

# Chapter 10

## Multi-Dimensional Criteria for the Evaluation of E-Health Services

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### ABSTRACT

*E-health is an emerging field in the intersection of information systems, healthcare and business, referring mainly to healthcare services delivered and enhanced through the use of information and communication technologies (ICT). An important area of research is the evaluation of e-health services. A holistic e-health evaluation framework should address the aspects that are hampering healthcare services from embracing the full potential of ICT towards successful e-health initiatives. In order to build a holistic evaluation framework for e-health services, this article suggests framework characteristics for the appropriate evaluation for e-health services. The article argues that e-health services evaluation framework should be criteria based. The criteria have to be multi-dimensional that grounded in, or derived from, one or more specific perspectives or theories. The proposed evaluation criteria in this article can serve as part of an e-health evaluation framework, improve our understanding of the role of information systems in health care, and develop our ability to deliver high quality services.*

### BACKGROUND

E-health is a very broad term encompassing various activities in an evolving field. This is reflected in the broad and various definitions of the term.

An example of these definitions is the one that has been adopted by the World Health Organization. According to the Organisation, E-health can be defined as ‘being the leveraging of the information and communication technology (ICT) to connect provider and patients and governments; to educate and inform healthcare professionals,

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managers and consumers; to stimulate innovation in care delivery and health system management; and, to improve our healthcare system' (Hans Oh et al., 2005).

The variety of e-health applications is considerable, ranging from a self-help guide about treating common health problems at home to a virtual clinic which allows diagnostic consultations between patients and practitioners at separate sites. In light of the dynamic and evolving meaning of e-health concept and the wide range of applications that the term e-health has covered, the questions are what the term e-health means and what is the e-health application that should be considered. In this paper although we employ e-health as a broad term, the scope will be limited to the service delivery aspect by electronic means of information, advice, and consultation.

E-health, which are basically enabled and driven by the use of information and communication technologies in healthcare, have the potential to change the healthcare industry worldwide in terms of their infrastructures, and the costs and quality of services (Wickramasinghe & Misra, 2004; Wickramasinghe & Goldberg, 2004). Despite the potential that e-health may bring to the healthcare sector, the sector is the slowest in moving to the form of e-health among other government services. Skinner (2003) argues that the slow progress is related to the fact that healthcare does not have the standards in place that other sectors do. Holliday and Tam (2004) have a broader explanation; they see that slow progress is more related to institutional, cultural and financial factors.

An important area of research is that of the evaluation of e-health services. It could contribute to important knowledge that can be used to support the value of existing e-health projects, and to increase the quality and efficiency of future e-health initiatives. Despite its importance, the evaluation of e-health services as many researchers agree, is both an under developed and under managed area in theory and practice (Brender, 2006; Friedman & Wyatt, 2000).

This study forms a part of a research that aims to develop, and assess a holistic evaluation framework for e-health services. Towards this aim, the objectives of this paper are; addressing the challenges in developing such a framework, suggesting framework characteristics for the appropriate evaluation for e-health services, and proposing a multi dimensional criteria for e-health evaluation. The proposed multi-dimensional criteria can serve as part of e-health evaluation framework, and also to provide useful and necessary tools to allow the development of successful e-health initiatives by assisting the healthcare organisation to identify and thus address areas that require further attention. The selection process of the proposed criteria will take into account the challenges faced at the intersection of the three areas, healthcare services, information systems, and evaluation methodologies.

## **THE RESEARCH APPROACH**

According to Lowery & Evans (2004) and Myers & Avison (2002) that selecting an appropriate research approach is about setting a research strategy considering the underlying characteristics or assumptions about what constitutes valid research. Such strategy should guide the researcher through the research process by embodying a particular style and employing different research methods.

The process of selecting and deploying appropriate research approach for this study, is an important and critical issue, and should only be decided on after considering a number of factors including;

- The research question and its context (how to identify the key factors for the evaluation of e-health services?)
- The multi-dimensional aspects of e-health, as it has different roots and complex relationships associated with using information communications technologies, man-

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