

# COMPLETING OUR MISSION TO CONNECT THE WORLD: EMERGING MARKET SUCCESS MODELS

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**Abstract:** Subsea fiber cable networks provide vital links to information resources necessary for sustainable economic development. Beyond microeconomic benefits for developing private local, regional and global networks, there are broader macroeconomic and social benefits that can provide justification for government, NGOs and the philanthropic community to consider co-investing in networks to connect the yet un-connected and under-connected regions of the world. Governments have long recognized the benefits of good communications and several have re-asserted themselves in recent years but here is additional potential for resource expansion toward additional initiatives.

## 1 INTRODUCTION

Through the boom and bust cycle that has played out over the past ten years, many markets and routes for telecommunications traffic became temporarily over-provisioned with facilities and capacity while significant parts of the world remained either un-served or under-served. In recent years, slack demand for new subsea cable systems has created the opportunity for some purchasers to obtain unprecedented low prices from suppliers which has in turn, improved the first-cost economics for new builds in second tier markets.

Although suppliers have honed their systems solutions by tailoring equipment to the secondary and tertiary traffic (i.e. regional and lower-density) markets, as the market for subsea cable networks continues to improve, suppliers' order books look likely to once again begin filling both with additional long-haul networks as well as with the next tier of markets that can most economically justify new systems development (i.e. Asian, Caribbean, Middle Eastern, African networks.) As this occurs, systems prices are likely to reverse course and begin to increase.

Barring another long and sustained industry down cycle, the world's least-connected markets face the daunting prospect of falling even further behind the rest of the world in remaining unable to afford broadband subsea fiber networks.

Therefore, it is worthwhile to consider alternative financing arrangements and structures, and broader definitions of return on investment (ROI) that might lead to identification of non-traditional sources of finance for long-haul telecom infrastructure such as submarine cable networks serving developing market regions.

## 2 THE PLIGHT OF EMERGING MARKETS

Emerging markets are often characterized by low-to-moderate demand, limited populations, low near-term services scale volume, low GDP and long distances to reach content, applications and inter-exchange servers

primarily located in developed market regions. These factors create impediments to attracting typical venture, private equity, or even corporate financing, each of which are driven by a need for relatively short range financial returns and challenging investment hurdles rates.

While most would agree philosophically that no place in today's world should be allowed to be disenfranchised or marginalized due to lack of affordable, accessible, plentiful and good quality communications, there are places in the world that still lack this basic infrastructural element and therefore have attenuated participation in modern society and global commerce. Continuing to ignore the un- or under-connected markets drives an increasing economic and social wedge between the developed and developing world.

Multi-lateral and non-governmental organization (NGO) aid is one possible option for providing the economic means for bringing fiberoptic cables to these emerging markets. Grants, low interest loans, in some cases equity investment and other types of subsidies are available, though usually limited to a complementary role to other substantial sources of investment and/or guarantees.

Many private entrepreneurial projects are begun with aspirations for tapping these sources of funding. However, more often than not, they have difficulty attracting the lead resources that are necessary to fund the basic business case development, attract a well-qualified and experienced development team and also validate the market plan with strong, bankable customer pre-commitments.

In some cases, this has lead governments to step into the breach to provide partial or even complete funding of cable builds where private capital or private capital alone cannot otherwise be justified.

To date, philanthropies and charitable foundations throughout the world have not been significantly involved in the development of telecom infrastructure.

Their programs generally have different objectives, usually associated with specific social missions. However, in markets where it may be the most difficult to justify commercial business cases for telecom infrastructure, investment in telecom infrastructure may provide truly synergistic benefits to many philanthropic endeavors and increased efficacy of the social missions of those philanthropies and foundations.

### 3 THE WORK OF PHILANTHROPIES AND FOUNDATIONS

Philanthropies and foundations – the “philanthropic community” – consist of a wide range and variety of institutions and programs constructed and operated on a not-for-profit basis to accomplish worthwhile social endeavors that most often cannot be measured in direct economic benefit, at least not to the institutions themselves. Programs are funded through donations and partial draw-downs from endowments.

As a function of maintaining and growing their endowments philanthropies and foundations invest across a wide range of asset types. Endowment fund management is one of the larger sources of institutional money coursing through the world’s financial markets. However, investment of endowment money is often fairly conservatively focused to provide a relatively safe market-index rate of return.

The primary means for endowment growth is fund raising from benefactors. Therefore, outflows from the programs side of the house are limited primarily by the receipt of ongoing donations on the fund-raising side of the house and if donations slacken, programs potentially suffer to avoid eroding the principle balance of the endowment.

