

## Chapter 19

# An Exploratory Study to Understand the Drivers and Inhibitors for the Successful Adoption of Wireless Technology in Australian Healthcare Systems

**Abdul Hafeez-Baig**

*University of Southern Queensland, Australia*

**Raj Gururajan**

*University of Southern Queensland, Australia*

### ABSTRACT

*According to the Australian Department of Health and Aging (n.d.) the adoption of new technologies is crucial in addressing health issues. Currently, wireless technology is used in Australian healthcare with limited scope, addressing specific aspects of quality of service offered to various stakeholders. 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. Therefore, there is a need to identify factors that may assist in the adoption of wireless applications in healthcare and the factors acting as barriers in the uptake of such applications. This chapter reports on a study designed to elicit these factors using a semi structured interview approach and surveys. The study is structured in two specific phases. The first phase involved a semi structured interview with selected healthcare professionals to understand various factors involved in the adoption of wireless applications as applicable to Australian healthcare. The second phase involved administering a survey to generalize the findings of phase one and to capture the views of the wider population.*

DOI: 10.4018/978-1-60566-266-4.ch019

## **INTRODUCTION**

The last three decades of investment in the information and communication technology sector have had dynamic effects on healthcare. Such investments have resulted in increases in productivity, a high quality of services and the development of new processes. Despite this, the healthcare industry did not enjoy flexibility as the industry was always operating under limited resources. Recently, the strategists, operators, decision makers, and other stake holders have realized the potential of information communication technology (ICT), especially in wireless technology and see an opportunity window to address some issues healthcare sector is facing. It is suggested the ICT have the potential to address the issues such as quality of care, reduction in cost, shortages of human resources, reduction in errors, reduction in funding, and high satisfaction levels among customers and employees. For example, a patient registering in a hospital may be issued with electronically readable code and staff with wireless devices can enter critical information directly into the hospital network. Through wireless devices, a patient's body can be connected to various items of hospital equipment to record medical data, such as blood pressure, heart function can directly be monitored, recorded, and analyzed by doctors internally and externally. Through wireless networks, doctor can order tests, prescribe medicines, and request for other services directly from the patient's bed.

The Australian healthcare industry is operating under the umbrella of high expectations, reducing funding, aging populations, pressure from industry regulatory bodies, pressure to integrate new technological development in the existing business processes, and a need to ensure the ability to provide customized care and other associated activities, wherever, whenever, at a competitive cost, at the point of care in a highly competitive environment. Under such a circumstance healthcare providers are operating with limited resources,

constant calls for reductions in operating costs, and demands to redesign their workflow systems in order to accommodate the dynamic environment of healthcare industry. Therefore, adoption and utilization of new technological developments is very critical for the survival of healthcare in Australia. In this situation, it appears that the reduction in hardware/operating costs, the increased functionality and the increases in the ability to transmit high speed secure data gained from new wireless technologies are able to address most of the concerns of the healthcare provider.

## **ADOPTION AND BACKGROUND**

Earlier models of technology adoption come with criticism. For example, in terms of the Theory of Reasoned Action (TRA), irrational decisions, habitual actions and other unintentional behaviours are not explained (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). TRA is also limited by its reliance on self-reported information to determine the subject's attitude and the data reported may be subjective in nature (Ajzen & Fishbein, 1980; Farhoomand et al., 1990; Fredricks & Dossett, 1983; Tan & Teo, 2000). The Theory of Planned Behaviour (TPB) is also limited in that it describes the attributes of adoption at the individual unit of analysis rather than at the organisational level. This precludes its use when dealing with an adoption based on primarily, organisational units (Ajzen, 1985; Ajzen, 1991; Ajzen & Driver, 1992; Ajzen & Madden, 1986; Cheung et al, 1999; Madden et al., 1992; Randall & Gibson, 1991).

The Technology Acceptance Model (TAM) was predominantly tested with students who have limited computing exposure, administrative and clerical staff who do not use all ICT functions found in software applications. Applicability of TAM to specific disciplines such as medicine appear to have not yet fully established (Burton-Jones & Hubona, 2005; Davis, 1989; Davis et al., 1989; Darsono, 2005; Hu et al, 1999; Hu et

10 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:

[www.igi-global.com/chapter/exploratory-study-understand-drivers-inhibitors/42613](http://www.igi-global.com/chapter/exploratory-study-understand-drivers-inhibitors/42613)

## Related Content

---

### Graph-Covering-Based Architectural Synthesis for Programmable Digital Microfluidic Biochips

Daiki Kitagawa, Dieu Quang Nguyen, Trung Anh Dinh and Shigeru Yamashita (2017). *International Journal of Biomedical and Clinical Engineering* (pp. 33-45).

[www.irma-international.org/article/graph-covering-based-architectural-synthesis-for-programmable-digital-microfluidic-biochips/189119](http://www.irma-international.org/article/graph-covering-based-architectural-synthesis-for-programmable-digital-microfluidic-biochips/189119)

### Technology and Human Resources Management in Health Care

Stefane M. Kabene, King, Lisa and Candace J. Gibson (2010). *Ubiquitous Health and Medical Informatics: The Ubiquity 2.0 Trend and Beyond* (pp. 574-595).

[www.irma-international.org/chapter/technology-human-resources-management-health/42951](http://www.irma-international.org/chapter/technology-human-resources-management-health/42951)

### Performance Assessment of Ensemble Learning Model for Prediction of Cardiac Disease Among Smokers Based on HRV Features

S. R. Rathod and C. Y. Patil (2021). *International Journal of Biomedical and Clinical Engineering* (pp. 19-34).

[www.irma-international.org/article/performance-assessment-of-ensemble-learning-model-for-prediction-of-cardiac-disease-among-smokers-based-on-hrv-features/272060](http://www.irma-international.org/article/performance-assessment-of-ensemble-learning-model-for-prediction-of-cardiac-disease-among-smokers-based-on-hrv-features/272060)

### Design of Low-Cost Solar Parabolic Through Steam Sterilization

N. K. Sharma, Ashok Kumar Mishra and P. Rajgopal (2021). *International Journal of Biomedical and Clinical Engineering* (pp. 50-60).

[www.irma-international.org/article/design-of-low-cost-solar-parabolic-through-steam-sterilization/272062](http://www.irma-international.org/article/design-of-low-cost-solar-parabolic-through-steam-sterilization/272062)

### User-Centric and Inclusive Design Methods: Implications for E-Healthcare

Alastair S. Macdonald, David Loudon and Christopher S. C. Li (2010). *Biomedical Knowledge Management: Infrastructures and Processes for E-Health Systems* (pp. 134-153).

[www.irma-international.org/chapter/user-centric-inclusive-design-methods/42604](http://www.irma-international.org/chapter/user-centric-inclusive-design-methods/42604)