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Critical Success Factors (CSF) of Health Care IS and Firm Performance at Jordanian Health Sector

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Abstract

Although the importance of investing in health technology has increased in the presence of electronic channels such as the Internet, there is lack of studies in how Jordanian hospitals are implementing such services. This research will examine the critical success factors of health care quality implementations as part of e-services models of the Jordanian health service sector. The researcher will adopt across triangulation methodology for research including survey by using drop and collect questionnaires in Jordan; and conducting interviews with Jordanian managers and executives in the adopted sector. This is to develop and empirically test a comprehensive causal model regarding critical success factors (hereafter, CSFs) that affect organizational performance in terms of user satisfaction. Therefore, the model will help the Jordanian health industry especially the managers and executives to walk through their investment decision and understand the required resources and conditions to realize the potential values of their health technological investments.

Keywords: Health Care Information Systems, Firm Performance, Jordan.

1. Introduction

Quick increases in globalization and free trade continue to enhance global competition which has changed the business environment (Gursoy and Swanger, 2007, Tarhini *et al*., 2015; Hassouna *et al*., 2015). Further, rapid environmental change, globalization, competition to provide innovative products and services, changing customer and invest or demands have become the standard

backdrop for organizations (Obeidat *et al*., 2014). To compete effectively, firms must constantly improve their performance by reducing costs, enhancing quality, and differentiating their products and services. Indeed, today's business environment is characterized by rapid change, knowledge explosion, technological advancement, and intense competition (Stewart, 1989; Gursoy and Swanger, 2007). This is by stating that the role of IT in the organization has evolved by which researchers from 1980 till now consider the IT component as an enabler to achieve the competitive advantages, considered as a strategic weapon, and as a crucial support to operational and strategic business processes that has been widely accepted (Obeidat *et al*., 2016). IT is an enabler to achieve strategic business objectives; operational excellence; new products, services, and business models; customer and supplier intimacy, improved decision making; competitive advantages; and survival (Laundon and Laundon, 2012). Also, as the electronic sale of goods still represents only a small fraction of economic activity, the internet seems, at this moment in history, to present almost unlimited possibilities. Today the world is facing an 'electronic' change that is affecting the way people communicate and which is transforming the entire value chain from manufacturers and retailers to consumers (Donthu and Garcia, 1999). Further, the adoption of e-services has meant that manufactures, suppliers, retailers and traders and also customers have all benefited by being able to buy goods online (Aladwani, 2003; Masa'deh e al, 2016).

Furthermore, the world today witnesses a transformation in many ways; the advancement in the computer industry and IT devices helped in these transformations by enabling the transmission of information across networks by using minute devices such as laptops and means of multi storing such as the Smart Card which holds a complete computer but small as an ID card. Moreover, over the past several decades, technology adoption has been widely addressed in the organization theory, information systems, economics and technology management literature. However, some scholars (e.g. Rockart, 1979) confirmed that critical success factors theory has been recommended when researchers aim to investigate best practices. The rest of this paper is organized as follows. The next section discusses the importance of this research. Then, theoretical background of the proposed model is developed. The following section describes the research methodology, and then the paper ends with a number of conclusions.

2. The Importance of the Study

The world today is turning more toward globalization whereby there are no borders or limits (Tarhini *et al*., 2015; Shannak *et al*., 2012). Although this globalization is multi-facets but the economical globalization is the most prominent (Masa'deh *et al*, 2016). The World has become a small village and easy to move around in but competition has become harder because of the continuous and rapid changes resulting from the technological advancement (Orozco *et al*., 2015, Abbasi *et al*., 2015). This requires increase the size and varieties of health technology services and taking the lead in the introducing new e-services and products and e-channels to deliver these services to clients abroad, so that borders would become nothing but a meaningless geopolitical lines in the financial transactions wise (Quirós, 2002; Almajali *et al*., 2016). Therefore, continuous work should be done to achieve comprehensiveness in providing health care services.

