

# Chapter 3.11

## Incorporating Commercial Space Technology into Mobile Services: Developing Innovative Business Models

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### ABSTRACT

This chapter will describe how space technologies can be incorporated into terrestrial 3G /4G mobile telecommunication infrastructure to provide convergent innovative applications and services. The utilization of space applications for non-military use has the potential to generate significant economic, social and environmental benefits on a global scale. The satellite infrastructure will become a key enabling factor in a growing range of mobile products such as: voice services, broadband Internet services, navigation, and observation systems. The chapter presents a framework derived from the literature to aid the development of viable business models expected from the amalgamation of mobile telecommunication and space infrastructure. The chapter also identifies the various actors involved in the delivery of these services which include: technol-

ogy actors, service providers, network operators, consumers, and regulators.

### INTRODUCTION

There are significant benefits that can be realized from incorporating space technology into the terrestrial communication technologies. Currently these benefits are not being realized due to a lack of technical and economical integration of the various network technologies. The current business models exhibited by the various telecommunication providers are focused on competition, ignoring the huge potential that can be achieved by convergence and cooperation. This problem is inherent in the business models that are created independently by various types of network providers. There is no consideration for convergence opportunities. Most of the satellite and mobile

network providers that provide communication capabilities via Low earth Orbit (LEO) satellite providers and GSM technologies are often competing in the same space rather than concentrating on their core capabilities and cooperating to generate sustainable business models in the current harsh economic environment.

There are views from various organizations such as, (ESA-Homepage, 2003), (OECD, 2003; UN-Program, 2002; UNESCAP-Report, 2002) that space technology infrastructure will become a key enabling factor for a convergent global mobile telecommunication infrastructure. A growing range of mobile products and services currently in use today or under development will incorporate space technology such as: voice services, radio, broadband Internet services, navigation, and observation systems and gravitational research. The current trend of developing business models for applications and services does not go far enough to investigate generic business models for mobile applications and services that are network independent and which incorporate space technology.

The literature offers various explanations for deriving business models on mobile networks in an ineffective manner due to the evolution of the mobile value chain and market structure outpacing the research (Sabat, 2002). This chapter aims to address this confusion by providing an integrated view of the evolving mobile and satellite markets, and uses the business model framework, to identify market actors to encourage the business world to deliver on the full potential of space technologies in the global mobile arena.

The commercial use of space technologies is a promising and emerging industry characterized by large numbers of technological and strategic uncertainties. This chapter will aim to address the strategic uncertainties caused by inadequate business models. The new breed of business models will need to cater for the increase in the number of actors trying to accurately position themselves in an advantageous position in the value chain.

Similar to the mobile commerce business models (Camponovo & Pigneur, 2002; Maitland, Bauer & Westerveld, 2002; Pigneur, 2000; Sabat, 2002; Tsalgatidou & Pitoura, 2001). Successful space technology business models are likely to be the ones that address the economic peculiarities such as mobility, precision positioning, network effects, broadcasting, and communication in a flexible manner.

All actors in the mobile and satellite arena need to explore new revenue generating opportunities to increase their market share and sustain their competitive advantage. Although this chapter describes the implementation of futuristic new business models, the key enabling factor for the success is not the advancement of the technology but the convergence of existing technologies and ideas. This chapter proposes the use of a business model framework for the creation of innovative business model by analyzing the existing actors technical capabilities, portfolios, strengths and competencies and adapting their current business models to harness the full possibilities for new revenues and market share. The chapter is structured as follows. The first section provides an overview of the business model literature followed by a discussion on the business model framework presented in this chapter. The next section identifies the advancements of the mobile communication industry over the last three decades and sets the scene for the discussion on what future technological infrastructure is likely to be. This is followed by the presentation of the business model framework along with examples. A brief conclusion provides a summation of the concepts presented in this chapter.

## **BACKGROUND: USING BUSINESS MODELS TO CREATE INNOVATIVE PROPOSITIONS**

This section investigates the business model literature to understand what a business model

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