



Co-deployment with Transport and Energy (Electricity and Oil & Gas) Infrastructure

Executive Summary

As major infrastructure owners, the transport and energy (electricity and gas) sectors can play a vital role in increasing connectivity if co-deployment is planned while installing their infrastructures. We can draw from the best practices in the co-deployment of ICT, energy and transport infrastructure. It will potentially lead us to a way forward and recognise the importance of collaborative regulations between the ICT sector and other sectors to increase connectivity, avoid duplication, and foster partnerships and collaboration for digital transformation. This study looks at the co-deployment experiences from the Asia-Pacific (ASP) region through some representative cases to highlight the lessons learnt, way forward and the importance of collaborative regulations between the ICT sector and other sectors to increase connectivity, avoid duplication, and foster partnerships and collaboration for digital transformation.

Depending on the local-specific environment, technologies like ADSS (All-dielectric self-supporting) cable is seen as a solution where OFC is strong enough to withstand tension when hung between structures using the existing infrastructures electric utilities. Another option for installing aerial OFC is the optical power ground wire (OPGW) or optical fibre composite overhead ground wire used in overhead power lines.

The benefits of co-deployment in terms of cost, operation, and maintenance of OFC notwithstanding, several challenges often slow down such initiatives. Examples and experiences emanating from different countries covered by this study provide us with some best practices to follow. In the case of asset sharing, the partners or collaborators can promote co-deployment of OFC and then share the asset so created. In infrastructure mutualisation, co-deployment is promoted by one party who builds and maintains the common facility, say laying the ducts during road construction. The third strategy focuses on cooperation among the infrastructure owners, say the utilities like transport, power, water or gas for OFC co-deployment. The utility operators don't normally compete with the telecom services providers using the OFC in such a scenario. Still, through mutual agreements, they can retain the right to use a part of the OFC while offering their right of way to the other.

In India, a major player in the co-deployment of OFC along the power transmission line is the state-owned company Power Grid Corporation of India (POWERGRID), which has built a nationwide OPGW based OFC infrastructure to other telecom operators for commercial use by other parties. In Bhutan, the Bhutan Telecom Limited (BTL) adopted a co-deployment strategy back in 2003 in collaboration with the Bhutan Power Corporation (BPC) OPGW cables along the power transmission lines. Bhutan is an illustrative case where co-deployment has been used as a strategy to save the cost of construction, operations and maintenance in rolling out a nationwide telecom network in collaboration with the power sector.

Bangladesh has shown an early collaborative approach in infrastructure sharing between Bangladesh railways and telecom operators where telecom companies like Grameen Phones use the dark fibres to provide ICT services to the citizens. The impressive growth and spread of broadband Internet even in remote rural areas in Bangladesh can be attributed to the deployment of FOCs along its roads and railways.

Backed by a sound legal framework protecting data privacy and a conducive regulatory environment, the Republic of Korea has focused on efficient public administration and service delivery. Korea Expressway Corporation (KEC) has now progressively moved on to implement its Intelligent Transportation System (ITS), which needs high-speed connectivity. An OFC backbone network of 4,700 km has been co-deployed along the expressway and another 7,700 km in other highways and roads to operate the Freeway Traffic Management System (FTMS) that covers 320 km of expressway. With the increasing demand for ICT



services and connectivity, the Republic of Korea adopted necessary legal frameworks and regulatory norms that allowed the infrastructure owners like KEC to share their network with other telecom service providers.

The co-deployment of ICT infrastructure along other utility sectors such as energy has given rise to many policy and regulatory issues. Different models are emerging from various countries in the Asia-Pacific region. The convergence of technologies, use, and new operational models have compelled traditional monopoly operators to join a competitive multiplayer environment. In order to promote cooperation across sectoral players to support the expansion of broadband connectivity, broad-based policy frameworks and a 'whole of government' approach are needed to accommodate sectoral concerns, national interests in creating a synergic backbone of ICT infrastructure emerging technologies.

One way to deal with the need to expand the broadband connectivity is to categorise broadband network infrastructure as a common facility allowing other entrants to the market to access such infrastructure in a non-discriminatory manner. All sectoral players can be allowed to have such license or registration that will allow them to monetise their infrastructure by leasing them to the last mile telecom service providers. In India, this is done through the registration as Infrastructure Providers (Category-I) which allows owners to establish and maintain the assets such as Dark Fibres, Right of Way, Duct Space and Tower then give them on a lease, rent, or on sale basis to other service providers. In Bangladesh, the Nationwide Telecommunication Transmission Network (NTTN) license was introduced to develop, maintain, and operate nationwide telecom backbone infrastructure.

The demand for high-speed broadband is increasing every day. As such, there is a need to look beyond the traditional operators and telecom companies to build the necessary infrastructure in collaboration with utilities like power and gas. Telecom regulators should encourage such sharing among the partners, emphasising cooperation and mutual understanding and not necessarily compelling them by law. By diversifying their activities, generating additional revenue from sharing the fibre and other assets, and helping the nation create a robust Internet ecosystem, the sectoral utilities can also contribute to the accelerated growth of the national economy. At the same time, the utilities themselves can leverage the networks to deliver better, maintain and manage their services (say, power transmission, traffic control or water supply). Several countries have used the fibre networks built by sectoral utilities like power companies to support overall broadband connectivity.

A mix of evidence drawn from the country experiences shows that co-deployment of ICT infrastructures has cost advantages and emerged as the desired mode of expanding broadband connectivity at an affordable price for end-users. However, regulatory mechanisms remain mostly a much debated area. They are still seen as a telecom-sector centric exercise where other sectoral infrastructure owners find it difficult to leverage substantial incentives from sharing or co-deployment. It is expected that the illustrative cases, analysis and discussions that evolved during this study will help the policymakers and regulators to enhance cross-sectoral collaboration and address the challenges and the gaps in current regulatory frameworks for affordable connectivity through co-deployment.