



Partnerships for Broadband

Innovative public private partnerships will support the expansion of broadband networks

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Increasing mobile telephone penetration was once the information and communication technology sector's main challenge. We now need to close the broadband gap. As before, the private sector will lead the necessary investment, but it cannot do it alone. Governments must create the enabling environment and, under the most challenging conditions, be prepared to lead. Governments are turning to innovative public-private partnerships (PPPs) to meet these objectives. This trend is strongly reflected in the World Bank's work over the past few years, particularly in Africa, as well as in many of the recently announced national broadband network build-out initiatives. The types of PPPs vary and merit further discussion to help frame governments' broadband interventions.

PPPs ARE SUPPORTING NETWORK EXPANSION

More developing countries are using public-private partnerships (PPPs) as a financing mechanism and business model for broadband network build-out and commercialization. Since 2007, the World Bank alone has approved about US\$1.2 billion in technical assistance and financial support to more than 30 developing countries in the design and implementation of regional connectivity programs, many of which used some form of PPP mechanism. Many of these countries will experience fiber optic connectivity to international networks for the first time.

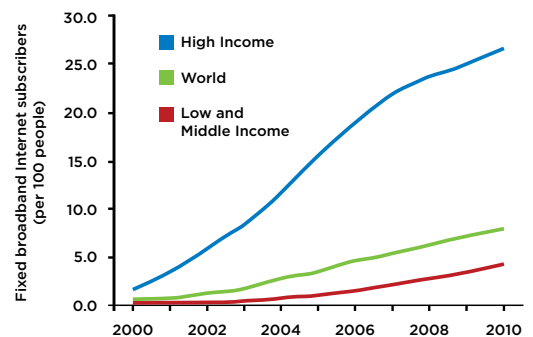
This series highlights transformative analytical and operational work and discusses emerging policy issues in the information and communication technologies sector.

Much of this recent assistance has been focused on connecting countries on the West coast of Africa to the ACE (Africa Coast to Europe) submarine cable.¹ Connected countries will benefit economically and socially from greater bandwidth at much lower cost, just as East African countries have with their international submarine cable connections.² Similar PPP approaches are also appearing in the Caribbean and the South Pacific.³

Much of the increasing demand for PPPs to build secure infrastructure and broadband network facilities comes from policymakers who understand the potential benefits⁴ offered by broadband services. They also have the political will and courage to seek new ownership and operating models to realize those benefits quickly. The International Telecommunication Union (ITU) added to the sense of urgency to provide broadband services by

issuing a 'Broadband Challenge': that countries and private sector operators should help increase broadband penetration in developing countries from the current 10 percent to 50 percent by 2015.⁵ This will help close the significant broadband gap that exists between developed and developing countries (Figure 1). If broadband is to reach the needed 2.6 billion additional citizens in developing countries, it will require major investments over a short time, significant innovation, and creative financing and operating models.⁶

Figure 1: The Broadband Gap



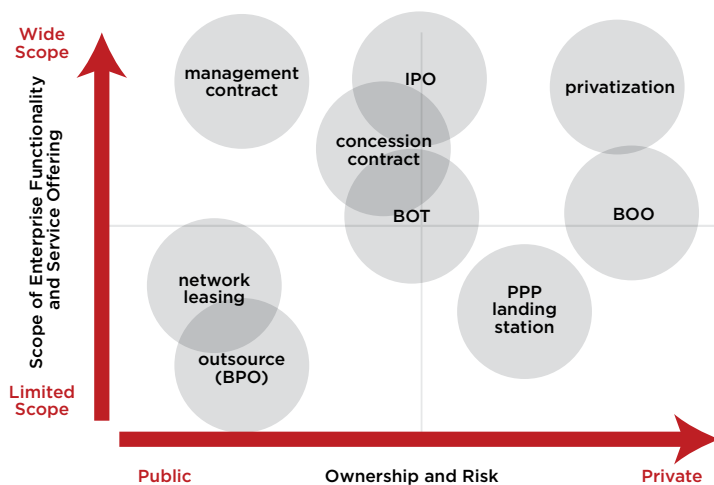
Source: World Bank

The private sector must be reengaged to meet this challenge. The success of the mobile telephone suggests that the private sector, with its knowledge, expertise, innovation, and access to capital markets, drives investment.⁷ Now, such ambitious broadband penetration goals can be achieved by implementing PPPs that are well balanced and that consider fundamental sector development and market dynamics.