Philanthropies across the board today are deeply examining how to achieve greater impact<sup>1</sup> as well as determine how it can compete with an increasing number of philanthropies for benefactors’ donations. It may be possible that the two sides of the house can be more closely aligned and achieve greater impact and simultaneously achieve economic self-sustenance. It may be possible to tap part of the endowment base across a broad cross-section of the philanthropic community to fund projects that produce an actual economic ROI, (therefore building the endowment) and also help accomplish social missions more effectively.

Information and communications technology (ICT) is a key that unlocks the capability for today’s aid recipient to become a fuller participant in the world at large, receive education and knowledge support to become tomorrow’s self-empowered co-participant in self-sustaining economic and social development.

Philanthropic investment in telecom projects, therefore, serves multiple, compatible interests. It contributes to the deployment of critical communications and information access while participation in the financial

returns generated by such projects can channel profits back to the endowments.

This strategy could begin filling in the missing links in the global telecom fiber cable infrastructure. As better communications also improves efficiency and effectiveness of philanthropic endeavors, a catalytic effect begins to build, eventually breaking the donor-recipient dependency cycle so prevalent in the global aid and philanthropic community while increasing capital available overall for further good works and uplifting general macroeconomic economic conditions.

### 4 GOVERNMENTAL FUNDING OF UNIVERSAL SERVICE TYPE LONG-HAUL CONNECTIVITY

The principle that good communications is necessary for active participation in modern society has long been recognized and forms the basis of rural and remote universal telecom service coverage doctrine. Universal service principles generally apply only within domestic market boundaries – it generally being the business of national governments to structure, implement and enforce rules and guidelines regarding this type of policy and how it is funded.

More recently, government involvement, or rather, re-involvement, in building subsea fiber cables could be viewed as an application of “universal service” policies for more remote, discontinuous localities but still within a strictly domestic definition. Recent projects in the Caribbean, Alaska, The South Pacific and Norway illustrate how governments have paid for or substantially subsidized new submarine cable networks (see **Table 1**).

Table 1 Communications Projects Backed by Government Funding	
Recent submarine cable projects that received significant government financing to offset lack of sufficient private investment.	
• GCN: Puerto Rico-St. Croix-Guadeloupe-Saint Martin-St. Barthlemy (RFS 2006)	
• MCN: Martinique-Guadeloupe-Dominica (RFS 2006)	
• SCF: Antigua, St. Lucia, St. Kitts, St. Vincent, Barbados, Grenada, and Trinidad (RFS 2007)	
• Gondwana-1: New Caledonia-Australia (RFS 2007)	
• Kodiak-Kenai Fiber Link (KKFL): Anchorage, Homer and Kenai, Mill Bay and Narrow Cape, Alaska (RFS 2007)	
• Bredband Finnmark: Alta-Hammerfest, Norway (RFS 2006)	
Earlier government-funded cable projects	
• Basslink: Australia-Tasmania (original RFS 2004)	
• COGIM: Gaspé-Magdalen Islands, Canada (RFS 2004)	
Hybrid media, one-to-many government subsidized project	
Pan-African e-Network Project (satellite, fiber, wireless) – 2007/2008 implementation	

Table 1

Prior to the era of widespread telecoms privatization in the 1990s, all cables were essentially “government initiatives” – undertaken by the Post, Telephone and Telegraph (PTTs) entities of participating countries. Building of subsea cables themselves was not profit motivated per se, rather more of a social, diplomatic and economic infrastructure building exercise. These initiatives were largely an unquestionably beneficial expenditure of sovereign treasure and human resources without direct quantitative measure of benefits derived.

Today, ICT and local and international broadband connectivity are inextricably linked with commerce, education, national and international security, development and general prosperity. However, the job of telecom networks building and operations has largely shifted into private, profit-motivated hands. Every expenditure of capital is measured strictly by microeconomic ROI – at the private operating firm level. In the developing world, economic ROIs may be less clearly and directly measurable in the short run.

In absence of sufficient levels of direct microeconomic benefits, most, but not all, funding sources for telecom development are foreclosed to the markets and regions of the developing world. This has led to a small but steady undercurrent of recent government initiatives in subsea cable infrastructure building.

#### **4.1 GCN / MCN / SCF**

The "Guadeloupe Numérique" cable, also known as Global Caribbean Network, or (GCN-1), is a public-private initiative carried out by the Guadeloupe Regional Council, with the support of the European Commission's European Regional Development Fund (ERDF). The ERDF provided 75% of the funding as an outright grant and GCN provided the remaining 25% of the capital as a private investment on a ten-year build-operate-transfer (BOT) arrangement. GCN, as well as MCN and SCF, are subsidiaries of Group Lorent which is a French company with substantial non-related business interests in the region.

GCN-1 connects Saint Martin and Guadeloupe to the Internet backbone in San Juan, Puerto Rico. The cable's route extends through St Martin with an extension to St Barthélemy.

