

## FIXING THE FINANCING SHORTFALL FOR NEXT GENERATION SUBMARINE CABLE SYSTEM OWNERS

Primary: Takeshi Takiguchi (NEC Capital Solutions / NEC Corporation)  
 Co-authors: Brian Mass, Russ Matulich (RTI Inc.),  
 Koji Takahashi, Haruo Takahashi, Shota Masuda (NEC Corporation)  
 e-mail: [t-takiguchi@jf.jp.nec.com](mailto:t-takiguchi@jf.jp.nec.com)  
 Company: NEC Corporation, 7-1, Shiba 5-chome, Minato-ku, Tokyo 108-8001, Japan

**Abstract:** The robust demand for greater global fiber capacity and connectivity, and the increasing importance of route diversity, have resulted in a much wider variety of prospective submarine cable system owners. Even with so many new potential investors, many of these projects are unable to raise the required capital to bring their contracts into force. In this paper, we will address why many projects are underfunded, how to sort out the viable projects and what can be done to close this funding gap. We will discuss several finance schemes, starting from (i) traditional ODA and infrastructure financing sources such as private equity and why they present challenges for financing submarine cable projects, (ii) supplier arranged bank loans and the associated challenges, to (iii) introducing an unconventional special purpose vehicle (SPV) scheme to close the funding gap. We will present a workable financial solution to foster further discussion within the Submarine Cable industry and to help close this funding gap.

### 1. MARKET TRENDS IN THE SUBMARINE CABLE INDUSTRY

The demand for global bandwidth has continued to rise exponentially and according to the Cisco Visual Networking Index, global IP traffic has increased fivefold in the past five years and will increase nearly threefold over the next five years<sup>[1]</sup>. There are a number of drivers contributing to this growth in the demand for bandwidth including:

- The increasing number of global telecommunications subscribers,
- The proliferation of Internet-connected devices and their demand for greater bandwidth due to services such as streaming video, and
- The growth of cloud-based traffic and data center storage.

Submarine cables play a vital role in serving this demand as ninety-nine percent

of all transoceanic data traffic goes through undersea cables<sup>[2]</sup>. However, existing submarine cable systems are unable to continue to meet all of this demand despite technology upgrades to existing systems. For example, according to Julian Rawle Consulting, demand for intra-Asia capacity is projected to grow at a 30% CAGR from 2015 to 2029 and demand will exceed current capacity of 53 Tbit/s in 2018 without the development of new cable systems<sup>[3]</sup>. This capacity shortfall is not unique to the intra-Asia market.

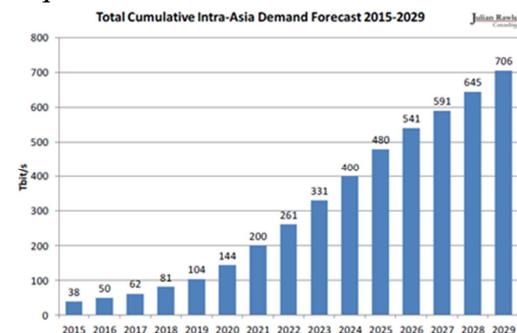


Fig.1 Projected Intra-Asia Bandwidth Demand<sup>[3]</sup>

## 2. FUNDING CHALLENGES FACED BY SUBMARINE CABLE PROJECTS

To meet this increasing demand for bandwidth, many submarine cable projects are planned each year. The primary sponsors for these projects include:

- Incumbent carriers who follow the traditional consortium model,
- Wholesale operators and entrepreneurs who promote private submarine cable initiatives, and
- “Over the Top” (OTT) providers such as Google, Microsoft, and Facebook, who have taken part in both consortium and private cable investments.

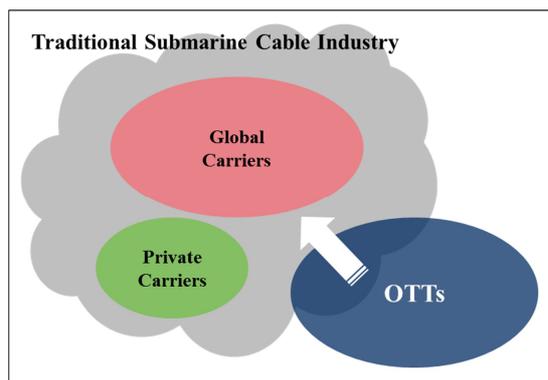


Fig.2 Trend of Cable Owners

While the incumbents and OTT's face their own cable challenges, the overwhelming majority of private cable initiatives fail due to challenges getting adequate funding.