TYPES OF PPPs FOR BROADBAND CONNECTIVITY

For broadband connectivity infrastructure, PPPs can be defined as a financing mechanism or operating model, as established in a formal agreement between government and a private investor or operator, with the objective of developing, operating, maintaining, or commercializing broadband network facilities and services. This includes a wide range of ownership and risk-sharing arrangements between the public and private partners, and various forms of operating models. Figure 2 maps various PPP approaches by the level of public ownership and risk and the scope or functionality of the operating unit or service in question. More than defining boundaries between forms, Figure 2 should indicate the range of approaches.

Figure 2: Matrix of Sample PPP Approaches and Models



Note: BOO = build-own-operate; BOT = build-operate-transfer; BPO = business processing outsourcing; IPO = initial public offering; PPP = public-private partnership.

Within some PPP structures and under certain circumstances, governments need to take a wider and more proactive role. This greater role of government has been demonstrated in the submarine cable projects referred to earlier in this note. In those cases, governments led possibly because of capital rationing by the private sector due to the financial crisis and possibly because of the higher risk profile of the developing countries in question.

BENEFITS OF PPP APPROACHES

Broadly, PPP approaches can help to use public sector investment effectively to leverage private sources and bridge the digital divide. PPPs allow for better use of scarce public funds; better access to design, innovation, project management and skills available in the private sector; greater customer orientation; better alignment of incentives for superior performance; higher private sector development

and growth; and the lowest cost for the highest quality of service in a faster time to market. PPP approaches supported by smart universal service programs can also help broadband reach areas and populations where market failure has resulted in market and access gaps (for example, rural areas).

In certain frontier, fragile, and high-risk markets and regions, a PPP approach may be the only way to bridge the digital divide that exists between countries, within countries, and across regions. As an interim solution, the public sector can play the role of a catalyst to jumpstart and incentivize investment with the expectation that the private sector will expand its role as the business matures. This approach enables high-risk and low-return projects and offers an innovative way to leverage funds from the public sector while sharing some of the risks associated with the adoption of a fast-changing technology.

EXPERIENCE FROM WORLD BANK-SUPPORTED PPP INITIATIVES

Most submarine cable projects that the World Bank supported were either (a) in fragile states or small island states, or (b) too large or too risky for the private sector to undertake on its own. The involvement of the public sector through a PPP mechanism helped mitigate risks and encourage investment.

Recent World Bank-supported PPP initiatives have demonstrated that there is no single formula that can be applied in every case. Experience demonstrates that each case has different in-country factors and circumstances, and differing objectives and priorities of the policy makers and private partners involved. Yet, every PPP is governed to some extent by a legal and regulatory structure that is agreed to by the partners. This agreement is reflected in various documents, which may include the PPP agreement (between public and private partners), the shareholder's agreement (between the shareowners), and possibly the operating license or concession agreement (between the new operating entity and the regulator).

For purposes of comparing and contrasting different PPP approaches, recent World Bank interventions are categorized into five primary approaches or models, as described in table 1.

