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Wassan Al-Khowaiter

Swansea University, W.A.A.AL-KHOWAITER.600715@swansea.ac.uk

Yogesh Dwivedi

Swansea University, ykdwivedi@gmail.com

Michael Williams

Swansea University, m.d.williams@swansea.ac.uk

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CONCEPTUAL MODEL FOR EXAMINING THE ADOPTION AND SUCCESS OF HUMAN RESOURCE INFORMATION SYSTEMS IN PUBLIC SECTOR ORGANIZATIONS IN SAUDI ARABIA

Wassan A.A. Al-Khowaiter, Yogesh K. Dwivedi, Michael D. Williams

School of Business, Swansea University, Swansea, UK.

Email: W.A.A.AL-KHOWAITER.600715@swansea.ac.uk, ykdwivedi@gmail.com,
m.d.williams@swansea.ac.uk,

Abstract

The aim of this study is to propose and discuss a conceptual model to identify the factors responsible for influencing the adoption and success of human resource information systems (HRIS) in public sector organizations in Saudi Arabia. It reviews empirical studies of IT adoption and success at the user level in general and with particular reference to HRIS adoption and success. While a few studies have investigated the adoption and success of HRIS in the Middle East, none was set in Saudi Arabia. Given the mandatory use of such systems in Saudi public organizations, this paper proposes a framework combining the Unified Theory of Acceptance and Use of Technology with the DeLone and McLean IS success model. The paper justifies the constructs included and formulates 17 hypotheses describing the adoption and success of HRIS. It ends by discussing the contribution and limitations and the direction of future research.

Keywords: Human resource information system, Adoption, Success, Mandatory use, Saudi Arabia.

1.0 Introduction

The Kingdom of Saudi Arabia (KSA), which has the largest economy in the Gulf Cooperation Council (GCC), has experienced strong demographic changes which have affected not only its political stability but also its economy. In order for these changes not to overwhelm the country, developments are required in the Saudi human resource (HR) capability so that HR departments can perform their functions rapidly and with great accuracy. The emergences of computer applications and information technology have a great impact on the adoption of IT in public organizations in the last few decades (Ivancevich et al, 1983; Torkzadeh and Angulo, 1992). IT assists the transfer of the traditional processes of work performance into an electronic-based system. Accordingly, organizations are very much concerned with how to handle the problems and opportunities of IT systems .

The adoption and use of information technology in Saudi public organizations is examined in order to understand the attributes of information technology to influence various functions needed by both public and private organizations. Al-Gahtani (2003) conducted a survey of 1200 knowledge workers in 56 public and private organizations across the Kingdom of Saudi Arabia. It revealed the importance of the adoption of information technology in developing countries such as Saudi Arabia. The role of information technology plays a key role in ensuring efficiency and productivity in organizations. Those that adopted IT systems experienced a competitive advantage due to higher productivity and better decision-making (Al-Gahtani, 2003).

It is essential to note that computer-based systems provide various significances in terms of production and cost reduction (Davis et al, 1989; Igbaria, 1993). In Saudi Arabia, the introduction of information technology systems not only brings technical benefits, but also reduces the demand of labour within the Saudi workforce (Abdul-Gader and Al-Angari, 1995). In GCC countries including Saudi Arabia, the flow of foreign labour is seen as having a negative impact on the region's economy. The growth of information technology systems in the Kingdom is thus an important factor for local organizations.

These technologies allow firms that adopted it to upgrade the capabilities of their human resource in performing their functions rapidly with great accuracy. In ensuring a rapid performance of organizational human resource functions, many scholars argue the need of using a modern technology such as human resource information system

(Hendrickson, 2003). The increasingly profound changes in social and organizational requirements are putting pressure on professional employees, who need to deliver high quality services quickly, which can be related to organization functions (Pfeffer, 1997). These systems enable these professionals to deliver their services to organizations rapidly.

