Business Models for Municipal Broadband Networks

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INTRODUCTION

This article examines the most effective business model for the optimal exploitation of the currently developing broadband metropolitan area networks in various municipals around the globe. The proper exploitation strategy of the municipal broadband networks to be deployed could boost the demand for broadband connections and applications. The article describes the relevant, available business models in detail, including ways for broadband infrastructures' expansion, and deals with viability issues, regarding the managing authority which is responsible for the broadband metropolitan networks.

A business model, specifically in the current article, determines the way in which the exploitation of a metropolitan, community-owned, optical network will be effectuated. Municipalities may play a critical role in enabling the deployment of broadband infrastructures by the private sector (Government of Sweden, 2007):

- Placing open conduit under all freeways, overpasses, railway crossings, canals and bridges.
- Allowing over lashing of fiber on existing aerial fiber structures.
- Forcing existing owners of conduit, such as electrical companies, telephone companies, and so forth, to make 100% of their conduit accessible to third parties.
- Coordinate construction of all new conduits, especially by building entrances to minimize the "serial rippers" and make all such conduit open to third parties.

However, the development of such broadband infrastructures raises several questions regarding the business model that shall be used for their exploitation (e.g., what will be the role of the municipality, what will be the degree of government interventionism, how healthy competition is going to be promoted, how the network's viability is going to be ensured, etc.).

Therefore, this article intends to:

- Record international experience with respect to broadband business models for the exploitation of broadband infrastructures.
- Summarize the available business models and present, through comparative analysis, the advantages and disadvantages of each business model.

The remaining of this article is structured as follows: The next section presents the international experience in developing broadband metropolitan area networks in various municipalities around the globe. Next, the aticle presents and compares the available business models for the optimal exploitation of the broadband municipal networks, and presents the future trends in the area. Finally, the article is concluded.

BACKGROUND

In general, broadband metropolitan networks have been developed in municipalities along different parts of the globe. Pioneer countries, such as Canada and Sweden, present examples of how broadband infrastructures can reinforce the local economy and contribute in further development. International experience records various business models (OECD, 2003) on broadband infrastructures exploitation, and a few indicative ones are mentioned in the following paragraphs:

- **Demand aggregation model.** This model regards coordinating efforts, exerted by regional carriers and aiming at the aggregation of the demand for broadband

services. The regional carrier presents the aggregated demand as an attractive clientele basis to the service suppliers, with whom it negotiates the overall purchase of broadband services and the percentage ownership upon the infrastructure.

- **Open access/wholesale provider model.** According to this model, regional carriers and local communities, usually cooperating with an independent infrastructure provider, who offers wholesale prices (a public utility service, in principle), construct the fundamental broadband infrastructures (trenches, conduits, subterranean or aerial cables), incorporating a "public good" rationale, and based on the foreseen general needs, as is the case of roads and sewerage works.
- **Community-owned network with service provision model**. Regional carriers and local communities, usually cooperating with a local service supplier, or acting as broadband network service suppliers themselves, construct the fundamental broadband infrastructures and provide network wholesale or retail services, investing the resultant profits in the expansion of the infrastructure.

Remarkable efforts in Europe can be recorded in Ireland (www.enet.ie), Sweden (Stokab, www.stokab.se), Austria, The Netherlands (Kramer, Lopez, & Koonen, 2006) and Spain (LocalRet, http://www.localret.net/idiomes/english.htm). In the United States (U.S.), the cases of the State of Utah (UTOPIA, 2003; UTOPIA network, www.utopianet.org) and the city of Philadelphia (Wireless Philadelphia, 2005) are of great interest, concerning the successful application of business models for exploiting broadband metropolitan area networks. Besides from Europe and the U.S., remarkable efforts are tracked in other countries as well, such as Canada (CANARIE, www.canarie.ca) and New Zealand. Table 1 summarizes the features of business models of the most important of the aforementioned cases.

BUSINESS MODELS FOR MUNICIPAL BROADBAND NETWORKS

Important Aspects

A business model in our case determines the way in which the exploitation of a metropolitan, community-owned, optical network will be effectuated. Additionally, it determines the role of the municipality, the region and the private sector, the way healthy competition is going to be promoted, the

Table 1. Representative business models and their basic features

Features \ Business Models	Irish model	Stokab	LocalRet	UTOPIA	Philadelphia	CANARIE (Canada)
Public carrier						x
Local carrier (municipality, community, etc.)	x	x	x		x	x
Private carrier						x
Consortium			x	x		
Dark fibre network	x	x	x	x		
Last mile connections				x		
Government funding	x		x	x	x	x
Private support					x	x
Collocation facilities	x	x	x			
Leasing to telecommunication providers	x	x	x	x	x	
Supply of services		x				x