

Barriers and Critical Success Factors in E-Health Information Technology: A Case Studies Approach

C**Fernando Almeida***University of Porto Portugal***José Monteiro***Instituto Nacional de Engenharia e Computadores do Porto, Portugal***Mário Lousã***Instituto Superior Politécnico Gaya, Portugal*

INTRODUCTION

Health care, as many other services, to be efficient and effective, needs a well implemented management system. This is not imposed by people but a demand of an abstraction known as “markets”. As occurs in other sectors of activity, technological advances also bring new opportunities to health care sector.

The concept of e-Health introduces a new paradigm in health care services, where information systems play an important role in the mediation of actors’ activities. It is important to refer that the relation among medicine and technology is not totally new, however, with technological evolution, some concepts like the simple doctor/patient interaction mediated by a computer needs a long period of time to obtain consensus and acceptance by medical community and population.

E-health does not have a clear definition. Usually, it is characterized by a set of concepts which makes the term e-Health make sense. Starting with the demands of a good management, a set of characteristics of e-Health could be: the increased efficiency in order to decrease costs in health care; improving of quality of the service, provision of assertive information, correct diagnosis, precise information in real-time, etc.; empowerment of the patients, through the availability of clinical records and reports without bureaucratic barriers; changing of the doctor/patient paradigm to a partnership concept; standardization of the information exchange and communication procedures, preserving ethics and helping patient comprehension in each situation; decreasing of geographical barriers, creating the access to scientific advances beyond borders; to make health-care assistance more equitable, providing opportunities to people who have less money or moving difficulties (Eysenbach, 2001).

The objective of this study was to identify and synthesize the main barriers and critical success factors for the introduction of Information Technology Systems in e-Health. For that, we initially perform a revision of literature in this field and, after that initial phase, we conducted a case study approach based in five inquiries performed among health business specialists and IT specialists for health care field. Finally, we analyze and discuss the main results obtained from these interviews in order to synthesize the main barriers and success factors faced by these organizations.

LITERATURE REVISION

To contextualize Barriers and Critical Success Factors in e-Health Information Technology (IT) we need to present a brief approach to the process of development of information systems (IS).

The Process of Development of Information Systems

Overall, information and communication technologies have a potentially major role to play in health information systems. Some examples of the advantages of technology in health care are: the improvement of the access for geographically isolated communities or people without conditions to go to health care centers; data sharing among clinic community to help in the discovering of patterns or improve clinical solutions; provision of visual tools linking population and environmental information with disease outbreaks; and it is an electronic means for data capture, storage, interpretation and management (Lewis et al., 2012).

Some key issues to pay attention are: electricity systems, phone lines and Internet connectivity. They should be taken into consideration before implementing any new technology. Furthermore, human capacity and training are fundamental aspects of any IS implementation (Lewis et al., 2012). These issues are related with potential opportunities and benefits of IS, the success or fail of the investments in technology in health care, the development of a common understanding of among the actors of the process and, the availability of models and frameworks to evaluate the technology to support health care. The answers to the referred issues are not simple. Starting by opportunities and benefits of the technology, the major point depends of the regional and political conditions, like population and its educational competences, technological infrastructures and investments on health programs by government and local authorities. In the plan of investments, the importance of the problem demands leadership and senior management, engagement of clinicians, practitioners and other end users, a clear specification and definition of requirements and, a clear understanding of the complexity health domain by IT teams and IT companies responsible for developing and implementing the system (Dorsey. 2000; Lewis et al., 2012; Lucas, 2008). Independently, the efforts of the governments to define a common politic of education to their populations, there are different levels of education, culture, needs and experiences. To reach a common understanding, it is necessary to progressively decrease the barriers caused by those different levels and maintain the focus and the efforts on education. In the plan of the evaluation of technology, the major points are: reflection about the past failures to avoid repeating the same mistakes, acceptance of successful projects as boost to new projects and, shift from local to global (Jung & Loria, 2010; Rodrigues, 2008).

To manage and use the technology we have the actors. Evidences point that systems cannot exist without actors. Considering health care actors have an important role during the decision-making process for IS adoption (Mantzana, et al., 2007), use and tested a method, named IGOHcaps, in the identification of the actors to the adoption of IS to support health care. The method is basically composed by two approaches:

1. Static step, and
2. Dynamic step.

The first approach (static step) is used to identify the actors. The most relevant considerations are the existence of two perspectives: individuals or organizations. Actors are viewed as individuals or as organizations that affect or are affected by IS applications. To Mantzana et al. (2007) it is relevant to identify how the IS adoption affects and is affected by human relationships and organizational processes.

9 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/barriers-and-critical-success-factors-in-e-health-information-technology/151942

Related Content

Challenges Exist in Translating Brain Signals Into Words Using Brain-Computer Interfaces (BCIs)

Ravichander Janapati, Sudula Sriram Reddy, Gajji Anitha, Rebelli Shivani and Vempati Sreya (2024). *Medical Robotics and AI-Assisted Diagnostics for a High-Tech Healthcare Industry* (pp. 144-161). www.irma-international.org/chapter/challenges-exist-in-translating-brain-signals-into-words-using-brain-computer-interfaces-bcis/341115

Research on Denoising of Brain MRI of Alzheimer's Disease Based on BM3D Algorithm

Xin-lei Chen (2021). *International Journal of Health Systems and Translational Medicine* (pp. 33-43). www.irma-international.org/article/research-on-denoising-of-brain-mri-of-alzheimers-disease-based-on-bm3d-algorithm/277368

GAN-Based Medical Images Synthesis: A Review

Huan Yang and Pengjiang Qian (2021). *International Journal of Health Systems and Translational Medicine* (pp. 1-9). www.irma-international.org/article/gan-based-medical-images-synthesis/277366

Research on Denoising of Brain MRI of Alzheimer's Disease Based on BM3D Algorithm

Xin-lei Chen (2021). *International Journal of Health Systems and Translational Medicine* (pp. 33-43). www.irma-international.org/article/research-on-denoising-of-brain-mri-of-alzheimers-disease-based-on-bm3d-algorithm/277368

Domestic Violence Is a Significant Public Health and a Health Administration Issue in the U.S.

Allison J. Huff, Darrell Norman Burrell, Amalisha Sabie Aridi and Grace E. McGrath (2023). *International Journal of Health Systems and Translational Medicine* (pp. 1-21). www.irma-international.org/article/domestic-violence-is-a-significant-public-health-and-a-health-administration-issue-in-the-us/315298