



ELSEVIER

Contents lists available at ScienceDirect

Technological Forecasting & Social Change

journal homepage: www.elsevier.com/locate/techfore

The moderating effect of hospital size on inter and intra-organizational factors of Hospital Information System adoption

Hossein Ahmadi^a, Mehrbakhsh Nilashi^{b,c}, Leila Shahmoradi^d, Othman Ibrahim^b,
Farahnaz Sadoughi^{a,*}, Mojtaba Alizadeh^e, Azar Alizadeh^f

^a Department of Health Information Management, School of Health Management and Information Sciences, Iran University of Medical Sciences, Tehran, Iran

^b Faculty of Computing, Universiti Teknologi Malaysia, 81310 Skudai, Johor, Malaysia

^c Young Researchers and Elite Club, Yasooj Branch, Islamic Azad University, Yasooj, Iran

^d Health Information Management Department, School of Allied Medical Sciences, Tehran University of Medical Sciences, No #17, 5th Floor, Farredanesh Alley, Ghods St, Enghelab Ave, Tehran, Iran

^e APA Research Center of Lorestan University (LU-CERT), Lorestan University, Khorramabad, Iran

^f Computer Engineering, School of Engineering, University of California, Merced, CA 95343, USA

ARTICLE INFO

Keywords:

Hospital Information System (HIS)
Adoption model
Malaysian public hospitals
RDT
HOT-fit
Institutional theory
Government policy

ABSTRACT

Healthcare is a highly institutionalized industry, subject to multiple regulatory forces, high levels of professionalism, and growing network externalities which may affect the decisions to adopt. Hence, this research integrates the Resource Dependence Theory (RDT), institutional theory along with Human Organization Technology (HOT) fit model as the organization theories to explain the adoption of Hospital Information System (HIS). To examine the effects of inter and intra-organizational potential factors on HIS adoption, within the context of Malaysian public hospitals, a survey method using web-based questionnaire is employed. The role of hospital size in this study is investigated to determine its distinct moderating influence among the relationships of the HIS adoption and significant dimensional factors. The results indicated that system affiliation ($p < 0.05$), mimetic pressure-competitors ($p < 0.1$), normative pressure ($p < 0.05$), and employees' IS knowledge ($p < 0.05$) were the most significant drivers for adopting HIS in the public hospitals of Malaysia. The results also showed that hospital size as the only moderator of this study has no significant effect on the other relationships in our developed theoretical model. In other words, the effects of the significant factors on HIS adoption are the same in three small, medium, and large Malaysian public hospitals. This research presents a conceptual foundation for future researches and fills a gap in the literature regarding the inter-organizational factors influencing the adoption of HIS.

1. Introduction

It has been reported that one of the fastest growing industries is healthcare (Ahmadi et al., 2015; Chong and Chan, 2012; Curry and Sinclair, 2002; Hegde, 2008; Sherer et al., 2016) that is shifted into the information age. In this industry, Information Technology (IT) plays a critical role to bring a huge transformation (Lu et al., 2012; Nilashi et al., 2016; Sadoughi et al., 2016; Wilson and Lankton, 2004). For example, IT application drives hospitals to obtain greater organizational advantages by automating their healthcare services and providing utmost satisfaction to its stakeholders (Ahmadi et al., 2017; Ayatollahi et al., 2016; Chang et al., 2006). Nonetheless, recently authors believed that the United States healthcare industry is slow compared to other industries in its IT implementation embeds within its

work processes (Lee et al., 2012; Sherer et al., 2016; Sulaiman, 2011), particularly for Hospital Information System (HIS) (Esfahani et al., 2017; Nilashi et al., 2016; Ahmadi et al., 2017; Sulaiman, 2011; Ahmadi et al., 2015; Ahmadi et al., 2014a; Masrom and Rahimly, 2015; Lee et al., 2012; Wager et al., 2005; Menachemi et al., 2004; Stegwee and Spil, 2001; Suomi, 2001; Wickramasinghe, 2000).