The challenges associated with raising the necessary funds to construct a submarine cable system are not new. Even incumbent operators with strong balance sheets need to allocate and secure their own budget and nearly all of them utilize a consortium structure to minimize construction risk while reducing their overall upfront and ongoing capital expenditures for a specific project. Even if the business case for the cable makes sense, if there are not enough consortium members to fill the budget gap,

or there is not an adequate landing strategy, the project remains underfunded – sometimes for years – and often fails to move forward. In the event a consortium project is able to assemble the capital to bring a contract into force with a system supplier, once the cable is operational, the capital for ongoing maintenance would still be required to support the cable system over its life. Given the long-term nature of these projects over multiple market cycles, even incumbent carriers face significant uncertainties which could adversely affect them or another consortium member during the course of building and/or operating a cable system. Additionally, while a particular project may be integral to the business plan of smaller carriers and/or ISP's, if the consortium leader cannot fund their portion due to fiscal budgeting or political reasons, the entire project faces uncertainty.

Private carriers are also not immune to these funding problems. Private carriers need to build a credible business case to raise the required financing to commence and adequately fund working capital requirements of a project. Private carriers must therefore not only educate financing sources on the dynamics and risks associated with building and operating a submarine cable system but they also need to arrange a financing structure that provides an adequate return to all constituents. The capital raising process is often very time consuming for private carriers and is often met by ever changing conditions on the part of potential capital sources.

Another source of capital for both incumbent and private carriers, although it was and is still rare, is Official Development Assistance (ODA), such as the World Bank, regional development banks, and Export Credit Agencies (ECAs)

such as the respective EXIMs. However, since submarine cable systems fundamentally exist to connect several economies, both sides of a cable system need to be eligible for this type of financing. This financing path can also be extremely time consuming and cause significant delays in the ability to bring a cable system into force.

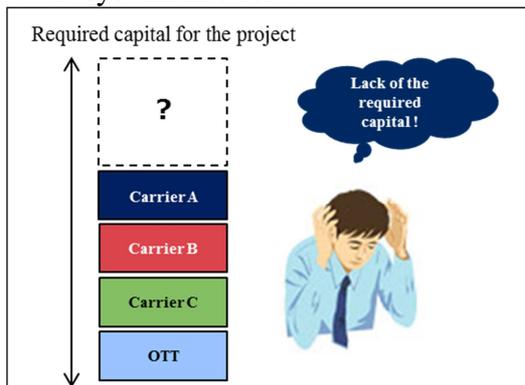


Fig.3 The Funding Gap

In order to efficiently resolve this funding gap, cable system owners need to find a new path to capital. This financial scheme must also include investors that understand the dynamics of the submarine cable industry as a starting point to minimize delays.

### 3. FINANCING SOURCES FOR CABLE SYSTEM OWNERS

Finding the right sources of financing for a new submarine cable system is extremely challenging. In addition to traditional equity and private equity capital for financing, which pose their own array of challenges and considerations, there are essentially three main categories of capital sources that can provide a potentially more attractive cost of capital than equity or convertible equity structures:

#### a) Corporate Debt Financing

Corporate debt financing is dependent on the creditworthiness of the

borrower and/or the borrower's business model. If the borrower has a strong balance sheet, historical and projected financial performance and/or a credible business case, a borrower may be able to access funds from bank loans or the corporate bond market.

