Chapter 18

A Comparative Review of Handheld Devices Internet Connectivity Revenue Models to Support Mobile Learning

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ABSTRACT

This chapter provides a survey of mobile broadband revenue models deployed by mobile network operators in the UK, USA and Canada. The survey of exiting revenue models highlights the technology adoption trends for handheld devices by consumers and identifies the future impact of these trends on the network operators and content providers with respect to educational content. This article focuses on innovations in consumer propositions that can support the Mobile Learning phenomenon. The study reveals that the various operators aim to differentiate their consumer propositions by branding, technology devices, and flexible pricing structures. From the results of the study it is clear that the current continuous convergence of multimedia applications, information services, digital networks, and devices will likely lead to an increase in adoption of Mobile learning systems in the UK, Canada and the USA especially as the price per bandwidth drops and new innovative connectivity options are deployed such as built in mobile broadband processor in laptops and consumer devices.

INTRODUCTION

There has been a phenomenal evolution of mobile technology over the last decade and the voice capabilities have evolved from a niche technology to an indispensable service. Consumers have adopted mobile voice technology into all facets of their daily lives (Mohr, 2006). In addition to the widespread

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diffusion of mobile phones, a broadband evolution has occurred in the developed world, due to the proliferation of technologies such as fiber, cable modem, and broadband wireless services. The diffusion of broadband along with the innovation in handheld devices has led to the growth in Mobile learning. There are an abundance of scenarios of learning with mobile technologies. Personal digital Assistants (PDA), Smartphones, and mobile phones are frequently used technologies for mobile learn-

ing. Mobile Learning can be broadly categorized on the two dimensions of personal vs shared and portable vs static (Naisnith, 2004). This article will focus on personal handheld devices that access learning content while mobile. The advancement in learning technologies to incorporate mobile technology can be viewed as an evolution of distance learning to e-learning (electronic) and know to mobile supported learning. Mobile, wireless, and handheld technologies are being used to re-enact approaches and solutions to teaching and learning used in traditional and web-based formats (Keegan, 2002). Mobile learning facilitates interaction with computer-supported learning environments from mobile devices using a wireless connection.

The next major trend in communication will see the convergence of both mobile and broadband technologies to create a phenomenon called Personal Broadband. Personal Broadband can be viewed as a fusion of the two perpetual markets of mobile technology and broadband, aiming to serve four types of customers: those migrating from mobile voice services and seeking higher speeds for multimedia applications including voice over IP services (Engel, 2007), fixed users who want mobility, Wi-Fi users seeking additional range, and new users who will adopt the new generation of services and applications generated by the high data rates promised by personal broadband technologies. Personal broadband can have a profound effect on deploying learning content over the mobile network.

Due to the proliferation of mobile devices such as smartphones, Blackberry's, and Iphones mobile consumers are dictating that they stay connected ubiquitously irrespective of their location. Users are now accustomed to broadband at home and expect the same connection to be available in their offices, airports, hotels, and other public spaces, similar to the constant convenience of a mobile phone. One factor that is driving this trend is the increase in multimedia content such as learning material available on the internet and mobile

networks (Mohr, 2008). Another important factor is the trends towards Web2.0 applications that require users to connect to the Internet to gain access to services and applications.

Handheld devices have evolved to become ubiquitous, networked, and converged devices with enhanced capabilities for rich social interactions, context awareness and internet connectivity, which can have a great impact on learning. Learning will shift outside the classroom into the community and into the learner's environments, both real and virtual, thus becoming more situated, personal, collaborative and lifelong. The challenge that educators face will be to determine how to use mobile technologies to transform learning into a seamless part of daily life to the point that it is not considered learning. One of the challenges that educators will face is ensuring that students will have access to the content once they leave the classroom and educational environment at an affordable cost. There are a variety of networks technologies that can provide connectivity but there is typically a cost, this paper will aim to summarize the potential costs and describe how the revenue models are packaged for consumers.

Most of the reviews of mobile technologies and learning have addressed how mobile technologies have been used to enhance the curriculum. In this review, we take a pragmatic perspective to investigate how student using mobile learning can access the content outside the confines of the classroom of their mobile devices by reviewing revenue models implemented by operators. This article will provide a review of the current approaches being deployed by network operators to provide mobile broadband services. There is a trend of diversification of telecommunications services, which is leading to a wide range of services becoming available in the market (Cha, Jun, Wilson, & Park, 2008). A comparison of revenue models will be presented by surveying the consumer tariff proposition offered by network operators in the United Kingdom, Canada and the USA. This will allow the identifications of contrasting approaches (Alam & Prasad, 2008).

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