CSF has been defined by Bullen and Rockhart (1981) as "the limited number of areas in which satisfactory results will ensure successful competitive performance for the individual, department, or organization". Furthermore, several researchers such as Carman *et al*. (2010) indicated that health care quality enablers and patient safety and satisfaction are still incomplete in many productive and service sectors, and more research is needed to contribute more in the field of study. Further, developing countries, including Arab countries, almost have no contributions on the international technological and scientific level and still as recipients of these developments through their markets (Salem, 2006; Alenezi *et al*, 2015; Masa'deh, 2016). In addition to that, these countries are prone to the effects of these international developments, there are many signs indicate the expansion of the technological and scientific gap between the developing countries and the developed countries group. In the health care field, the gap still unabridged in the field of IT and especially regarding the tools and areas of e-exchange which form the subject matter of this study. Moreover, although the importance of electronic technology investment has increased in the light of shared electronic channels along with others services (Machiragy, 2001; AlTamony *et al*, 2012; Masa'deh *et al*, 2015); the Jordanian clients' satisfaction has not become associated with such electronic inventions (Masa'deh et a;, 2015). Therefore, the researcher will examine the health care implementations of the Jordanian health sector. Moreover, the researcher has chosen Jordan, because of the lack of research in the area of

Jordanian health care quality, the readiness access to the hospitals, and as this may open the gate to further research opportunities. Thus, this study not only will extend the theory of CSFs to Jordan health sector, but also benefit Jordanian decision makers as IT and business managers and executives.

The contribution to knowledge will be achieved by identifying the gaps in the literature. By examining and filling those gaps, the researcher will be able to develop new approach in the health care quality field. Therefore, the overall aim of this study will be to develop a model for best practice in health services that could be helpful for the appropriate practitioners and policy makers. This is by applying CSFs theory for more thoughtful of the organisational factors concerned in health technology. The model will be applied for the overall sample of developing nation (Jordan). In order to achieve the desired goals and to shape new proposed model, the researchers' objectives of the study are to develop a research model identifying the organisational CSFs in the successful adoption health care quality; and to empirically test the research hypotheses for the overall sample, and to validate the research model.

3. Research Theoretical Framework

Indeed, there are many logical explanations behind implementing the philosophy of quality, of which stems from the importance of improving the level of quality whether it was from selling goods or customer service, or even the quality of operations within the organization, and it should be mentioned that the quality of the goods sold to the customers are necessarily the product of the quality of the internal operations of the organization, so the concentration is not only about customers service or providing goods for the customers based on quality's specifications, operations and activities within the organization should follow the quality standard, but it must be subject to a group of processes and activities within the organization on quality basis which focuses on the patient safety, also, which is considered one of the characteristics of the health system, and it is one of the most important propriety for a good patient care. Therefore, it is one if the organizational, administrative and economic concerns, as well as being one of the clinical concerns for the health care system (Carman *et al*. 2010).

In addition, it is important to know that the definitions of quality of care are continually evolving (Legido-Quigley, McKee, and Nolte 2008). Originally, the definition of quality was within the

purview of health professionals and researchers. Yet, there is a growing credit that the preferences and views of patients, the public and other key players are also pertinent (Brook, McGlynn and Cleary 1996; Shaw and Kalo, 2002). For instance, Donabedian (1980) defined quality of care as the kind of care which is expected to maximize an inclusive measure of patient welfare; Institute of Medicine (1990) considered quality of care as the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge. Department of Health (UK) (1997) stated that quality of care is: doing the right things (what), to the right people (to whom), at the right time (when), and doing things right first time. Also, Council of Europe (1997) defined the term of quality of care as the degree to which the treatment dispensed increases the patient's chances of achieving the desired results and diminishes the chances of undesirable results, having regard to the current state of knowledge. World Health Organization (2000) Quality of care is the level of attainment of health systems' intrinsic goals for health improvement and responsiveness to legitimate expectations of the population.

Javier *et al*. (2006) argues that the application of information and communication technologies to clinical activity gives rise to electronic health and clinical records (e.g. identification of persons, integration of information and compliance with the norms of security and confidentiality). This is to say that clinical information takes part in a health information system and is a source of data for the management of knowledge, epidemiology and health care planning; consequently improvement in continuity and quality of health care occurs. Also, some studies tried to decentralize Health Information Systems (HIS) in numerous developing countries as a part of health sector reforms by which some communities insisted on decentralization of health care systems as a tool to boost quality and sustainability of health services and availability of timely resources at local levels by eliminating layers of bureaucracy. Further, Honest and Sundeep (2007) studied the process of decentralizing HIS in Tanzania in order to support the efficiency and management of health services by incorporating local use of information in decision making and planning. They found three factors of institutional influences on the HIS originating from the political administrative, health management, and health service delivery systems.