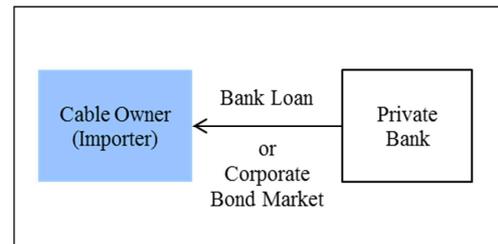


Fig.4 Corporate Financing

#### b) Export Credit Agency (ECA)

For non-OECD countries, government- or quasi-governmental-backed financial institutions can provide financing to importers by providing a credit guarantee to the banks. Although the terms and conditions are subject to the OECD guidelines and also dependent on the importer's creditworthiness, it is a viable financing option for some cable systems. However the challenges associated with ECA financing and in particular timing, can also be critical impediments to the viability of this financing source for certain cable system owners.

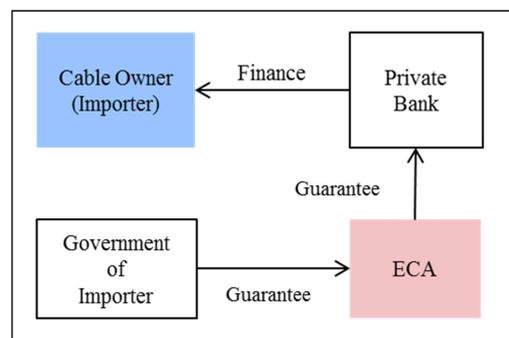


Fig.5 Export Credit Agency

c) Official Development Assistance (ODA)

The objective of ODA is different from the preceding two financing categories. ODA financing is administered to promote the economic development and welfare of developing countries. As this is the main objective, the funds are made available through bilateral guarantees from the sponsor's government and multilateral institutions, such as the World Bank or Asia Development Bank. Similar to the challenges associated with ECA financing, ODA financing has an array of challenges to making this a viable financing source for certain cable system owners.

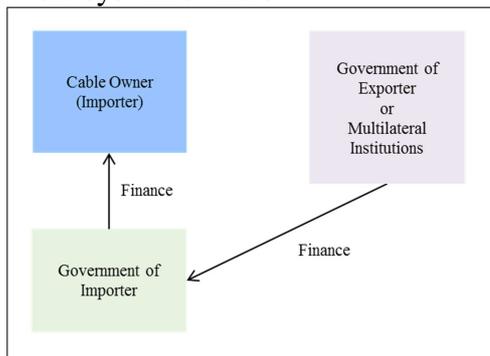


Fig.6 Official Development Assistance

Ultimately these sources of capital are always dependent on the creditworthiness of the borrower and the financing sources are typically limited to traditional private banks, ECA finance institutions and ODA agencies.

Stepping back and looking at the demand for infrastructure projects beyond the submarine cable systems, we see a tremendous need for capital (e.g., improving roads, airports, railways, etc.). According to Standard & Poor's Financial Service, approximately \$57 trillion will be needed to finance infrastructure projects globally through 2030, but there will be a

shortfall of approximately \$500 billion annually from government sources<sup>[ 4 ]</sup>. Private sector investments are therefore essential to filling this gap.

**4. ASSET-BASED LENDING (ABL)**

In consideration of the current alternatives for financing submarine cable systems, additional sources of capital are required. An asset-based lending (ABL) structure can provide a much-needed alternative source of financing for the submarine cable industry. ABL provides a non-recourse financing structure that is dependent only on the specific cash flows of the project, such as the revenue from indefeasible right of use (IRU) agreements and capacity lease agreements. ABL financing is can therefore be independent of the creditworthiness of the borrower. Ultimately this enables the cable system owner to significantly reduce the investment risk of the project.

Project financing structures such as ABL are also popular funding schemes for other industries with significant upfront capital expenditures such as the construction of aircrafts, shipbuilding and real estate development. Furthermore, there is a wide array of investors that participate in the ABL financing market.

Therefore, similar to these other industries, the long-term market dynamics for increasing bandwidth, the potential for strong recurring cash flow and the ability to significantly upgrade capacity for minimal relative capital expenditure outlays post the upfront investment in a new cable system, create an attractive opportunity for ABL financing.