Some of these models are standard in the industry (for example, equity-joint venture, build-operate-transfer, and concession). Others, like the cooperative approach, are more creative and reflect a hybrid approach (for example, the equity approach with a strong government incentive or subsidy) and unique

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Table 1: Recent World Bank supported PPPs, Approaches and Models

Model	Description	Examples
Cooperative	All sector operators (MNOs, ISPs) unite to form a private company (special-purpose vehicle) for the purpose of building, owning, and operating the national backbone as a wholesale operator. The government contributes a subsidy with no related ownership to ensure national coverage, including rural access points, open access, nondiscrimination, and low-cost pricing.	Burundi national backbone project, 2007
Equity	Similar to the cooperative model except that the government obtains equity and shareholding ownership rights in exchange for its contribution. Generally, government divestiture mechanisms are built in.	The Gambia, Guinea, Liberia, São Tomé and Príncipe, Sierra Leone,
Concession	Traditional build-operate-transfer approach, whereby the government issues a public tender to select a private sector operator to build and operate the national backbone or specific national and cross-border links. The agreement is in the form of a long-term concession (15–25 years) that requires the transfer of the networks back to the government at the end of the concession.	Republic of Congo, in process
Bulk capacity purchase	The government, acting as an “anchor client,” issues a public tender for the long-term (10–15 years) supply of bulk capacity (+ 1 gigabit) bandwidth. This model stimulates investment by the private sector through the aggregation of demand. In this case, the partnership is governed by a PPP agreement or supplier contract that establishes the rights and obligation of each party.	Rwanda, 2011; Malawi, in process
Management contract	Standard management contract agreement whereby the government issues a public tender to select a private operator to build, operate, and commercialize the national backbone (or specific national or cross-border links) for a fee during a short-term period (3–5 years). Core assets remain the property of the government.	Gabon, in process ^a

Source: World Bank, ICT Unit analysis.

Note: ISP = internet service provider; MNO = mobile network operator.

a. The initial PPP structure allows for conversion to an equity approach at a later stage.

market and sector dynamics in the country at the time of design.

A ROLE FOR GOVERNMENT

Although often left untold when discussing the mobile miracle, government leaders unlocked private sector participation by creating enabling legal and regulatory frameworks and by significant pro-competition policy shifts. It is widely accepted that an enabling policy and regulatory environment is critical in facilitating PPPs.

Yet, governments have much to do to continue sector reforms to accelerate broadband development. For example, about half of all countries in Africa have little or no effective competition outside the mobile segment of the market. Reforms are needed to deepen competition, such as unified licensing; promote infrastructure sharing; and create effective voice and data interconnection regimes (Kim, Kelly, and Raja 2010). And regulation must be revised to accommodate rapid technological change, emerging competition, and media convergence (Singh and Raja 2009). Similar to the submarine cable infrastructure, there is a growing need to support low-cost access infrastructure (for example, international, national

backbone, and local access) by ending monopoly control over bottleneck facilities (Williams 2010).

USE OF PPPs IN NATIONAL BROADBAND PLANS

PPPs also feature in various national broadband plans. Responding to the 2008 financial crisis, many governments defined such plans as a part of economic stimulus packages. Countries sought to invest in ICT infrastructure, specifically broadband and next-generation networks, as a countercyclical tool to create jobs and provide the foundation for economic recovery and long-term sustained growth (Qiang 2009). Since then, several countries have initiated national broadband programs for different purposes and in different forms.

A survey of several noteworthy and recently announced national broadband network build-out initiatives was conducted to determine if, how, and to what extent the private sector was involved (that is, the form and scope of PPPs). The survey findings are available [online](#).⁸ Several noteworthy observations can be made as follows:

- **PPPs can help.** PPPs are used extensively to finance, operate, or construct the network.

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- **PPPs should be creative and adaptable.** A range of approaches is used across these programs. In several cases, the project is led by the incumbent operator, even if the incumbent is not wholly owned or controlled by the government. In other cases, a new entity (say a special-purpose vehicle or joint venture) is set up to build, own, and operate the network (for example, a wholesale or passive infrastructure operator) with the government participating as a shareowner.
- **Initiatives are extensive in their reach.** Most have extensive targets, with population coverage requirements of 72 percent to 95 percent.
- **Enabling legislation or regulations are necessary.** In a majority of cases, some form of enabling legislation or regulation was required as a prerequisite to build a network, and in many cases a national broadband plan or strategy document was prepared to create awareness, convene stakeholder inputs, and establish the specific development targets.
- **Best practices are evolving.** It is still too early to determine the success of any one program or whether a predominant, best-practice approach is in the making. Yet, governments need to ensure that such initiatives do not reverse or impede private capital trends in the sector and return to the era when state-owned enterprises dominated the telecommunications landscape.

