Chapter 8
Best Practices and Strategies for Broadband Deployment: Lessons Learned from Around the World

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ABSTRACT

Broadband deployment is a necessity nowadays. It could help each country, municipality and region to grow and offer better quality of life to the citizens. Today, the emphasis on the development of broadband networks is on fixed Fibre To The Home solutions. The lessons learned from countries that are leaders in broadband penetration and Fibre To The Home deployment could be proven very useful for under-served communities, regions and countries where the broadband penetration is low. Therefore, this chapter summarises the lessons learned from implementing (a) country-wide strategies formulated at the national level, and (b) local strategies formulated by the municipalities. Concerning the role of national and local governments, it should be noted that nowadays it is very urgent the involvement of government in the development of broadband infrastructure. Proposed noteworthy remarkable cases are Japan, South Korea and Singapore.

INTRODUCTION

Broadband technology has emerged as the natural next step in Internet evolution and diffusion (Papacharissi & Zaks, 2006). With dialup connections limiting bandwidth and therefore, Internet applications, broadband technology promises high speed and opens up a seemingly limitless gamut of possibilities (Langdale, 1997).

Broadband networks will be as critical to the 21st century as roads, canals, and railroads were to the 19th Century and the Interstate Highway System and basic telephone networks were to the 20th Century (Copps, 2001; OECD, 2001). In addition, broadband is a key element of the
developments taking place in the electronic communications markets. Prestona & Cawleyb (2008) refer that the European Commission (EC) has pushed broadband to the fore of social and economic policies in recent years. The same direction adopted by many many national governments in Europe. It has aligned broadband developments with furthering information society and knowledge economy developments. To this direction, EC has been particularly active in promoting broadband developments. In particular, the EC adopted an initiative supporting the Lisbon 2010 goals, i2010 (EU (2005).), where broadband take-up is considered an important factor for the emerging digital economy and competitiveness.

The main focus of this chapter is to summarize lessons learned from implementing (a) countrywide strategies formulated at the national level, and (b) local strategies formulated by the municipalities. The policies adopted by these countries for supporting the broadband growth could be proved very beneficial for countries with very low broadband penetration rate.

The rest of the chapter is structured as follows: the next section presents the current status and trends concerning the broadband deployment worldwide. The third section describes the impact of broadband in the economy of a country. The fourth section presents the advantages of broadband technologies and their positive impact concerning Green Information Technology (IT) infrastructures. The fifth section presents the role of governments in the deployment of broadband as well as the advantages of the broadband services for a country. The sixth section presents broadband policies adopted and applied in various countries as well as these policies proposed by European Union (EU) and Organisation for Economic Co-operation and Development (OECD). The next section presents best practices concerning the deployment of broadband networks. The eighth section presents suggestions for broadband deployment, while the last section (i.e. “Conclusions”) summarises the results of this chapter.

BACKGROUND

This section presents the current status and trends concerning the development of broadband networks. According to Berkman Center for Internet and Society (2009) these networks offer the highest available speed, by using fixed line, fixed wireless, or mobile infrastructure. These networks are deployed in households and business places. Therefore they are mainly deployed at high population areas and business centres.

The emphasis concerning the development of these networks is on fixed Fibre To The Home (FTTH) solutions.

However, there are still operators adopting VDSL or VHDSL (Very High speed DSL) technology (ITU-T, 2004). Examples are Tele2 in Netherlands (Telecompaper, 2009) and Vodafone in Heilbronn, Germany (Telegeography, 2009). VDSL is a DSL technology providing faster data transmission over a single flat untwisted or twisted pair of copper wires. Therefore VDSL is capable of supporting high bandwidth applications such as High Definition Television (HDTV), as well as telephone services (such as Voice over IP) and general Internet access, over a single connection. VDSL is deployed over existing wiring used for POTS (Plain Old Telephone Service) and lower-speed DSL connections. This standard was approved by ITU in November 2001. The second-generation of VDSL, namely VDSL2 (ITU-T G.993.2 approved in February 2006), supports bandwidth of up to 30 MHz and provides data rates exceeding 100 Mbit/s simultaneously in both the upstream and downstream directions. The maximum available bit rate is achieved at a range of about 300 meters. However, performance degrades as the loop attenuation increases. VDSL2 is relatively inexpensive solution, in case that the operator has already a fibre backhaul and ADSL2+ network. Table 1 compares ADSL, ADSL2+, VDSL1 and VDSL2.

However, a pure FTTH solution is the more promising solution for many countries. As re-
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