On the other hand, there are several challenges associated with ABL financing that must be considered:

a) Limited Number of Potential Financing Sources

A significant number of financial institutions exited the submarine cable financing market during the industry downturn in the early 2000's and have not yet returned to the market. Therefore, in contrast with the ABL markets for aircrafts, shipbuilding and real estate development, there are currently a limited number of financial institutions with significant experience in the submarine cable industry.

b) Limited Asset Value Transparency

Another consideration for lenders is the difficulty in determining the value of the cable system assets. In the markets for aircrafts, shipping vessels and real estate development, methods for the valuation of assets are well established given a wide array of asset sales. Therefore, it is relatively easier for ABL lenders in these other markets to estimate the value of these assets given a robust secondary market exists for their disposal. In the submarine cable industry however, a well-established methodology to evaluate cable system assets does not exist nor does a robust secondary market for the disposal of these assets.

c) Ongoing Technology Innovation Risk

Technology evolution and innovation in the submarine cable industry has significantly improved the performance of submarine cable systems as well as significantly lowered the investment cost per bit of bandwidth. However, the rapid pace of technology evolution and innovation has negative implications with respect

to the financing process due to the complexity of understanding risks associated with ongoing technical innovation, and, in particular, the increased risk of price erosion of IRUs and capacity lease agreements due to lower investment costs for cable systems, which in turn adversely affects asset values.

### **5. VENDOR-SUPPORTED FINANCING COUPLED WITH RTI'S INDUSTRY & FINANCING EXPERTISE**

In order to close this financing gap in the submarine cable industry, it is essential that the developers of submarine cable systems, including system suppliers, maintain a proactive dialogue with viable financing sources. RTI, an innovative cable system owner, and NEC, a renowned system supplier, have attempted to do just that and have ultimately succeeded with the financing of the transpacific Southeast Asia – United States Cable System (SEA-US).

RTI provided strong industry expertise with respect to building and operating submarine cable systems as well as a track record of successfully financing development stage and infrastructure projects. NEC, with established trust as a supplier and a strong track record of delivering submarine cable systems, also brought a history of long-established close relationships with a number of financial institutions. Together RTI and NEC were able to successfully structure an ABL financing solution for RTI's investment in the SEA-US Cable System.

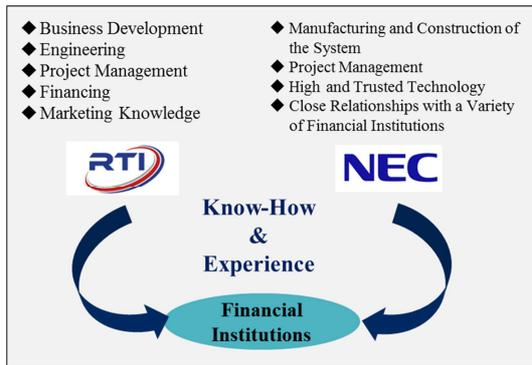


Fig.7 Expertise Brought by Each Party

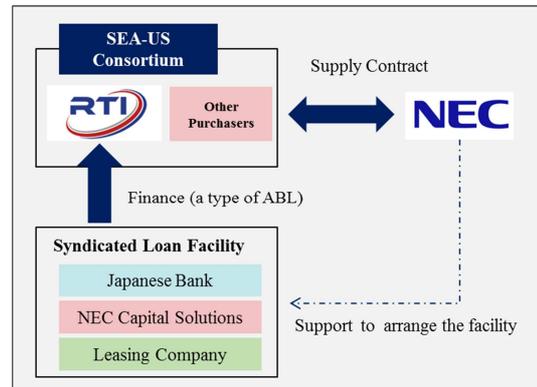


Fig.8 Financing Scheme for SEA-US

NEC initially discussed the project with a wide variety of financial institutions with expertise in asset-based lending for aircrafts, shipbuilders and real estate developers. Several financial institutions expressed interest in the transaction. RTI management subsequently educated the financial institutions about the transpacific cable system market opportunity and RTI's business model. The combination of RTI and NEC provided the requisite industry expertise to for the ABL financing.

## 6. CASE STUDY – RTI'S INVESTMENT IN THE SEA-US CABLE SYSTEM

NEC and RTI, along with potential lenders, worked closely together to create a unique asset-based financing solution for RTI's investment in the SEA-US Cable System. Ultimately, RTI's financing primarily consists of an asset-based loan secured by cash flow from initial IRU agreements plus equity from internal and external investors. For the asset-based loan, RTI pledged its right to the assets in the SEA-US Cable System to a syndicate of financial institutions as collateral in exchange for a multi-year loan.

