

## Chapter 4.13

# Organisational Factors and Technological Barriers as Determinants for the Intention to Use Wireless Handheld Technology in Healthcare Environment: An Indian Case Study

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### ABSTRACT

Traditional technology adoption models identified 'ease of use' and 'usefulness' as the dominating factors for technology adoption. However, recent studies in healthcare have established that these two factors are not always reliable on their own and other factors may influence technology adoption. To establish the identity of these factors, a mixed method approach was used and data were collected through interviews and a survey. The survey instrument was specifically developed for this study so that it is relevant to the Indian healthcare setting. Authors identified clinical management and technological barriers as the dominant factors influencing the wireless handheld technology adoption

in the Indian healthcare environment. The results of this study showed that new technology models will benefit by considering the clinical influences of wireless handheld technology, in addition to known factors. The scope of this study is restricted to wireless handheld devices such as PDAs, smart telephones, and handheld PCs.

### INTRODUCTION

In the last few years, high expectations, technological developments, and effective and efficient services have been shown to be prerequisites for improvements in the healthcare domain (Rogoski, 2005). Latest trends in the healthcare sector include the design of more flexible and efficient service provider frameworks aimed at providing health

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services to all stakeholders. In order to implement such frameworks, wireless technology is increasingly being used in the healthcare sector (e.g. data management automation). A decrease in the cost of wireless devices and improved awareness of the benefits that ensue by using related wireless applications are two of the contributing factors towards the increased use of wireless technology in this sector (Gururajan, Quaddus, et al., 2005). Even though the future of this technology and its usability is promising, its adoption is still in its infancy, which is attributed to the complex and critical nature of the healthcare environment. In the current competitive and complex business environment, technology developments have played a critical role in delivering high quality of care (Reinecke, 2004). However, there is limited knowledge and empirical research on the effectiveness and adoption of wireless technology in general, and in the Indian healthcare system in particular.

Recent research has established that investment in emerging Information Technology (IT), including Information Systems (IS), can lead to productivity gains only if they are accepted and effectively used by respective stakeholders. Consequently, acceptance and utilization of IT/IS in the healthcare environment have been central themes in the information systems literature. Therefore, the fundamental focus of this research is to investigate and examine the influence of internal and external determinants on the usefulness of wireless technology. Further, this research also assesses how its acceptance contributes to the adoption of wireless technology. I believe that this research is the first of its kind attempted in the Indian healthcare domain and it employs empirical evidence to explore the impact of wireless technology and its usefulness in the Indian healthcare system. The Indian healthcare domain is at the forefront in adopting the latest medical technologies and applications, as evidenced by media reports and, as such, it constitutes an ex-

cellent context for validating existing adoption theories and extending them.

The main contribution of this research includes the identification of a set of drivers and barriers to using wireless technology in a given Indian healthcare setting. In addition to this, for the first time, a set of clinical factors influencing the adoption of wireless technology has been identified and validated using a second order regression model.

## **BACKGROUND**

The concept of wireless technology in healthcare is discussed in many studies (Dyer, 2003; Hu et al., 2002; Sausser, 2003; Simpson, 2003; Wisnicki, 2002). For example, Wisnicki (2002) provides details of how broadband technology, an essential component of wireless technology, can be used in healthcare. While prior studies agree that wireless applications have the potential to address the endemic problems of healthcare, very limited information can be found about the determinants of such applications (Gururajan et al., 2005; Gururajan et al., 2004). In general, the majority of the works reviewed are descriptive about the benefits of wireless handheld devices in healthcare in general, and medicine in particular. There is only a small number of studies that provide evidence-based information concerning these devices in healthcare (Fischer et al. 2003; Sax et al. 2005). Furthermore, five major studies in the area of healthcare (evaluated by (Spil & Schuring, 2006) testing the Technology Acceptance Model (TAM) produced findings which were inconsistent with the body of knowledge in non-healthcare settings. With 'Perceived Ease of Use' and 'Perceived Usefulness' as the major TAM attributes, these studies found that in the health environment, 'Perceived Usefulness' is an important attribute in technology adoption, while 'Perceived Ease of Use' was found to have no effect (Spil & Schuring, 2006). This is different to

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