

Evaluating the Barriers of Hospital Information System Implementation Using Analytic Network Processes (ANP) Method

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Abstract

Hospital Information System (HIS) refers to a computer system designed to manage all the hospital's medical and administrative information in order to enable health professionals to perform their jobs more effectively and efficiently in order to provide high-quality patients care services. Nevertheless, in successful implementation of HIS, various barriers exist. Hence, in this study the dimensions and barriers of HIS implementation have been analysed and prioritized to aid hospital policy makers address these broad challenges effectively in terms of cost and time. To this end, the Analytic Network Processes (ANP) applied to investigate which factors are more important to be considered in HIS implementation. Two influential groups of respondents in HIS implementation were chosen to fulfil the survey who works as hospital managers and information technology department administrators. The findings of this study showed that technical problems related to system design, lack of organizational training, lack of powerful information networks, user dissatisfaction about content of system, privacy concern, and no incentive to use system, are the major barriers of HIS implementation. It is wished that by ranking of these barriers, policy makers during the planning for HIS utilization make a right decision in what to do.

Keywords: HIS, Private hospital, Implementation, ANP

1. Introduction

It is known that one of the most widely used Information Technology (IT) applications is Hospital Information System (HIS) within hospitals (Hsiao, Chang et al., 2011). According to Ahmadi et al. (2015a), HIS refers to "a computer system designed to manage all the hospital's medical and administrative information in order to enable health professionals to perform their jobs more effectively and efficiently." Improving patient safety, increase quality of medical care and decrease healthcare costs to the community are the objective of HIS technology (Ahmadi, Nilashi et al., 2016; Lee and Wan, 2003; Ahmadi, Rad et al., 2014a). Despite all the facts, several issues and challenges in HIS implementation have been in existence (Tachinardi, Gutierrez et al., 1993; Chang, 1996; Boonstra and Broekhuis, 2010; Ismail, Abdullah et al., 2013; Ahmadi, Nilashi et al., 2015b; Ahmadi, Nilashi et al., 2015c).

Throughout the world, in the healthcare industry, the widespread utilization of technology become common (Ahmadi, Darvish et al., 2014b; Ahmadi, Nilashi et al., 2014c; Chang, 1992), with plans to utilize both present and future HIS applications. According to Hsu et al. (2006) "the use of HIS that embraces the ability to plan, organize, and document patient care is leading to changes in care delivery processes and is contributing to improvements in the

quality of the processes and in the outcomes of health care." By adopting and implementing HIS, health-care providers can fulfil the demands of high quality patient care and support healthcare task, which lead health processes to be improved (Ahmadi, Nilashi et al., 2014d; Ahmadi, Osmani et al., 2013a; Ahmadi, Rad et al., 2013b; Hossain and Quaddus, 2011).

Although, there is numerous benefits of utilizing HIS, but, the healthcare sector has been reported to be slow in adopting HIS and sustaining its use (Ahmadi, Nilashi et al., 2015d). In this regard, the adoption and acceptance of these systems are delayed by variety of factors. Some factors like over ambition, complacency, over-rating computer technology, over reliance on Information and Communication Technology (ICT) professionals and ICT consultants, undue confidence in the power of the contract to penalize an underperforming ICT company, and trust in costly custom built software as key factors to cause failure of HIS implementation. Moreover, more fundamental issues have been observed with regard to the developing countries. These included the lack of adequate electricity supply, lack of computer infrastructure, lack of funding, unsustainable funding, and the low level of educational of the technical staff who, rather than the clinicians, and tend to be the primary users of the system in developing countries (Cardozo, McLaughlin et al., 1993; Choudrie and Dwivedi, 2005). Besides, the main users of HIS including