Furthermore, Sauerland (2009) studied health care systems in Germany and found that it faces two main challenges. The first one is to find a sustainable financing system for increasing health

care expenditures; whereas the second was to ensure and improve the quality of care provided. Kodate (2010) examined three universal health care systems (England, Sweden and Japan) and explored the degree to which political institutions and public opinions impact the processes of quality assurance system building within them. The study found that the inputs from governments in response to public concerns were the key to understanding the changes in the policy domain; therefore policy changes were significantly impacted by dynamic interactions between events, public discourses and governance structures within these countries. The findings also demonstrated that public access to information had begun to have a huge effect on policy debates in altogether three countries. In a recent study, Shih (2011) investigated the frequency of positive and negative critical incidents with respect to information system implementation by twelve hospitals in Taiwan, and confirmed that the implementation of health information systems (HIS) is a very challenging task for hospitals since the quality of information significantly impacts user satisfaction, and with unhappy users frequently terminating their relationship with the hospital and conveying their negative experiences to others.

However, the health care quality systems at any country play a major role in backing its national economy. In the shadow of the current international changes the most prominent aspect of which are the globalization, privatization and the emergence of international blocs; it became possible for the developed countries hospitals with its superior potentials to enter the modest and unstable economies of the developing countries. This will lead to an unequal competition between the big foreign hospitals and the national small ones (Gursoy and Swanger, 2007). In addition, the environment in which the Jordanian hospital system is working is characterized by the vitality and rapid change. For this reason, there would be an urgent need for enabling Jordanian hospitals to face the requirements of change, response effectively to the environmental changes, have the capability of adjusting to the different variables, deal with the problems or new developments, and implementing the organizational change problems in order to survive, thrive, and compete efficiently. Moreover, information systems play a critical role in health care implementations. Initially, Davis, Bagozzi, and Warshaw (1989) proposed Technology Acceptance Model (TAM) which is an information systems theory that models how users come to accept and use a technology. The model suggests that when users are presented with a new technology, a number of factors influence their decision about how and when they will use it, notably: Perceived usefulness that defined by Fred Davis as the degree to which a person believes that using a

particular system would enhance his or her job performance; and perceived ease-of-use which defined as the degree to which a person believes that using a particular system would be free from effort.

All in all, the importance of the health care quality concept for the researchers and consultants in the fields of health care management, and as one of the important and current methods that guarantees the achievement of internal quality that is related to provide the basic requirements for the patients public safety and the quality of service related to the patients public safety (Carman *et al*. 2010), and to increase the awareness of the importance of applying quality management at the hospitals in Jordan, and as a step to enhance what the hospitals in Jordan seeks to provide from treatment services that suits the needs, requirements, and expectations of the patients and reviewers as a competitive base. To sum up, the current research proposed that some CSFs such as communications and building trust among top management committee, confirming employee competencies, applying planning processes, and ensuring employee safe environment, will impact organizational performance in terms of customer (e.g. patient) satisfaction.

4. Research Methodology

In essence, there are two main philosophical positions: positivism and interpretivism. Positivism is concerned with establishing the fundamental patterns or relationships in social life. It is associated with highly structured quantitative methods such as experiments and questionnaire surveys. An interpretivist disputes that statistical patterns or correlations are not understandable on their own. Therefore, it is necessary to uncover what meaning people give to the actions that lead to such patterns. The interpretive approach is associated with un-structured qualitative methods, including participant observation studies, and in-depth-interviews (Blaikie, 2000). Qualitative research is broadly defined as 'any kind of research that produces findings not arrived at by means of statistical procedures or other means of quantification' (Strauss and Corbin, 1990, p. 17). Whereas quantitative researchers seek causal determination, prediction, and generalization of findings; qualitative researchers seek instead illumination, understanding, and extrapolation of similar situations. Further, both single methodology approaches (qualitative / quantitative) could be used (Nau, 1995).

