2023.
[5] Christopher Mims, "Google, Amazon, Meta and Microsoft Weave a Fiber-Optic Web of Power," The Wall Street Journal, January 15, 2022.
[6] Department of Foreign Affairs and Trade, Australian Government, Stepping up Australia's Engagement with Our Pacific Family, September 2019.
[7] Amanda H. A. Watson, "The Limited Communication Cables for Pacific Island Countries," Asia-Pacific Journal of Ocean Law and Policy 7, 2022, 151–155.
[8] Lotte Schou-Zibell, "The Internet is Coming–With Risks and Benefits–To New Areas in Asia and the Pacific," Asian Development Blog, June 29, 2020.
[9] Global Infrastructure Hub, Coral Sea Cable System, November 30, 2020.
[10] David Wroe, "Solomon Islands Undersea Cable Red-Flagged by Australia's Spy Agencies Dogged by Donation Allegations," The Sydney Morning Herald, August 19, 2017.
[11] Angus Grigg and Lisa Murray, "Federal Government Bans Huawei, ZTE from 5G on Security Concerns," Financial Review, August 23, 2018.
[12] Department of Foreign Affairs and Trade, Australian Government, Stepping up Australia's Engagement with Our Pacific Family.
[13] Department of Foreign Affairs and Trade, Australian Government, "Partnerships for Recovery:– Speeding up the Pacific's Connectivity," Business Envoy, April 2021.
[14] Minister for Foreign Affairs, Australian Government, "Australia Partnering with Japan and the United States to Finance Palau Undersea Cable," October 28, 2020.
[15] Department of Foreign Affairs and Trade, Australian Government, "Work to Start on East Micronesia Cable Following Contract Signing," June 6, 2023.
[16] Department of the Prime Minister and Cabinet, Australian Government, "Quad Leader's Summit 2023: Infrastructure," May 24, 2023.
[17] The White House, Fact Sheet: Delivering on the Next Generation of Innovation and Partnership with Australia, October 25, 2023.
[18] Amanda H. A. Watson, "Questions About Pacific Cable Announcement," DevPolicy, November 10, 2023.
[19] Australian Infrastructure Financing Facility for the Pacific, "Investments," accessed January 11, 2024; Submarine Networks, "Coral Sea," accessed January 11, 2024.
[20] Watson, "Questions about Pacific Cable Announcement."
[21] John Kehoe, "'If China Ends Up Buying It, They Will Hear and See Everything'," Financial Review, January 11, 2021.
[22] Ibid.; Simon Sharwood, "Pacific Telco Backed by Australia, Japan, US Bins Huawei," The Register, October 5, 2023.
[23] Jonathan Pryke, "Far More Than Just the Money, Digicel is a Very Big Deal," Lowy Institute, October 28, 2021.
[24] US International Development Finance Corporation, Joint Statement by Australia, Japan and the United States on Telecommunications Financing, May 19, 2023.
[25] Author interviews with private sector representatives, October 2023.
[26] Amanda H.A. Watson and Jeffrey Wall, "Australia Should Step Up Ahead of Pacific Telco's Possible Sale," The Strategist, January 27, 2021.
[27] Sharwood, "Pacific Telco Backed by Australia, Japan, US Bins Huawei."
[28] Ibid.
[29] Joseph B Keller, "The Disconnect on Undersea Cable Security," Lawfare, May 7, 2023.

[30] Author interview with Japanese private sector representative, November 2023.
[31] Keller, "The Disconnect on Undersea Cable Security."
[32] Author interview with Australian private sector representative, November 2023.
[33] Author interview with Japanese private sector representative, November 2023.
[34] Keller, "The Disconnect on Undersea Cable Security."
[35] Matthew P Goodman and Matthew Wayland, Securing Asia's Subsea Network: U.S. Interests and Strategic Options, Center for Strategic and International Studies, April 5, 2022.
[36] Payne, "Australia Partnering with Japan and the United States to Finance Palau Undersea Cable."
[37] Author interview with private sector representatives, November 2023.
[38] Christian Bueger, Rita Costa, Tobias Liebetrau, Licínia Simão, and Timothy Walker, Protecting Subsea Data Cables in Europe and the Atlantic–Challenges of a New Era, Atlantic Centre Policy Brief, July 2022.
[39] Stephen Ronchi, "Coral Sea Cable System Project Marks Key Milestones," Submarine Cable Networks, July 16, 2019.
[40] Author interviews with Australian private sector representatives, October 2023; Rui Graça Feijó, "Timor-Leste in 2018: Political Instability and Economic Decline," Asian Survey 59 (1), 2019, 215–221.