CONCLUSION

PPP mechanisms to build out and commercialize broadband access, particularly in high-risk, low-margin markets are proven, can be effective, and may be necessary to bring affordable broadband access to the mass market. There is no single PPP best practice, but examples exist to guide policymakers in designing approaches and models that address specific market dynamics and the goals and objectives of all stakeholders.

A government's most significant contribution in the PPP approach is its authority to create an enabling environment that attracts private sector development. Governments must take a more proactive leadership role in creating and implementing PPPs. This role will only become more critical and innovative as governments push to bring broadband services to citizens in the most remote and least profitable zones.

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ENDNOTES

¹ The ACE submarine cable project is expected to connect Europe with 12 countries along the West Coast of Africa, of which seven (Equatorial Guinea, Gabon, The Gambia, Guinea, Sierra Leone, Liberia, São Tomé and Príncipe, and Sierra Leone) have mobilized World Bank financing to join ACE. The commercial service date is planned for the end of 2012.

² Since 2009, three submarine cables have been landed in East Africa. After the initial landing of the Seacom submarine cable in Kenya in July 2009, spot short-term pricing terms for 1 megabyte dropped from more than US\$3,000 a month to a range of US\$400 to US\$600 a month. Longer term (for example, 15 to 20 year IRU basis) pricing terms were as low as US\$150 to US\$200 per megabyte a month. This pricing decrease resulted in a significant increase in bandwidth demand growing from 2 gigabytes per second in 2008 to more than 50 gigabytes per second by the end of 2011. Although the bandwidth pricing and availability has greatly improved, some East African countries (for example, those that are landlocked) continue to struggle for affordable broadband access.

³ In 2012, the World Bank initiated the Caribbean Regional Communications Infrastructure Program (CARCIP). In its first phase, CARCIP included Grenada, St. Lucia, and St. Vincent and the Grenadines. In 2011, the World Bank initiated the Pacific Regional Connectivity Program, which in its first phase included connectivity between Fiji and Tonga.

⁴ The World Bank (2009) highlighted the boost to economic development provided by broadband networks. In developing countries, a 10 percent increase in broadband penetration is associated with a 1.4 percent rise in gross domestic product per capita.

⁵ Under the Broadband Challenge, the United Nations' Broadband Commission for Digital Development has set four new targets for governments across the world to ensure that citizens have sufficient broadband access. One of the targets is to have broadband access for 50 percent of people in developing countries by 2015 (ITU 2011).

⁶ According to the World Bank's World Development Indicators database, the total population in developing countries including low- and middle-income countries is 5,767,157,445 in 2010.

⁷ The hugely successful growth of mobile services in Africa was the direct result of private sector investment. Between 2000 and 2010 in Sub-Saharan Africa, total private sector investments in telecommunications reached US\$77 billion. The number of mobile telephone subscriptions grew from 7 million to 392 million during the same period, thereby increasing penetration from 1.7 percent to 44.9 percent. The telecommunications sector accounted for more than 80 percent of total private investments for the region during that time. Investment estimates from the World Bank's PPI Project Database, and mobile subscription numbers sourced from Wireless Intelligence 2012.

⁸ Results of the survey are available at: <http://bit.ly/Mb-PZc4>

POLICY NOTES

This series highlights transformative analytical and operational work and discusses emerging policy issues in the information and communication technologies sector. The findings, interpretations and conclusions expressed herein are entirely those of the author(s) and do not necessarily reflect the view of the International Bank for Reconstruction and Development/The World Bank and its affiliated organizations, the Board of Executive Directors of the World Bank or the governments they represent. The World Bank cannot guarantee the accuracy of the data included in this work.

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