Internet Services and the Shift toward Mobile Internet and Ubiquitous Connectivity

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INTRODUCTION

The revolution in wireless and cellular communications has led to a remarkable growth in smart mobile devices capable of Internet access and mobile web browsing. In particular, the advent of the third generation (3G) cellular networks, followed by fourth generation (4G) networks with tremendous increases in transmission capacities, has accelerated the convergence of the Internet and wireless telecommunications and networks. The Internet is thus becoming increasingly mobile and user-centric, with mobility, ubiquity, and anywhere/anytime flexibility characterizing the new mobile Internet. With the 4G communications technology increasingly replacing 2G and 3G cellular networks, the future potential of mobile communications in general, and mobile Internet in particular, seems to be enormous. Fourth-generation cellular networks are envisioned to be truly broadband systems, allowing for significantly higher transmission, ranging from 10Mbps to 100Mbpds (Dekleva, Shim, Varshney, & Knoerzer, 2007), and providing global roaming across multiple wireless and mobile networks (Varshney & Jain, 2001).

Taking advantage of the concomitant advancements and improvements in cellular and wireless telecommunications, mobile devices continue their unabated evolution, proliferation, and diffusion. Mobile phones in particular are increasingly becoming miniature computing devices, with processing power and storage capacities that ravel desktop computers of a few years ago. Smart phones are a special type of these devices with integrated features and a growing list of advanced and innovative features and capabilities enabled by continuous advances and innovations in hardware, sensing, navigation, and monitoring technologies, and fuelled by competition among the major industry players. Given its remarkable potential, the smartphone has been recognized as a game-changing and user-empowering information technology (Dery, Kolb, & MacCormick, 2014; Jung, 2014).

The penetration rates for mobile phones and mobile broadband continue to rise worldwide and in several economies in the developing and the developed worlds (ITU, 2014a & 2014b). High penetration rates are occurring even in developing nations, such as China, Malaysia, Indonesia, India, and many of the gulf countries, supported by significant investments in 3G and 4G network infrastructures (see Table 1). Additionally, according to the Cisco (2015)'s Global Mobile Data Traffic Forecast for 2014 to 2019, worldwide mobile data traffic will increase nearly tenfold between 2014 and 2019, growing at a compound annual growth rate (CAGR) of 57 percent, and smartphones, laptops, and tablets will drive about 94 percent of this global mobile data traffic increase. This proliferation of mobile phones, particularly smartphones, has propelled an enormous growth in mobile device applications (apps), and has accelerated the adoption of mobile Internet.

Table 1. Mobile cellular and mobile broadband penetration rates for 2010-2013

Country/Region	Mobile Phone Penetration Rates				Mobile Broadband Penetration Rates			
	2010	2011	2012	2013	2010	2011	2012	2013
UAE	129.4%	131.4%	149.6%	171.9%	13.4%	19.2%	44.8%	89.1%
Qatar	125.0%	120.15	126.9%	152.6%	51.6%.	56.7%.	61.7%.	76.8%
Saudi Arabia	189.2%	194.5%	187.4%	184.2%	n.a.	40.8%	56.4%	85.1%
Israel	122.8%	122.0%	120.7%	122.9%	32.4%	40.7%	53.0%	53.0%
Rep. Korea	104.8%	107.7%	109.4%	111.0%	97.7%	104.3%	105.1%	105.3%
USA	91.3%	94.4%	96.0%	95.5%	60.1%	77.0%	89.1%	98.0%
Arab Region	87.9%	96.7%	102.6%	105.1%	10.2%	13.3%	14.3%	19.0%
Europe	117.7%	119.5%	120.7%	126.5%	41.3%	54.0%	50.5%	68.0%
World	78.0%	83.8%	88.1%	93.1%	12.6%	16.7%	21.7%	26.7%

Source: ITU (2014b).

The diffusion and widespread use of high-end mobile devices has made it increasingly clear that the mobile and ubiquitous nature of communications and computing is inevitable. This ubiquitous mobile connectivity provides new opportunities for business firms of all sizes by enabling new ways of doing business and giving access to vast streams of data generated by the customers, their experiences, and their contexts (Middleton, Scheepers, & Tuunainen, 2014). Firms are quickly taking advantage of the unique value propositions presented by mobile business (m-business) to improve their marketing and sales performance (eMarketer, 2015; Enright, 2015; Siwicki, 2014). Mobile technology has also transformed work activity and has allowed business organizations to access, harvest, and generate business intelligence from the vast quantities of dynamic data generated through mobile customer traffic (Karanasios & Allen, 2014; Verkooij & Spruit, 2013).

Recently, increasing research focus is being given to this rapid shift towards the mobile Internet platform and the factors that drive this transition. Extant technology adoption research has primarily focussed on predicting the acceptance of a particular technology, such as m-banking, with little regard to alternative (substitute) technologies. Adoption is arguably a decision, or choice between alternative (multiple) technologies or devices with similar features and capabilities. With a few exceptions (see for example, De Reuver, Ongena, & Bouwman, 2013; Jung, 2009), there is a dearth of research addressing multiple factors and contexts in which a user may prefer the mobile to the stationary Internet access.

The current study addresses this gap by examining the decision to adopt (or use) mobile Internet or stationary Internet from a young Internet user perspective. This study postulates that the factors that drive the preference of the mobile Internet platform over conventional fixed Internet are Internet applications and services with significant mobile advantage to drive the mobile Internet preference. The goal of this study, therefore, was to determine which Internet services with significant mobile advantage to drive such preference. We are aware of no similar research study that examines the adoption of mobile Internet as an alternative to fixed Internet from a multi-services perspective.

The rest of this chapter is organized as follows: in the next section, a background with literature review is provided, followed by a section that develops the research model and hypotheses. In the following section, the research methodology is presented, followed by the empirical results and analyses. Then a discussion of the results with recommendations is presented, followed by future research directions, and a conclusion.

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