This is a new section of the Public-Private Partnership Resource Center website and is currently in draft form. Your feedback is welcome: If you would like to comment on the content of this section of the website or if you have suggestions for links or materials that could be included please contact us at ppp@worldbank.org.

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IT Network Integration, Barcelona, Spain

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On this page: *A case study on IT Network Integration, Barcelona, Spain. Find more at the Municipal Public-Private Partnership Framework - Project Summaries section for brief summaries of around 100 projects from around the world, examples of successes and challenges, as well as innovative ideas on solutions, or visit the Guidelines on Innovative Revenues for Infrastructure section.*

Project Summary:

Background

The Barcelona City Council wanted to accelerate the integration and expansion of its existing information technology (IT) network (fiber optic and Wi-Fi), which was divided into five different IT networks and managed by six different companies, while also procuring a better, safer, and customized IT service for its use. To this end, Barcelona City, through its Municipal Institute of Information Technology (IMI), decided to pursue a PPP to integrate the management of its active and passive networks[1] to leverage efficiencies in investment, management, and monitoring. The PPP involved bundling a number of activities that were isolated previously, to improve efficiency and finance investments in new equipment.

Project Structure

The resulting PPP entailed the financing, operation, management, and transfer of IMI's active and passive IT networks, in addition to the construction of some small works. The project's design resulted from a competitive dialogue process, which was initiated by the City inviting private operators (future bidders) to design the IT infrastructure according to the guidelines of the City Council. Once the design work was completed, IMI, as the entity in charge of IT provision for the City Council, began the tender process. The same two private operators that participated at the design stage submitted bids. Tradia Telecom S.A. won the contract in January 2014, and began operations in March of the same year, with a contract duration of ten years total. In this case, due to the comparatively small size of the project compared with Tradia's assets, no special purpose vehicle was used.

The project uses a creative business model under which the concessionaire provides corporate services to the City and IMI allows the concessionaire to sell the spare capacity of the infrastructure created by the PPP, which is owned by the City, on the wholesale market. Tradia assumed the construction, financing, inflation, demand, operation, and equipment supply risks, while IMI undertook the risks related to land and space acquisition and availability, as well as the political risks. Both partners shared the design risk.

Under this scheme, the private operator finances the investment in upgraded IT infrastructure and, in return, receives availability payments plus the right to sell excess network capacity to telecommunications operators.

Tradia would pay an estimated EUR 7,562,500 (USD 8,550,730) for the initial investment cost of purchasing and installing new equipment (NXM and Wi-Fi), while IMI would pay EUR 1,150,000 (USD 1,300,300) per year, VAT included, for Tradia's IT operation service. IMI also receives a yearly fee of EUR 220,000 (USD 250,000) from the private operator for the use of the infrastructure that the operator then sells to other operators on the wholesale market. The internal rate of return (IRR) was forecast at 11.3 percent over the 10-year period. However, on 9 May 2014, three months after the contract went into effect, the Spanish parliament passed Law 9/2014 – General Law on Telecommunications, which affected the forecasted IRR.

The network-sharing model at the core of this project allowed the private firm to make an up-front investment in new and improved IT infrastructure, providing Wi-Fi throughout the City Council's buildings and at access points in the outdoor network, among other benefits. At the same time, it created a new revenue stream for the City. In addition, it has been reported that the operating costs for the City's IT administration increased by no more than EUR 7,400 per year.

From 2011 to 2015, the number of City Council buildings with fiber optic connections grew by 26.2 percent, the number of kilometers of fiber optic cable laid increased by 116.8 percent, and the number of Wi-Fi hot spots increased by 119.39 percent. Despite a change of government, the contract was not affected, though the previous smart city strategy was reevaluated.

Lessons Learned

The project yielded benefits for both Barcelona's public administration and its residents. This is because the upgrade in the network resulted in better services in the city council offices and the expansion of Wi-Fi service throughout the city led to better connectivity. These improvements were needed for Barcelona to realize its strategic aim of becoming a smart city and to enable future telecommunications network deployments.[2] It is also reported, however, that Tradia has had difficulties selling the spare capacity due to the regulatory changes.

The project provides the following lessons.

- Innovative commercial structures, such as bundling several IT services/contracts that were previously separated, can enable better and more efficient management and control. At the same time, it helps to guarantee the same standard quality across all the bundled services.
- IT projects have the shared and sometimes disadvantageous characteristic of rapid and constant evolution of technology. It was reported that, in this case, it may have been desirable to include more clarity in the contract as to how to deal with technological changes and developments.
- The positive outcomes of this project are tied to the City's clear and consistent identification of its needs and development strategy, which facilitated the cooperative design of the project with prospective private operators in advance of the tender.
- Permitting the sale of the new infrastructure's spare capacity was a creative funding source that made the project more commercially viable and appealing to the private sector.
- Municipal PPPs may be subject to unforeseeable impacts resulting from decisions made by other levels of government, which make difficult to contractually allocate and manage the risk of changes in law and regulation.

Footnote 1: Active networks involve commuting and routing equipment and passive networks involve fiberoptic cables, poles, and boxes that will be relayed to the operator. This is: Nodes of the municipal and urban corporate network, Citizen Wi-Fi network hot spots, Urban Wi-Fi, Corporate fiber-optic network, Urban mobility control network and urban tunnel tele-control network, Dark fiber network of the 22@ district, Urban tunnel tele-control network items of equipment, and radio links. Due to the complexity of the networks, the measurements of each of them could vary, which concessionaire would have to accept.

Footnote 2: Source: https://media. iese.edu/research/ pdfs/ST-0445-E.pdf accessed 26 January 2019

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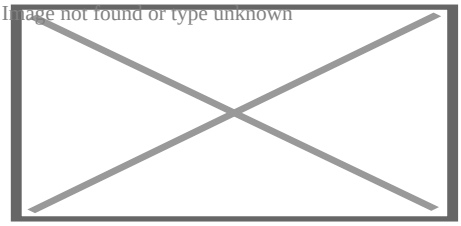

The Guidelines on Innovative Revenues for Infrastructure (IRI) is intended to be a living document and will be reviewed at regular intervals. They have not been prepared with any specific transaction in mind and are meant to serve only as general guidance. It is therefore critical that the Guidelines be reviewed and adapted for specific transactions.

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