

Critical Issues in Assessing Sustainability and Feasibility of E-Health

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INTRODUCTION

The cost of health care is increasing exponentially worldwide. The adoption and diffusion of e-health and the application of Internet and Communication Technology (ICT) in health care is growing at a rapid rate in an attempt to find cost-effective methods of providing quality health care. Both European and US governments are making e-health a priority on their agendas. However, few, if any, discuss the critical issues of the sustainability and feasibility of e-health models. We attempt to fill this critical void by presenting a macro framework that identifies the key components of a generic e-health system and identifying factors playing a role in the assessment of e-health sustainability.

BACKGROUND

During his State of the Union Address in January 2004, President George W. Bush affirmed the intention of the government to emphasize the role of technology in administration and delivery of health care in the United States (Bush, 2004). Similar sentiments have been voiced by European leaders (Global Medical Forum Foundation, 2005; Oslo Declaration on Health, 2003) and the World Health Organization (WHO) (e-health in eastern Mediterranean, 2005; A Health Telematics Policy, 1998). Both European and US authorities define their initiatives primarily in terms of medical information technology, centering on computerized patient records (CPRs) or, in more acceptable parlance, the EHR (electronic health record) (Brailer & Terasawa, 2003). WHO's platform statement (A Health Telematics Policy, 1998) speaks of a "health telematics policy," an all-inclusive term that incorporates not only EHR but also all health care services provided at a distance and based on the use of information and computer and

communications technologies (IC²T). Countries are now turning to various e-health solutions in order to stem the escalating costs of health care and yet provide superior health care delivery.

As any student of electronic business (e-business) knows, a number of dot.com companies went out of business in the early 2000s. Going out of business is also a fairly regular phenomenon in the brick and mortar world. Health care organizations have not escaped this "going out of business" problem. It is expected that e-health will face similar going out of business issues. At the same time, many businesses, including many health care organizations, have maintained continuity of profitable operations, and it stands to reason that e-health organizations can also do the same. Sustainability of businesses has been studied extensively by management theorists. However, to date, few studies, if any, have attempted to assess the sustainability and feasibility of e-health.

In this chapter, we attempt to study the sustainability of e-health. For this, we draw from our work on assessing the sustainability and feasibility of e-business models in general (Sharma, Wickramasinghe & Misra, 2002). Our proposed sustainability macro model also builds on our previous work in identifying the competitive forces facing e-health (Wickramasinghe, Misra, Vogel & Jenkins, 2006).

IDENTIFYING KEY ISSUES OF SUSTAINABILITY IN E-HEALTH

E-Business Models

The prime objective of a business model is to ensure that the organization is profitable (La Monica, 2000). E-businesses that offer products and services online must work efficiently and effectively to create profit

margins. E-businesses, like any business, can compete in the marketplace by differentiating their products and services from their competitors and by providing unique and better customer value. A product or service can be differentiated if customers perceive some value in the firm's products and services that competitors cannot match. Differentiation also can be done by offering different product features, timing, location, service, product mix, and linkages among functions (Afuah & Tucci, 2000). One can judge the customer value by examining whether a firm is offering its customers something distinctive at a cost the customer is willing to pay, and whether the combination of distinctiveness and price is a better value than provided by the firm's competitors. The success of the business model would then depend upon how the firm sets a price for the value offered.

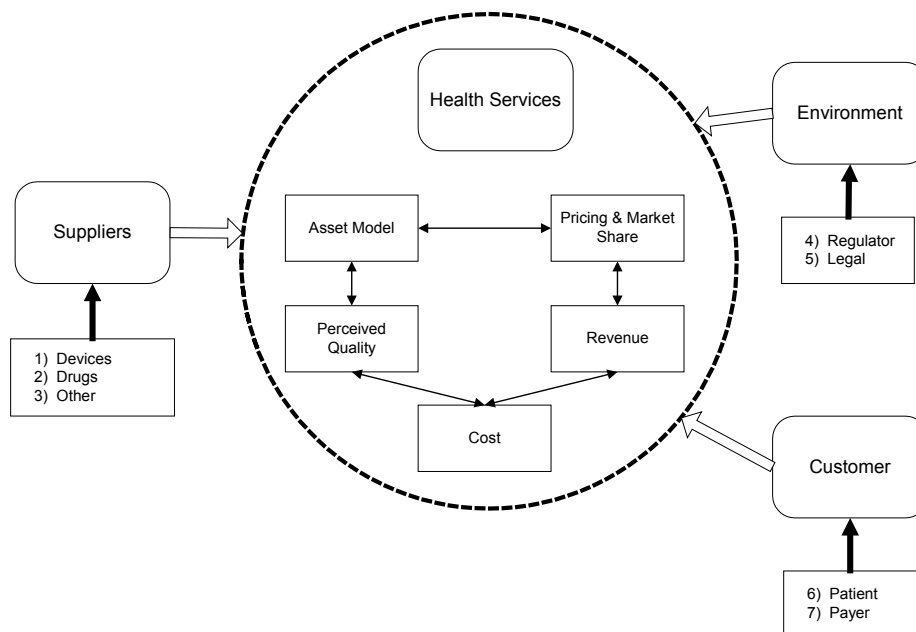
Pricing and profitability are factors of market shares and margins. A good business model can strive for high market share and devise strategies to maintain the market share. The cost and asset model of a firm also influences the product pricing decisions. The cost (fixed cost + variable cost) should be spread out in an appropriate fashion in order to maintain positive profit margins. For electronic businesses, profit margin is not only derived from product sales but also from many other revenue sources. Such revenue sources may

include banner advertising, membership, and referral fees. In addition, a firm can have significant competitive advantage if it offers products and services that cannot be imitated easily. The sustainability of a firm can be judged by examining issues associated with maintaining and improving the firm's market share as well as sources of its competitive strength. For example, using a simple profit equation ($\text{Profits} = (P - V_c)Q - F_c + \text{OthRev}$), we can examine how each of the components of a business model impacts profitability. If a firm offers distinctive products, it can charge a premium price P and increase the margin. The firm also can increase profit by reducing the variable cost V_c by increasing the market share Q and other revenues (OthRev) such as banner advertising fees (Afuah & Tucci, 2000).

E-Health Business Model

Our previous work (Figure 1) (Wickramasinghe et al., 2006) (1) has served to map the key components of an e-business model into the health care domain. Specifically, this model incorporates all the key actors of health care, including suppliers, health care organizations, providers, regulators, payers, and, of course, the patient. It is important to note that the dynamics of health care are quite unique (Gargeya & Sorrell 2004; Wallace, 1997; Wickramasinghe et al.,

Figure 1. E-health business model components



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