Chapter 38
E–Health Business Models Prototyping by Incremental Design

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ABSTRACT

Internet and IT (Information technologies) among other innovative drivers push companies to update their business models, and design stands out as an emergent issue strongly connected with innovation, which, in turn, is the main resource of the modern economy. One way to achieve innovation is through artifacts that allow the development of successful information systems in organizations. Moreover, the field of health appears as a sector with many opportunities to improve services through IT and design. Therefore, e-health comes out as one of the elements that should eventually help in the evolution of business models in health systems. In this chapter, the authors present a design method of IT artifacts for e-health adapted from the method proposed by Pahl and Beitz (1995). The correctness of the design method adopted is a significant issue to generate new business models successfully or to adapt the existing ones in health systems.

INTRODUCTION

Many health institutions are nowadays involved in e-health projects that envision the application of internet and IT to improve their activity. This is traduced, from one side, in opportunities for

multidisciplinary research and, in the other, is a chance to evolve some of the current business models in health.

E-health can become one of the main areas for e-business development in the future years, "thanks to information technologies have been touted as both a solution to rising health care costs and a way to reduce medical errors" (Adler-

Milstein, 2009). In fact, IT investment is central to President Obama´s vision for health care reform in the USA and his estimates of the savings from it have been substantial (Adler-Milstein, 2009). A similar view exists in Europe where e-health is one of the central items of the European Commission Agenda. The huge investments expected all and around the world will turn e-health in a fruitful field for opportunities, where final success of many of them will depend on business models innovation.

The work presented in this chapter, based in the collaboration between health institutions, an internet company and a technical university, allow testing a methodology to design and develop internet artifacts for e-health, considering the business model evolution from the beginning.

The work is founded on the desk analysis of current paradigms of design management and relays on a field experience based in the application of the proposed methodology to a 9 e-health prototypes created during the period 2006 – 2009. The last one, a tele-rehabilitation system named E-DIS, is used to illustrate the design methodology proposed.

BACKGROUND

The E-Health Area: Expectations and Difficulties

Despite the enormous investment, both public and private, in health innovation and the magnitude of the opportunity to both do good and do well, too many efforts fail, losing billions of investor dollars along the way (Herzlinger, 2006). Innovative solutions involving internet and multimedia systems should facilitate the renovation of health care business models that are a focal aspect of problems in the health systems. ICT may help with new products and services, to develop new treatments and to improve existing ones, and it is also a tool that may improve the processes. In the e-health sector,

successful innovation and the development of real health services arising from that innovation is not easy, has to be gradual, and must be connected with the evolution of health business models.

Technology in health allows record, measure, monitor, manage and provide guidance to the patient, together with the opportunity to offer care services through the Internet in real time (June Chuan Su, 2007). Telemedicine systems have enabled to maximize the collection, delivery and communication of medical information, clinical messaging, interaction with nurses and medical records (Maheu, Whitten and Allen, 2001), beside facilitates the exchange of information between doctors and patients. In short, the establishment of telemedicine systems encourages the integration of many activities in e-health clinics but also means dealing with a lot of data, information and resources (June Chuan Su, 2007). It also means having the obligation to have information systems commensurate with the importance of the task they perform. With a successful information system, allowing both to medical staff and patients to focus on other activities and, with this, translate effort and time into valuable medical resources.

The e-health sector appears as a huge market but largely untapped (European Commision, 2008). One of the main reasons for the health service providers not to invest in IT could be the lack of common standards between countries and interoperability problems. One consequence of the lack of investment is that the growth in companies supplying ICT for health sector is smaller than it could be (European Commision, 2008).

As the high risks would limit the private investments public administrations have to do extra efforts to encourage both sides of the market, offer and demand. Both in USA and Europe, the administration is expected to invest strongly in the technology sector oriented to health services for two reasons: the improvements that can be introduced into medical terms, and the money that should be saved through IT. Let's consider, for example, the adoption of electronic health

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