In February 2006, a supply contract was signed with Middle Caribbean Network (MCN) to extend the GCN-1 cable from Guadeloupe to Martinique with a connection to Dominica. The project provides the additional capacity needed in the region and will be very beneficial to the region's economic development.

In May 2006, an additional contract was awarded for a turnkey contract with South Caribbean Fiber (SCF) to deploy a new submarine cable network spanning the eastern Caribbean islands. The new submarine cable network will extend the regional communication reach to Antigua, St. Lucia, St. Kitts, St. Vincent, Barbados, Grenada, and Trinidad and will interconnect with MCN and GCN-1.

#### **4.2 Kodiak-Kenai Fiber Link (KKFL)**

Kodiak Kenai Cable Company (KKCC) is a subsidiary of the Alaskan Old Harbor Native Corporation based in Seward, Alaska. The turnkey deployment of the new Kodiak Kenai Fiber Link (KKFL) provides the first fiber optic connections from Anchorage and Seward to communities on the Kenai Peninsula and Kodiak Island,

servicing the communications requirements of approximately 60,000 citizens as well as for the Alaska Aerospace Development Corporation (AADC) Launch Complex on Kodiak Island.

#### **4.3 Gondwana-1**

New Caledonian carrier OPT has been working for several years to build a submarine cable to connect to the global fiber network. In 2006, thanks to funding from the French government, the company was finally able to move forward.

In August 2006, OPT received a carrier's license from the Australian government, which allows it to land its cable in Australia. Gondwana-1 will significantly increase the capacity of OPT's network, which has been limited to satellite for international traffic. Once completed, OPT will be able to develop new, high-speed services such as triple play and third-generation UMTS HSDPA mobile services.

#### **4.4 Bredbånd Finnmark**

Bredbånd Finnmark AS was created as a company to build a fiber optic network throughout the remote Finnmark County in northernmost Norway. The first phase in the development of the network involved 110 km of submarine cable and 20 km of terrestrial cable to create a link between Alta, the largest city in Finnmark, and Hammerfest, the second largest city, situated on the islands of Sørøya, Kvaløya and Seiland.

#### **4.5 Hybrid Projects – Pan-African e-Network Project**

In 2006, Telecommunications Consultant of India, Ltd. (TCIL), a consulting arm of the Indian government, announced a new initiative for Africa called the Pan-African e-Network Project. The US\$1 billion project is being funded by the government of India to provide satellite, fiber and wireless communications in all fifty-three (53) Africa countries – initially via satellite.

Each country will be provisioned with three (3) E-1s (2.048 Mbps circuits) to deliver tele-medicine, tele-education and diplomatic communications services, connecting all the heads of states to the network. The network will be set-up and operated by TCIL for five years and then ownership will be transferred to the African Union.

The proposed network is a satellite-based star/mesh network in C-band designed initially to support about 169 VSAT terminals with a hub station in Senegal. Network features video conferencing and VoIP connectivity and provides applications including e-commerce, e-governance, and "infotainment."

Five (5) regional universities, fifty-three (53) learning centers (one in each African country), five (5) regional Super Speciality Hospitals and fifty-three (53) remote hospitals will be linked with six (6) universities and five

(5) Super Speciality Hospitals from India so that the participating organizations can use Indian expertise in information technology to bring benefits of healthcare and higher education to all countries of Africa, including in remote areas.

#### **4.6 Basslink**

As of early 2007, the government of Tasmania was reportedly preparing to announce the winner of its tender released in Fall 2006 for a company to manage the use of the Basslink submarine cable.

The Basslink cable connects Tasmania with mainland Australia. It consists of a power cable owned by National Grid, a private electrical power company, and a fiber optic cable owned by the Government of Tasmania. The government “piggybacked” on the National Grid project in order to break Telstra’s monopoly on the telecom infrastructure linking the island to mainland Australia. Basslink was completed in the fall of 2005, but the fiber optic cable was never activated.

In September 2006, the Tasmanian government conducted a tender for companies interested in managing telecommunications services on the Basslink fiber optic cable. The winner of this tender is to be announced by mid-March 2007.

It is hoped that Basslink will reduce the cost of Internet access for the island where the cost for leased capacity between Tasmania and the mainland is reportedly three times (3X) the cost for the same access between Australia and United States.

#### **5 WHERE ELSE COULD THE STRATEGY BE APPLIED?**

The above examples illustrate the vital importance of affordable broadband communications – important enough for governments to intervene in market sectors where normal microeconomic analysis is insufficient to attract private investment. Similar universal service justifications may motivate funding to cover additional markets.

There have been a number of initiatives in recent years to bring submarine cable connectivity to small islands in the Pacific<sup>2</sup>. The motivation is to bring broadband Internet access, and the advanced services that such access delivers, to the local population. Without broadband access, the islands are at a significant disadvantage with respect to economic development opportunities, such as call centers and offshore banking, and cannot fully take advantage of state-of-the-art services including telemedicine, distance learning and e-government that could improve their standard of living.