“Crossing the Quality Chasm” report was published by the Institute of Medicine’s 2002, and announced that healthcare quality is significantly improved by the forces of Health Information Technology (HIT) (Sadoughi et al., 2016; Sherer et al., 2016). Nevertheless, the adoption of HIS in the Malaysia has been slow: < 15% of Malaysian public hospitals have used totally integrated HIS system (Ahmadi et al., 2015; Ahmadi et al., 2017; Ismail et al., 2013; Lee et al., 2012; Masrom and Rahimly, 2015; Nilashi et al., 2016; Sulaiman, 2011), even as

* Corresponding author.

E-mail addresses: nilashidotnet@hotmail.com (M. Nilashi), sadoughi.f@iums.ac.ir (F. Sadoughi).

<https://doi.org/10.1016/j.techfore.2018.05.021>

Received 3 March 2017; Received in revised form 28 March 2018; Accepted 22 May 2018
0040-1625/ © 2018 Elsevier Inc. All rights reserved.

studies were predicting significant efficiency and patient safety (Hillestad et al., 2005; Masrom and Rahimly, 2015).

The vision of 2020 plan has been launched by the Malaysian government to meet the purpose of Information System (IS)/Information Technology (IT) incorporation as a pillar of initiative in the future regarding the context of healthcare. Nevertheless, as it was intended, the actual implementation of these plans is not progressive (Ahmadi et al., 2015; Chin, 1998; Ismail et al., 2013; Lee et al., 2012; Sulaiman, 2011). The Telemedicine Blueprint under the Multimedia Super Corridor (MSC) Telehealth project which is one of the healthcare reform initiatives has been more emphasized recently to improve the Malaysian healthcare system (Ahmadi et al., 2015; Sulaiman, 2011). In the country, health services such as purchasing the systems and state-of-the-art equipment is subsidized by the tax revenues. Hence, it is vital for the HIS equipped public hospitals to give excellent services and perform efficiently (Ahmadi et al., 2015; Ahmadi et al., 2017; Chee and Barraclough, 2007; Sulaiman, 2011). Therefore, the government is required to fulfill the fairness obligation. This is due to the fact that revenue from general taxation is aimed to subsidize health services. Accordingly, it has become important in today's government works to deliver the fast efficient services and attain the fairness goal to provide better healthcare services (Ahmadi et al., 2017; MOH-Malaysia, 2011–2015; Sulaiman, 2011).

In Malaysia, a lack of skilled human resources to embrace the technology has been reported as the main challenges of information systems implementation (Ahmadi et al., 2015; Ismail et al., 2013; Ismail et al., 2015; Lee et al., 2012; Nilashi et al., 2016; Sulaiman, 2011). In addition, the implementation of information systems in Malaysia hospitals has been challenged by coping with the changes. It is difficult for the healthcare staff to accept and adapt to a paperless environment (Bulgiba, 2004; Sulaiman, 2011). Therefore, distracting from the enhancement of staffs' IT knowledge through effective IT training lead to resistance to technology changes (Sadoughi et al., 2017; Lian et al., 2014; Ahmadi et al., 2015; Marques et al., 2011; Yusof et al., 2008a; Yusof et al., 2008b; Lee et al., 2012; Tsiknakis and Kouroubali, 2009; Davis, 1993).

Malaysian hospitals and clinics are competing together in the aspect of business. Furthermore, Malaysia healthcare system is competing with Thailand and Singapore as developing countries (Ahmadi et al., 2015; Chee and Barraclough, 2007; Chong and Chan, 2012). In Malaysia, in the advent of globalization, government outlined various reformation plans for the purpose of being competitive with other developing countries (Ahmadi et al., 2015; Siddiquee, 2006; Siddiquee, 2008; Siddiquee, 2010; Sulaiman, 2011). High institutionalization, in terms of regulatory oversight and professional roles, are a dominant dilemma in the healthcare industry (Ahmadi et al., 2017; Faber, 2014; Scott, 2000; Sherer et al., 2016; Nilashi et al., 2016; Mohr, 1992; Currie, 2012). Also, government can possess a major impact in terms of financial incentives and aids which is irreplaceable. Additionally, public hospitals practices are embedded in various institutional networks that may influence adoption. For example, high level of professionalism exists among physicians where they frequently affiliate within their own specialties through qualified training and involvement in organizations that are specialty-focused (Sherer et al., 2016). Successful adoption of HIS by organizations, in their own region will control their decisions, specifically if uncertainty of the benefits exists among them. Hence, practices of HIS main users bring pressure to participate as regional networks to adopt HIS and start to share information among hospitals, pharmacies, and other healthcare service providers (Ahmadi et al., 2017; Currie and Guah, 2007; Klöcker et al., 2014).

