

Chapter 9

The Causes of Developing a Wireless City: Singapore vs. Taipei (Taiwan)

Mei-Chih Hu

National Tsing Hua University, Taiwan

Chien-Hung Liu

Feng Chia University, Taiwan

Ching-Yan Wu

Macquarie University, Australia

ABSTRACT

This study examines the causes of developing a wireless city, with Singapore and Taipei taken as examples. The examination is extended to include consideration of how the factors influencing consumer usage behavior have variable impacts on the development of wireless cities with diverse resource bases. The empirical results show that the internal and external influencing factors are related to each other and to the innovation adoption intentions during the development of a wireless city. From the cases of Singapore and Taipei, it is evident that the factors influencing innovation adoption intentions have varying impacts on the development of a wireless city given the diverse resource bases available.

INTRODUCTION

Along with the mature development of fixed-line Internet services, wireless broadband Internet access was rapidly developed and has flourished in the market, especially as a consequence of all the newly produced laptop computers since 2000 being equipped with wireless networking devices. Other mobile electronic products, such as palm digital assistants (PDAs) and cellular phones, have

boosted the demand for and the resulting growth of the wireless Internet service industry. The critical contribution of becoming a wireless city to economic development is thus readily apparent. By 2006, cities that have launched or announced wireless city plans include Singapore, Taipei in Taiwan, Philadelphia in Pennsylvania, San Francisco in California, Ose in Minnesota, Boston in Massachusetts, Perth in Western Australia, and London in the United Kingdom. Nevertheless, the government involvement of Singapore and Taipei does not represent

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the same kind of private-sector buy-in evinced by the work of Google and Earthlink on wireless projects in U.S. cities like Philadelphia and San Francisco.

Amongst these cities, Taipei was the first in the world to construct the facilities that constitute a large-scale wireless city. Singapore plans to complete its nationwide wireless Internet installation by 2008. In 2004, the Taipei city government outsourced the wireless city project to Q-Ware Communications with the intention of providing wireless Internet hot spots throughout the city. Targeting public use of the system, the city government mainly utilized the low-cost Wi-Fi technology and opened up access to all sky bridges, traffic lights, bus stops, subway stations, other public infrastructure, and commercial centers to the equipping of these wireless hot spots. Their aim was to offer residents and tourists a ubiquitous wireless Internet environment and they coined the term 'WIFLY' to refer to it.

Singapore built its wireless broadband Internet system two years after that of Taipei in 2006. However, the Singapore government has incorporated various additional wireless technologies into the building of its wireless city and these have helped in the rapid deployment of its planned facilities. They adopted dual parallel technologies for public access and for government and business sector access, respectively. For public access by its citizens and tourists, Singapore used Wi-Fi technology, while WiMAX technology was utilized in both the government and business sectors. In this way, both Wi-Fi and WiMax wireless technologies are utilized in a manner that best exploits their respective advantages of lower cost and higher security protection. The construction of Singapore's wireless hot spots was spearheaded in 2006 by three companies, namely Singtel, iCell, and QMax. The network attracted 60,000 users within one year, while this number had increased more than seven times to 425,000 (approximately 10% of the total population of Singapore) by the end of 2007 (IDA, 2007).

Taipei's 'WIFLY' plan was opened to the public for a free trial period from October 2004 to December 2005. According to data released by Q-Ware, a total of 50,000 users were registered as soon as the free trial opened. However, after one and a half years of free public access, the number of users had only increased to just more than double this at 110,000 by the end of 2007 (Taipei City Council, 2007). This registered number represents only 4% of the Taipei city population. From a marketing perspective, the number of new technology users needs to break through the 'critical mass' of the adoption rate so that the new technology has a better chance of entering the growth stage of the product life cycle (Moore, 1991; Rogers, 1962). In particular, the rate of diffusion during the introduction stage is the key to pushing the new technology into the growth stage (Olson, 1995; Betz, 1993; Foxall and Bhate, 1993). Such new technology diffusion is to be considered as a critical element in the development of an emerging wireless city. Given the equivalent size of their populations and of the geographic areas they cover, Taipei and Singapore are utilized as key examples of wireless cities to be investigated and compared in the present study of the determinants of innovation adoption intentions.

The infrastructure of a wireless city not only depends upon the hardware supplying hot spots, but also relies extensively upon various software service applications. Through wireless broadband provision, economic efficiency and competitiveness are expected to be greatly enhanced. This study utilizes the Technology Acceptance Model (TAM), along with the three external variables of service quality and content, government policy and business strategy, and price of usage to examine the direct and indirect determinants of innovation adoption intentions in the emerging wireless cities of Singapore and Taipei. The wireless city concept aims to provide a new experience and better products and services to the people and businesses in each city as a whole. This can be seen

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