The biggest obstacles to connecting these island populations are geographic and demographic – with long distances and relatively small populations, a

submarine cable is difficult to justify on an ROI basis strictly on the value of the traffic volume alone. Broader macroeconomic metrics – based perhaps on improvement in the general economy, in education, international trade or even efficacy of government – could potentially provide a sufficiently long-range framework within which to alter the calculus of fiber connectivity. One possible solution might be government or philanthropic funding to supplement private investment.

Several potential projects for linking islands in the Pacific involve United States possessions. The U.S. government appears receptive to providing financial assistance and in 2004 it appeared that at least some would move forward. However, progress has been slow except for one military project. There may be an opportunity for the local governments of these islands to develop a workable arrangement with the U.S. government that will successfully fund these projects. Some of these projects are:

- Guam-Kwajalein – primarily a military project that now appears appear to be moving forward.
- FSM Cable – a separate initiative that could potentially join the Guam Kwajalein cable through a branch connection.
- Palau-Yap-Guam (PYG)
- American Samoa-Fiji – would connect American Samoa with the rest of the world via fiber on the Southern Cross Cable landing in Fiji. Reports are that the Government of Tonga may also be interested in joining this project.

#### **6 AN ADDITIONAL APPROACH TO DEVELOPING MARKETS**

Improving information communications technology (ICT) in the developing world has the potential for providing leverage for nearly any other commercial or human enterprise on the continent. ICT is a well-proven cornerstone of economic development, education, efficient and effective government and it is an important tool in health care and disease control.

Every year trillions are spent on aid of all types – whether in Dollars, Euros, Pounds Sterling, Yen, Rupees, Yuan or any other denomination – through outright grants, loans, and other programs designed to make a difference in improving the lives of disadvantaged peoples. All of these programs face a common challenge which is making sure the funds allocated are spent wisely, effectively and efficiently.

This makes philanthropies and philanthropically-oriented foundations natural partners for investing in telecom infrastructure-building ventures – telecommunications enables them to pursue their social

mission objectives with greater efficiency and effectiveness.

## 7 BEYOND IMMEDIATE ROI

Depending on specific circumstances, a few readily accessible macroeconomic benefits may provide sufficient justification when combined with marginal or uncertain microeconomics to enable a project to attract investment by governments or other aid sources.

There is also potential beyond strictly economic ROI that encompasses a broader definition of “payback” or return. The potential for combining telecom infrastructure building with social infrastructure building is enormous. However, it requires strong long-term commitment and visionary leadership.

Prudent selection and collaboration on strategies needed that would yield the maximum overall return on investment might include:

- Multiplier effect of funds deployed – beyond the direct investment payback, opportunities created through knowledge-based businesses and further value-chain creation.
- Hours of citizen engagement generated as verifiable in-kind resource match.
- Growth of social capital through partnerships between the community foundations that administer the aid, associations and institutions, the public sector, NGO’s and micro-enterprises; and
- Tangible enhancements in quality of life earned by contribution of time and talent to community building initiatives.

This type of social ROI as outlined above is known as a “co-production” strategy<sup>3</sup> which has been defined by leading philanthropic organizations as the best and most effective strategy for self-sustaining development, whether it be focused on education, economic development, government effectiveness, social welfare, health, etc.

The operating principles of co-production enlist and involve the intended beneficiaries of philanthropic co-investment which are the residents and communities in the developing world. A co-production strategy, framework and principles could be used for mutual advancement of both telecom infrastructure projects as well as furtherance of social programs such as among the global philanthropic community.

Development of specific methodologies, models, other metrics and applications along these lines is currently under way at the cutting edge of “co-venture philanthropy”<sup>4</sup>.

## 8 CONCLUSION

There is a very real possibility that emerging telecom market regions of the world might continue to fall further behind the developed world as private, large-scale commercial networks receive increasing attention and focus worldwide. There is a role for governments, NGO agencies, and non-profit institutions and foundations to play an active and synergistic role – along with private financial investors – in framing a broader macroeconomic and social perspective to justify funding telecommunications infrastructure projects that serve disadvantaged markets.

Investment in telecommunications is as necessary for economic development as is clean water, nutrition and access to medical resources for good health. Moreover, telecommunication can help in providing solutions along a number of dimensions on the social side of the equation in terms of information resources, education, training and electronically-delivered services toward overall development and improvement in the well-being of people in their communities.

Philanthropies and charitable foundations are natural co-investors in telecommunication networks that with a proper framework can be justified both in economic and social terms.

## 9 REFERENCES

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  - <sup>3</sup> Co-Production Institute of TimeBanks USA
  - <sup>4</sup> With special thanks to Jonathan D. Cahn and Dr. Badi G. Foster of the Phelps Stokes Fund.