

## Chapter 1.2

# Assessing E-Health

**Nilmini Wickramasinghe**

*Illinois Institute of Technology, USA*

**Elie Geisler**

*Illinois Institute of Technology, USA*

**Jonathan Schaffer**

*The Cleveland Clinic, USA*

### **ABSTRACT**

While healthcare is the biggest service industry on the globe, it has yet to realize the full potential of the e-business revolution in the form of e-health. This is due to many reasons, including the fact that the healthcare industry is faced with many complex challenges in trying to deliver cost-effective, high-value, accessible healthcare and has traditionally been slow to embrace new business techniques and technologies. Given that e-health to a great extent is a macro-level concern that has far reaching micro-level implications, this chapter first develops a framework to assess a country's preparedness with respect to embracing e-health (i.e., the application of e-commerce to healthcare) and from this, an e-health preparedness grid to facilitate the assessment of any e-health initiative. Taken together, the integrative framework and preparedness grid provide useful and necessary

tools to enable successful e-health initiatives to ensue by helping country and/or organization within a country to identify and thus address areas that require further attention in order for it to undertake a successful e-health initiative.

### **INTRODUCTION**

Technology has the potential to help solve many of the problems faced by developed and developing countries alike; from improving healthcare delivery to opening up commerce opportunities. The number of nations offering e-commerce solutions is increasing every year, and consequently the number of workplaces that have Internet connection for business activities has been rapidly growing worldwide. Table 1 provides three estimates of e-commerce forecasts. These projections clearly highlight the important role of e-commerce on

the global economy. However, as the Secretary General of the United Nations notes in his forward to the e-commerce and development report (UNCTAD, 2002), “knowing that an instrument is powerful is not enough to ensure that it will be put to the best use. We need to understand how it works, and how and when it should be used ... and maximize its power.”

Within the umbrella of e-commerce, one area, e-health, has yet to reach its full potential in many developed countries, let alone developing countries. Each country is positioned differently and has varying potential and preparedness regarding embracing e-commerce technologies generally and e-health in particular. Given the macro-level nature of many issues pertaining to the development of e-health (Alvarez, 2002), in order to be more effective in their e-health initiatives, it is important for countries to assess their potential, identify their relative strengths and weaknesses, and thereby develop strategies and policies to address these issues to effectively formulate and implement appropriate e-health initiatives. To do this effectively, it is valuable to have an integrative framework that enables the assessment of a country’s e-health preparedness. This chapter proposes to develop such a framework that can be applied to various countries throughout the globe and from this to generate an e-health preparedness grid. In so doing, we hope to facilitate better understanding of e-health initiatives and thus maximize their power.

## E-HEALTH

Reducing healthcare expenditure as well as offering quality healthcare treatment is becoming a priority globally. Technology and automation have the potential to reduce these costs (Institute of Medicine, 2001; Wickramasinghe, 2000), thus, e-health, which essentially involves the adoption and adaptation of e-commerce technologies throughout the healthcare industry (Eysenbach, 2001), appears to be a powerful force of change for the healthcare industry worldwide.

Healthcare has been shaped by each nation’s own set of cultures, traditions, payment mechanisms, and patient expectations. Therefore, when looking at health systems throughout the world, it is useful to position them on a continuum ranging from high government involvement (i.e., a public healthcare system) at one extreme, to little government involvement (i.e., private healthcare system) at the other extreme, with many variations of a mix of private–public in between. However, given the common problem of exponentially increasing costs facing healthcare globally, irrespective of the particular health system one examines, the future of the healthcare industry will be partially shaped by commonalties such as the universal issue of escalating costs and the common forces of change including a) empowered consumers, b) e-health adoption and adaptability, and c) shift to focus on the practice of preventative versus cure driven medicine, as well as four key implications,

*Table 1. Worldwide e-commerce estimates and forecasts (in billion \$) (Source: From United Nations Conference on Trade and Development, 2002. Available online from <http://r0.unctad.org>)*

Source	2000	2001	2002	2003	2004	2005	2006
Forester			2,293.50	3,878.80	6,201.10	9,240.60	12,837.30
IDC	354.90	615.30				4,600.00	
Emarketer (B2B only)	278.19	474.32	823.48	1,208.57	2,367.47		

18 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/assessing-health/26202](http://www.igi-global.com/chapter/assessing-health/26202)

## Related Content

---

### Image Mining for the Construction of Semantic-Inference Rules and for the Development of Automatic Image Diagnosis Systems

Petra Perner (2009). *Medical Informatics: Concepts, Methodologies, Tools, and Applications* (pp. 682-704). [www.irma-international.org/chapter/image-mining-construction-semantic-inference/26250](http://www.irma-international.org/chapter/image-mining-construction-semantic-inference/26250)

### A Novel Length Display Device for Cognitive Experiments and Rehabilitation

Naotsugu Kitayama, Haibo Wang, Satoshi Takahashi and Jinglong Wu (2011). *Early Detection and Rehabilitation Technologies for Dementia: Neuroscience and Biomedical Applications* (pp. 319-325). [www.irma-international.org/chapter/novel-length-display-device-cognitive/53453](http://www.irma-international.org/chapter/novel-length-display-device-cognitive/53453)

### Clinical Engineering in India: A Case Study

N. Sriraam, Nikitha Deepak, Pratibha Ashok Kumar, Priyanka Gopakumar, Shreya Sridhar, Ashwini B. Setlur, Megha Rani, Pooja R. and Eepsa (2014). *International Journal of Biomedical and Clinical Engineering* (pp. 52-62). [www.irma-international.org/article/clinical-engineering-in-india/115885](http://www.irma-international.org/article/clinical-engineering-in-india/115885)

### Classification of Breast Thermograms Using Statistical Moments and Entropy Features with Probabilistic Neural Networks

Natarajan Sriraam, Leema Murali, Amoolya Girish, Manjunath Sirur, Sushmitha Srinivas, Prabha Ravi, B. Venkataraman, M. Menaka, A. Shenbagavalli and Josephine Jeyanathan (2017). *International Journal of Biomedical and Clinical Engineering* (pp. 18-32). [www.irma-international.org/article/classification-of-breast-thermograms-using-statistical-moments-and-entropy-features-with-probabilistic-neural-networks/189118](http://www.irma-international.org/article/classification-of-breast-thermograms-using-statistical-moments-and-entropy-features-with-probabilistic-neural-networks/189118)

### The Impact of Professional Certifications on Healthcare Information Technology Use

Neset Hikmet and Anol Bhattacharjee (2009). *Medical Informatics: Concepts, Methodologies, Tools, and Applications* (pp. 1646-1656). [www.irma-international.org/chapter/impact-professional-certifications-healthcare-information/26326](http://www.irma-international.org/chapter/impact-professional-certifications-healthcare-information/26326)