By considering the uniqueness of healthcare industry compared to other industries and also the strong impact of institutional forces, the present study assumes that adoption is emanated from institutional pressure and hence, intends to explain how adoption of HIS in Malaysian public hospitals is affected by institutional forces (Ahmadi et al., 2017; Currie, 2012; Faber, 2014; Jensen et al., 2009; Klöcker

et al., 2014; Sherer et al., 2016). Furthermore, it is required that HIS interoperates with others (e.g. within the same department, different wards and hospitals) to be eligible for subsidies given by government and to prevent regulatory penalties.

Thus, the authors of this study concentrate on the externalities, their influential forces, capabilities of human regarding the IS and also the way they can leverage in adopting HIS. Again, the study at hand distinguishes broader institutional environment of organizations from their trade partners and integrates Resource Dependence Theory (RDT) and institutional theory as the potential lens to facilitate hospitals in spreading the adoption of HIS (Ahmadi et al., 2017; Currie, 2012; Kazley and Ozcan, 2007; Menachemi et al., 2011; Menachemi et al., 2012; Sherer et al., 2016; Weech-Maldonado et al., 2009). The aforementioned discussion addresses the call for more information systems research that to be engaged with institutional theory and RDT to aid seeping their way into the discipline of implementation science, in particular, to comprehend organization's innovation adoption; hence to more understand and recognize the unique aspects of the healthcare industry.

A great majority of former studies concentrating on the successful adoption process are composed of the empirical studies based on intra-organizational factors (Teo and Pian, 2003; Premkumar and Roberts, 1999; Kirkbesoglu and Ogutcu, 2012). Nevertheless, adoption and expansion of information technologies are importantly maintained through the inter-organizational relationships (Nilashi et al., 2016; Sherer et al., 2016). In other words, organization's interaction with its environment is vital. Hence, macro perspectives grounded on inter-organizational interactions have to be taken into immediate consideration as a conceptual ground (Kirkbesoglu and Ogutcu, 2012; Wang, 2008; Yeager et al., 2014).

Generating a new developed model that includes the impacts of inter-organizational networks and human factors as a guideline to predict the possible effects which will bring improvements in the process of HIS adoption, is the main purpose of this study. Based on this, a theoretical model is developed from two concepts of organization communities and organization theories, as organization is the most imperative application field of information systems. To this end, various organization theories such as institutional theory, RDT and Human Organization Technology-fit (HOT-fit) model were integrated to produce a clear understanding of environmental pressures, organizational and human factors to HIS adoption, thus, assisting hospitals' directors or decision makers to grow the HIS adoption trend.

2. The problem statement and our contribution

Hospitals implement HISs to improve the efficiency and effectiveness of their healthcare professionals (Lin et al., 2012), as well as to meet requirements for high-quality patient care. HIS tries to bring together the clinical and administrative functions of a hospital (Bardhan and Thouin, 2013). This system has become an essential tool in many healthcare systems, used in acquiring, processing and managing the patient's abundant and complex information during their stay in the hospital, or even for outpatient visits, and it supports all the practical, tactical and strategic hospital activities (Ahmadi et al., 2017; Ismail et al., 2013; Nilashi et al., 2016; Sulaiman, 2011).

In late 1999, in Malaysia the HIS project under the Prime Minister's vision was begun, aimed at reinforcing to be a developed country by the year 2020 (Abdullah, 2008; Ahmadi et al., 2015; Lee et al., 2012). In addition, the main purpose was to be more competent to possess a single HIS concerning both clinical and non-clinical aspects of hospital's operation (Ismail et al., 2015). Nonetheless, the integrated technology adoption trend has been slow progress in the hospitals, where Lee et al. (2012), Ahmadi et al. (2015) and Masrom and Rahimly (2015) note that in Malaysian hospitals the level of Information and Communication Technology (ICT) integration into the healthcare delivery system is unsatisfactory. The National Key Economic Areas (NKEAs) which are at

Download English Version:

<https://daneshyari.com/en/article/7255144>

Download Persian Version:

<https://daneshyari.com/article/7255144>

[Daneshyari.com](https://daneshyari.com)