

## Chapter 31

# Associations Between Driving Forces to Adopt ICT and Benefits Derived from that Adoption in Medical Practices in Australia

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### **ABSTRACT**

*Information and Communication Technology (ICT) is today seen as a catalyst for change in the way work is carried out. Over the past decade there have been a number of studies examining both the decision-making behind ICT adoption (the driving forces for adoption) as well as the perceived benefits from that adoption. However, no studies have attempted to determine, or indeed map whether emphasis given to specific driving forces have manifested in differing perceptions of perceived benefits. The purpose of this chapter is to examine whether emphasis on particular driving forces for ICT adoption are associated with the perception of particular benefits. A study was undertaken amongst 198 Australian GPs. Results suggest that greater emphasis on improving communications gives rise to higher perceived benefits both in terms of communications and practice effectiveness, while emphasis on other drivers does not significantly alter the perception of benefits derived from adoption.*

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## **INTRODUCTION**

Information and Communication Technologies (ICT) are today seen as a catalyst for change in the way work is carried out (Kirigia et al 2005). In the healthcare sector, this has been recognised by the World Health Assembly, who, in 1997, saw technology as one function of sustainable health systems and, in 2005, saw technology as a means of leveraging health-for-all through the interchange of information and communications (Kirigia et al 2005). At the general practice level, the advent of affordable Internet-based information and communication technology (ICT) has led the medical and healthcare sectors to explore the use of ICT to improve patient care, to improve business effectiveness and efficiency and to improve communications between practices, hospitals and other healthcare institutions. From the late 90's studies began to appear detailing the design of clinical ICT systems (see for example Pelletier-Fleury et al. 1999, Baldwin et al. 2002, Hsu et al. 2005), the use of such systems within medical practices (see for example Ammenwerth et al. 2003, Waring & Wainwright 2002, Shohet & Lavy 2004, Catalan 2004) and, more recently, the decision-making behind ICT adoption (MacGregor et al 2007, Didham et al 2004, Pan & Pokharel 2007). Studies, for example, in New Zealand (Didham et al 2004), showed that time, costs and perceived lack of IT skill were important considerations for GPs when evaluating ICT. Lee et al (2005) found practice size and standardisation of work were of concern to many doctors, while Simon et al (2007) found practice size (both in terms of patient numbers and staff numbers) and the type of care being offered were statistically associated with the perception of both drivers for and barriers against ICT adoption.

Along with the studies examining the ICT adoption process, there have been a number of studies detailing the potential benefits derivable from ICT adoption and use in general practices. El-Sayed & Westrup (2003), for example, suggest

that ICT use in medical practices improves communication within and outside the practice, makes the business side of the practice more effective and helps build new business initiatives. Baldwin et al (2002) suggest that ICT support and enable complex interactions between GPs, consultants, patients, nurses and, in some cases, equipment. Fors & Moreno (2002) suggest that ICT, in medical practices, alter day-to-day procedures, making the overall final product more effective, while Ray & Mukherjee (2007) note the use of ICT to promote governance and planning.

It is interesting to note that while there have been studies investigating both the driving forces behind ICT adoption and the benefits derived from adoption, there have been no studies that have attempted to determine whether emphasis on specific driving forces give rise to specific benefits.

The purpose of this chapter is to examine whether emphasis on particular driving forces for ICT adoption are associated with the perception of particular benefits. The chapter begins by examining the nature of ICT in medical practices, in particular the driving forces behind the adoption process and benefits derivable from their adoption and use. The chapter then presents a study of 196 GPs who have adopted ICT in their practice. A series of factor analyses is applied to the data to determine, if possible, the groupings of driving forces and the groupings of benefits. Using these groupings a partial least square model was developed and tested to determine whether there is any association between perception of importance of driving forces and perception of subsequent benefits.

## **BACKGROUND: THE NATURE OF ICT IN MEDICAL PRACTICE**

The literature describes a wide variety of uses of ICT in medical practices. At the 'cutting edge' ICT support functions such as knowledge management

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