Chapter XXVII
A Business Planning Framework for WiMAX Applications

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ABSTRACT

Mobile networking refers to wireless technologies which provide communications between devices. Applications for mobile networking have a broad scope as they can be applied to many situations in either industrial or commercial sectors. The challenge for firms is to better match market-induced variability to the organizational issues and systems necessary for technological innovation. This chapter develops a business planning framework for mobile networking applications. This framework recognises the fluidity of the situation when trying to anticipate and model emerging wireless applications. The business planning framework outlined in this chapter is a generic model which can be used by companies to assess the business case for applications utilizing mobile networking technologies.

INTRODUCTION TO WIMAX APPLICATIONS IN THE MOBILE NETWORKING SECTOR

WiMax is a wireless standard that was developed to provide a wireless alternative to cable and DSL for broadband access (WiMax-Forum, 2004). The focus here is assessing the potential business case for WiMAX applications in the mobile networking sector. Mobile networking refers to wireless technologies which provide communications between devices, for example, a laptop maybe connected wirelessly to a printer via radio using the Bluetooth standard. The WiMAX standard allows for both point-to-point and point-to-multipoint configurations – the latter being suitable for mobile networking applications.

Point-to-multipoint microwave networks have been previously deployed as proprietary networks (Vaughan-Nichols, 2004), until the development

of the Institute of Electrical and Electronics Engineers (IEEE) 802.16 set of standards known as WiMAX (Worldwide Interoperability for Microwave Access). These global standards improve matters in two ways: compatibility of components within a communications system and customer interface standards. The availability of global standards for mobile networking technologies enables high technology firms to focus resources on specific aspects of a WiMAX communication system.

The Business Case for WiMAX Applications

The purpose of the chapter is to examine the forecasting elements for emerging broadband wireless access applications. The chapter examines the elements involved in deploying a new product or service to determine whether or not a business proposal will create value. Value management is an approach to management based on the principle that business decisions are based on the premise that *"they must manage a firm's resources with the ultimate objective of increasing the firm's market value"* (Hawawini and Viallet, 2007, p. 521).

The availability of global standards such as WiMAX is a means for achieving greater adoption. This has been shown with the Wi-Fi (wireless LAN) networking standard where high user adoption rates have been experienced within a relatively short time period. However, significant ROI (return on investment) is not yet clear for WiMAX (Koffman and Roman, 2002) as the network and equipment costs are still high. The breadth of factors which need to be addressed during business planning for broadband wireless access is shown in Table 1.

The ROI components present in Table 1 illustrate the high infrastructure costs involved with investment in both core and access networks with Gunasekaran and Harmantzis (2005) quoting backhaul costs of T3 as $2000 per month and OC3 of $5000 per month. This chapter develops an approach to examining the business case for WiMAX applications and develops a business planning framework. The business planning framework outlined in this chapter is a generic model which can be used by companies to assess the business case for applications utilizing mobile networking technologies.

Table 1. ROI components for broadband wireless access

ROI Components	Key Factors	Key Variables
Revenues		
Applications	Voice/ data/ Internet	Supporting interfaces
Subscription take-up rate	Market Potential	Demographics; capacity per subscriber
Pricing Package	Installation charges and monthly subscription charges	WiMAX billing/tariff structures
Costs		
Spectrum Licence fees	National availability of spectrum	National regulatory situation
Planning costs	Radio planning; business case	Tower site acquisition; frequency allocation and environment (multi-path)
Equipment costs	Backhaul and base station costs	Network topology ; wireless access configuration
Deployment costs	Installation charges	Ease of interconnectivity
Operating costs	Upgrades; maintenance etc..	Equipment interoperability