

Chapter XXXVII

Improving Health Services via Advanced ICT Networks

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ABSTRACT

This chapter describes an innovative broadband initiative that connects a group of general practices, medical specialists, hospitals, and other health providers in rural areas of Australia through a managed virtual private network. It provides secure connectivity for a variety of mission-critical healthcare delivery applications—for example, transmission of pathology and radiology test results direct to clinicians. The medical practices involved are small-medium enterprises (SMEs) and the key aspects of ICTs for them are the impact on costs, productivity, and customer service. The formal evaluation process examined the domains of appropriateness, efficiency, and cost-effectiveness. Being the first such health network of its kind in Australia, the project encountered challenges and, by overcoming these, has been guiding government policy in respect to e-health. Initially funded from March 2005 via a Commonwealth Government grant, the GoldHealth network moved into a sustainable mode in July 2006. This chapter provides insights into GoldHealth and should be a useful guide to any similar broadband network initiatives for the health sector elsewhere in the world.

INTRODUCTION

The term e-health has become widely prevalent since originating in the year 2000. The stakeholders considered to be the users or targets of e-health vary with a range of definitions. Some definitions emphasize applications for providers and organiza-

tions—particularly those stressing electronic data exchange for clinical and administrative purposes. Others emphasize provision of information, education, and services to consumers, including patients and “citizens.” A small number clearly identify e-health with consumer health informatics.

e-health is widely proposed to be a solution for the lack of medical and other healthcare specialists

in rural, remote, and outer metropolitan regions of many countries, including Australia. However, to realize the potential benefits, the infrastructure needed to provide many of the services requires sufficient bandwidth to allow transfer of large data files. Affordable broadband transmission is therefore seen as a key enabler and change agent for secure, functional, and equitable participation in e-health activities. Conversely, having broadband does not necessarily mean that health IT penetration will automatically follow (Farr, October 2006).

Exchanging highly sensitive personal and health information requires an acceptable legal and privacy framework that ensures that such information can be transferred securely to authorized users for approved purposes (National Health Information Management Advisory Council, 2001). This requires a secure broadband connection. Increasingly, healthcare providers are implementing a secure broadband connection to not only help improve their daily business processes, but to enable better collaboration in patient care, continuing professional education, and so forth. Although these challenges have been recognized for a relatively long period of time in the literature, there has been a huge diseconomy of scale when individuals, institutions, and medical practices have considered establishing electronic health information management systems, as, for example, in the Australian healthcare system where each institution and general practice operates separately.

Rural residents in Australia tend to have poorer health status and less access to health services (Simmons & Hsu-Hage, 2001). The cost of healthcare, the lack of choice, and the lack of access to health information is of concern to consumers (Bourke, 2001). It is also recognized that there is a difficulty in attracting and retaining medical, allied health, and nursing staff in rural hospitals, remote community health services, and so forth.

Against this background, the potential to improve access to healthcare has been used by governments as a vehicle to encourage adoption of broadband in urban, rural, and remote Australia. For example, in 2004, the "Broadband for Health" initiative funded broadband Internet access to general practices and Aboriginal Community

Controlled Health Services across Australia. Despite the logical benefits of implementing e-health systems for rural and remote areas, there have been difficulties in diffusing these services.

A variety of change management models and methods have been proposed for implementing e-health, including: interaction design theory (Coiera, 2002); informatics, which has been the label put on sociotechnical systems design by a number of authors (Coiera, 2004; Hersch, 2002); and some more loosely put together frameworks such as that proposed by Kaur, Forducey, Smith, and Schneideman-Miller (2005) who propose that there are basic elements of organizational change, "strategy, structure, people and processes, all of which need to be addressed for a balanced approach to change." Leonard (2004) points out that much of the research around implementing new technologies is "detailed and outline creative solutions and management theories, but have done little to facilitate the adoption of technology in healthcare."

REFERENCE SITE OBJECTIVES

The primary objective of the Eastern Goldfields Regional Reference Site (EGRRS) was to test, measure, and demonstrate the benefits of healthcare providers working in rural and remote zones having access to high-speed, continuous, higher-quality broadband connectivity through which they may effectively and securely access a range of relevant information and communications applications, that is, e-health.

Prior to the EGRRS rollout in early 2005, the majority of medical participants had either no Internet connection or only dial-up Internet from their practice or home, and this would have been typical for medical practices in other regions of Australia at that date.

DEMAND AGGREGATION CONCEPT

The EGRRS broadband initiative provided a catalyst for organizations and individuals in the

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