

## Multi-level Model for the Adoption of Hospital Information System: A Case on Malaysia

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### Abstract

Hospital Information System (HIS) is an integrated Information System (IS) designed to enhance clinical, financial and administrative functions of a hospital. HIS is important in the healthcare industry as it supports a wide range of highly specialized health-care tasks and services. Previous research shows that the trend of HIS adoption is slow with respect to Malaysian public hospitals. In addition, there is small number of studies that have looked into the HIS adoption inside the context of Malaysian public hospitals. Hence, by relying on secondary data, the aim of this study is to provide a literature review of HIS adoption as well as to recommend the potential factors that affect the adoption of HIS. To this end, a conceptual multi-level model is proposed by integrating Technology Organization Environment (TOE) framework, institutional theory, and Theory of Planned Behaviour (TPB). Our conceptual multi-level model is proposed based on reviewing the existing literature of Information Technology (IT) adoption theories connected to studies of HIS innovation that consists of four dimensions and corresponding variables. Thus, this study provides a direction for future research to study the relationships of identified contextual factors in our proposed multi-level model that can have a major effect on the adoption of HIS innovation.

Keywords: Hospital information system, Malaysian healthcare, Technology-organization-environment framework, Institutional theory, Theory of planned behaviour

### 1. Introduction

There is a growing transformation of Information Technology (IT) into the healthcare industry (Wilson and Lankton, 2004; Ahmadi et al., 2014d). Hospitals by adopting IT applications would gain the great benefit, ranging from medical systems to administration systems. This is due to the fact that hospitals are an information intensive industry (Chang, Hwang et al., 2006). E-Health, Electronic Health Record (EHR), Hospital Information System (HIS) and Telemedicine are various initiatives that have established the usage of Information System (IS) which lead to enhance the efficiency, decrease medical error, cost effectiveness and boost the participation of patient in healthcare decision making (Lee, Ramayah et al., 2012). Furthermore, each country is implementing these initiatives according to the situation of its healthcare system that corresponding to the typical applications.

One of the advanced categories of HIS is Total Hospital Information System (THIS). THIS is a computerized hospital information system aimed at providing a paperless environment (Sulaiman, 2011). It integrates clinical and non-clinical information and its key features is that it includes all areas of clinical, financial and administrative. There are many benefits that THIS brings to the healthcare community and indirectly gives numerous values to the patients (Ahmadi et al., 2015c). These benefits include appointments and scheduling of patients, patient registration, admission, discharge and transfer as well as the management of clinical data documentation. Moreover, waiting time identified as one of the major issues in a non-computerized hospital that was the focus for betterment by a fully computerized hospital as was the reduction in patient admission waiting time (Salleh, 2003; Sulaiman, 2011; Ahmadi et al., 2014a; Ahmadi et al., 2014b; Ahmadi et al., 2015c). Nevertheless, the healthcare sector has also been reported to be slow in adopting the HIS (Stegwee and Spil, 2001; Sulaiman, 2011; Lee, Ramayah et al., 2012;