Where human resource management has shifted its attention to workforce performance strategy is considered as one of the challenging variables of modern organizations (Davila, 2005; Browning et al, 2009) and acts an important contributor in the organizational management strategy (Rodriguez and Ventura, 2003). This shift might be due to the attributes of modern technology systems such as HRIS, which composes of functional processes of obtaining, saving, analysing, retrieving and managing firms' human resource data (Lippert and Swiercz, 2005). Such a system provides many benefits for the organization, Beckers and Bsat (2002) have summarized four reasons, which justify why organizations should use HRIS. First, help to shift the role of HRM from transactions to Strategic Human resource management. Second, help to increase competitiveness by developing and enhancing human resource activities and procedures. Third, to re engineer the whole HRM department organizations and finally, it help to create a greater and a range of many HRM reports

As many public organizations in Saudi Arabia (e.g. Ministry of Education) have already adopted human resource information system due their many advantages. A study to examine the adoption and success of these systems is needed to provide some insights that may help human resource practitioners to acquire a better understanding of the current status of HRIS adoption in Saudi Arabia. This could help improve the Kingdom's human resource capability and expertise in familiarizing the newly developed information technology systems such as HRIS.

Through analysing the existing literature on HRIS adoption and success, although HRIS involves the application of IT systems and other organizational resources to handle HR more efficiently, the topic of HRIS has not been fully investigated by researchers and scholars (Hendricksen and Mahnke, 2005; Blount and Castleman, 2009). Published studies of these systems have mainly focused on their benefits and shortcomings (Broderick et al, 1992; Kovach et al, 2002; Grant et al, 2009; Mallviya et al, 2009; Al-tarawneh et al, 2010), their impact on performance (Arthur, 1994;

Benfatto, 2010), HRIS and security (Hubbard et al, 1998; Lippert, 2005) and IS success models (Ramezan, 2010; Alshaliby, 2011; Bal et al, 2012).

While a few studies (Teo et al, 2007; Troshani et al, 2010/2011; Ramezan, 2010; Alshaliby, 2011; Bal et al, 2012) have used well-known models of IT adoption and success to present the case of HRIS adoption and success at all levels, none has looked at the user level of HRIS adoption in public sector organizations in general and in Saudi Arabia in particular. Furthermore, none of these studies has empirically validated a conceptual model that can consider the mandatory use of a HRIS. The Unified Theory of Acceptance and Use of Technology (UTAUT) and the DeLone and McLean (D&M) IS success model have been found to be suitable for examining the adoption and success of a system whose use is mandatory. Given the strong theoretical background of both models and their suitability for the context examined (public sector organizations), it was decided to integrate them to produce a guiding framework for this research.

Therefore, the selection of the hypotheses for this research was based on previous IS adoption and success literature at the user level, careful selection of the constructs in the three different contexts from the UTAUT framework and the D&M IS success model, and their relevant mapping to the intention to use, adoption and success of IS systems. The justification and formulation of subsequent hypotheses was made on enough evidence of the significance of the relationships in previous studies with a possibility that they will be proven significant when adopted to measure the adoption and success of HRIS.

This paper is organised as follows: the next section discusses literature on well-known theories of adoption and diffusion, in the context of HRIS adoption and success. The third section discusses the selection and justification of the theories used in this research and the fourth describes the proposed conceptual model for examining HRIS adoption and success at the public sector in Saudi Arabia. The constructs and associated hypotheses are then explained and the paper concludes with a summary, a discussion of the contribution and limitations of the research and suggestions for future research involving the proposed conceptual model.

2.0 Theories / models applied to HRIS adoption and success

The management of information is essential to the modern HR function in any organization (Hendrickson 2003), yet there have to date been relatively few research studies of HRIS adoption (Hendrickson and Mahnke, 2005; Blount and Castleman, 2009). Those which have been conducted have examined various independent variables such as organizational size, HRIS expertise, distinctive competition and characteristics, as well as top management support, while others have taken as their framework certain models of technology adoption such as Diffusion of Innovations (DOI) (Teo et al, 2007) and Technology-Organisation-Environment (Troshani et al, 2010/2011). Table 1 lists some independent variables and the studies which have examined them.