Indeed, Das (1983), Yin (1994) and Patton (2002) highlighted that triangulation is the combination of methodologies in the study of the similar phenomenon. Moreover, Denzin and Licoln (1998) stated that "no single method ever adequately solves the problem of rival causal factors. Because each method reveals different aspects of empirical reality, multiple methods of observation must be employed". Also, most of the studies commenced to date in the e-commerce field have addressed the specific context of large companies such as Dell, Expedia, e-Bay, Yahoo! and Amazon (Drew 2003), and fewer studies have been carried out in the specific context of SMEs (Daniel and Grimshaw, 2002). For example, Grandon and Pearson (2004) emphasized that the benefits of e-commerce are not only for large firms, but small and medium sized enterprises (SMEs) can as well benefit from e-commerce. Nevertheless, there is no globally accepted definition of small and medium enterprises. For example in Canada SMEs are regarded as companies that have more than 500 employees, whereas according to (Drew, 2003), the E.U. defines a small business as one with less than 50 employees and a medium-sized business as one with less than 250 employees. In addition, in a survey of 444 SMEs during 2002, Pratt (2002) found that lots of SMEs were reluctant to conduct transactions on-line, and more than 80% were using the internet to communicate via e-mails and gather business information. In another study conducted by Farhoomand *et al*. (2000) reported the major barriers that slow the acceptance of e-commerce in Hong-Kong and Finland as a) technical barriers, such as lack of adequate infrastructure, b) organizational issues, such as resistance to change, c) economic limitations, such as cost to implement e-commerce, d) political issues, such as limited control or limited access to the internet in certain countries, e) cultural barriers, such as resistance to online shopping, and f) legal issues, such as the acceptance of electronic signatures, are major barriers to e-commerce. However, as this research seeks to examine the health care quality implementations of the Jordanian small and medium sized enterprises in the health sector, the researcher will adopt a mixed methodology research design by distributing survey questionnaires and conducting some interviews with Jordanian decision makers in the covered hospitals.

Moreover, there are a number of tools that can be used to collect data using the positivist approach, such as observation, experimentation, and survey research, the last of which is considered the best source of primary data collection in the social sciences. Further, surveys can be conducted in several different ways: by personal interviews, over the telephone, by mail, self-administered, and by drop and collect methods (Baker, 2003). Interview surveys which involve

face-to-face communication between interviewer and interviewee could be used when cost is not a major issue, as this method may prove expensive if a large number of subjects are involved (Sekaran, 2003). Mail surveys, meanwhile, are low cost, and every firm and household in the country can be reached (Baker, 2003). However, McCormack and Hill (1997) argued that postal questionnaires usually have a low response rate, and the person completing the survey may not be the one selected to be in the sample. Self-administered surveys can be used to collect data from people or groups at specific events or in certain situations without interviewer involvement (McCormack and Hill, 1997). Drop and collect surveys combine the low cost of a telephone or mail survey with a personal involvement that encourages respondent participation (Sekaran, 2003). Brown (1987) emphasized that such a tool is fast, cheap, and reliable due to its use of hand delivery and personal pick-up. Further, it encourages high response rates and timely completion, with up to 70 per cent of surveys being completed within the agreed collection time. It is 20-40 per cent cheaper than postal surveys, and 50 per cent less expensive than personal interviews. However, because of the researcher's limited time and budget, and his experience of Jordanian firms' unwillingness to take part in telephone/postal/email surveys, the current research data will be conducted by using drop and collect surveys which cover large samples of the population. This technique is less expensive and consumes less time than other methods such as interviews; and covers a wider geographical area than self-administered surveys. As a result, the researcher will use this method of data collection in Jordan.

Indeed, the research population consists of all Jordanian private and public hospitals. According to the Ministry of Health (www.moh.gov.jo) the total number of hospitals was 91 spread all over Jordan. Therefore, survey questionnaires will be sent to all hospitals in which cover different regions, including north, middle, and south of Jordan. In addition, since interview data is a main source of information for qualitative research, then semi structured interviews will be used in this research to explore beyond what respondents will answer in the survey questionnaires. This is by implementing several semi-structured interviews in Jordanian private and public hospitals.

5. Conclusion

The motivation of the study is to develop and empirically test a comprehensive model relating success factors of health care quality in the Jordanian health sector. Therefore, by implementing

critical success factor approach, a theoretical model will be proposed and empirical test will be completed using a sample of Jordanian hospitals.

"*CSF's are the few key areas where 'things must go right' for the business to flourish and for the managers goal to be attained*" Bullen and Rockhart (1981, p. 385).

Moreover, since there is a lack of case studies regarding the actual experience of hospitals in implementing CSF's of health care quality, the main aim of this research is to develop and empirically test a model regarding antecedents that affect organization performance in terms of customer satisfaction through health care quality implications. Such aim will be achieved by collecting data and information –by distributing survey questionnaire and conducting interviews-from people who have experience and who are working in the Jordanian health sector as policy makers.

Also, we believe that using Jordan as a case study, this proposed research will benefit those involve in health quality program implementation and thus results of this proposed research will be presented and published in professional conferences and journals. Further, since the aspire of this study will be to develop a model for best practice in health technology field by applying CSFs theory, then such model could help health care practitioners and policy makers to better understand how those success factors involved with and support the utilization of appropriate applications, and it might increase the customer satisfaction level.

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