During the financing process, the lenders had a third-party firm conduct a valuation analysis of RTI's assets upon completion of the construction of the SEA-US Cable System and RTI's business plan. Ultimately, the syndicate of financial institutions was able to gain comfort with their due diligence on the industry, RTI's management team, and their business plan.

## 7. SPECIAL PURPOSE VEHICLE

There are many proposed submarine cable projects that are unable to successfully raise capital to commence construction despite having a credible business plan. While, the asset-based lending scheme for RTI and the SEA-US Cable System was a tailor made financing solution, a similar structure utilizing a Special Purpose Vehicle (SPV) could provide a financing structure for future cable systems.

Under this scenario, the SPV would hold the title to the cable assets until repayment of the loan is completed. Essentially the cable system sponsor would therefore transfer title to the cable system assets to the SPV in return for financing the project. Financial institutions would provide capital to the SPV in the form of equity and/or debt, while it would be ideal for the developers of submarine cable systems, including system suppliers to provide the

much-needed expertise of the submarine cable industry. From the perspective of the financial institutions, title to the cable system would be held by the SPV and therefore provide necessary clarity regarding the ownership of the project assets in the event of a default. From the perspective of the cable system sponsor, financial liability would be limited while it would be able to ultimately realize the benefits of cable system ownership upon success of the project.

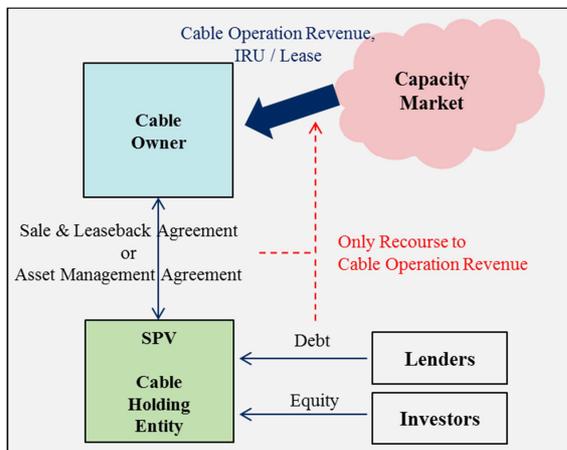


Fig.9 SPV Financing Scheme

## 8. SUMMARY

The ability to adequately source capital is a critical component in the success of any infrastructure project. While the development of submarine cable systems tends to focus more on the commercial and technical aspects of a project, the inability to finance projects with strong business cases needs to be addressed to ensure the continued success of the submarine cable industry.

It is critical however that we remain cognizant of the past and do not allow new financing schemes to ultimately become a tool to speculate on submarine cable system projects. As long as asset-based lending can be utilized as a tool to enable viable business plans coupled with proper

due diligence by all financing sources, ABL financing should become a strong ally towards enabling the realization of future submarine cable systems.

## 9. CLOSING

For ABL financing to work, the key components are as follows: (1) identifying key financial partners who not only have access to capital but also want to diversify their holdings and invest the time and resources to understand the sector; (2) seeking out private developers and/or entrepreneurs who can not only pull together the demand for a cable project but also address today's complex permitting and landing challenges; and (3) identifying motivated system suppliers who are willing to take some risk by investing considerable time and resources to understand how and where ABL could be applied. The system supplier must work cooperatively with the private developer and/or entrepreneur to better understand their business and financing strategies. The developer and supplier should primarily focus on aligning their interests and not try to predict market timing and/or geopolitical events. A sincere investment of time and resources increases the prospective system's probability by reducing financing risk.

In the end, the successful application of these three elements is not a guarantee for success. However, reducing the risk of financing is the most important element to solve, as it is completely within the developer's and the supplier's control.

- [1] Cisco Visual Networking Index, 2015.
- [2] Douglas Main, Newsweek, 2015.
- [3] Julian Rawle Consulting, 2016.
- [4] Standard & Poor's Financial Service, 2014.