As far as the success of HRIS is concerned, there is no recognized foundation that specifically identifies the important features of an effective system so as to serve as a framework within which to describe HRIS success (Alshaliby, 2011); indeed, very few studies have ventured to evaluate the success of HRIS. Therefore, the only option available is to use standard theories and models of IS success as a lens through which the HRIS success can be cautiously assessed; the few researchers who have sought to determine HRIS success have for the most part used the D&M IS success model (Ramezan, 2010; Alshaliby, 2011; Bal et al, 2012). Some of these studies have combined the D&M model with an adoption model and have used independent variables such as individual characteristics, training and user involvement. Alshaliby (2011) constructed a model to assess HRIS success on the basis of the Technology Acceptance Model (TAM), user satisfaction and the DeLone and McLean IS success model (1997, 2003), while Ramezan (2010) took account of certain external factors such as education, age and position to adapt the D&M model and apply it to the achievement of HRIS success.

No rational analysis is given by the some authors (e.g. Haines et al, 1997; Ramezan, 2010) for their choice of theories or independent constructs for the analysis of HRIS success, even though studies can be found which can be quoted for their successful usage of IS success theories and different independent variables. Apparently, no explanation can be sought for the random choice of these theories adopted for the studies in question. Some external factors have been adapted by these researchers

(e.g. Lippert and Swiercz, 2005; Sanna, 2008), but the choice of variables from the models adopted and their mapping were not explained properly.

An analysis of previous studies suggests that none of them has looked at HRIS adoption from the user perspective. Moreover, none of these studies has considered the adoption of such systems in the Arab context or examined their adoption or success in a mandatory use environment. The present study aims to address this gap in knowledge by proposing a suitable model to evaluate the adoption and success of HRIS in the mandatory context.

| Independent Variables | Source Example |
|---|---|
| Performance Expectancy (Usefulness in TAM; relative advantages in DOI; outcome expectation in SCT) | Haines et al (1997), Teo et al (2007), Alshalidy (2010) |
| Effort Expectancy (Ease of use in TAM and IDT) | Haines et al (1997), Alshalidy (2010) |
| Social Influence (Subjective norms in TPB/TRA/TAM2; image in IDT) | None of the previous HRIS studies has considered this variable |
| Facilitating Condition (Perceived behaviour control in TBP; Compatibility in IDT) | Haines et al (1997), Teo et al (2007) |
| Information Quality | Ramazan (2010), Al-shaliby (2011), Bal et al (2012) |
| System Quality | . Ramazan (2010), Al-shaliby (2011) Bal et al (2012) |
| Service Quality | Haines et al (1997) |
| User Satisfaction | Haines et al (1997), Ramazan (2010), Al-shaliby (2011) Bal et al (2012) |
| Use of the system | Ramazan (2010) |

Table 1. Some independent variables whose impact on HRIS adoption and success has been measured

3.0 Selection and justification of the proposed model

A numbers of theories and models as discussed above have been proposed to measure end-user acceptance of new technology and many researchers have used these models to investigate the acceptance of technologies including knowledge management systems, e-government and internet banking. However, only a few studies have utilized these theories to investigate the adoption of HRIS. One reason for the paucity of such studies is that whereas the use of HRIS is mandatory, which means that users are required to use these systems in order to perform their essential work duties, most

of these theories have limited application to mandatory-use contexts (Rawstrone et al, 2000; Brown et al, 200).

It has been observed that TAM is the most widely used and quoted model in IS/IT research (e.g. Davis, 1989; Yi & Hwang, 2003). Various studies reveal that time after time TAM explains a considerable proportion of variance (typically 40%) in practicing intentions and behaviour and that it compares favourably with alternative models such as the Theory of Reasoned Action (TRA) and the Theory of Planned Behaviour (TPB) (Venkatesh, 1999). Nevertheless, the application of TAM to the study of HRIS acceptance is problematic, because it assumes that users have some choice in the extent to which they use the technology in question (Seymour et al, 2007; Lee et al, 2008; Al-Jabri et al, 2010). The TPB and TRA models also appear to be more suitable for voluntary usage, since they make similar assumptions when describing user's acceptance of a system (Taylor and Todd, 1995; Hidayanto et al, 2010).

UTAUT is a unified framework based on the mapping of eight theories, including TAM, TRA and TPB, which fulfils the requirement of all the theoretical constructs that are useful and suitable for the present research purpose. Furthermore, it takes into account the mandatory nature of systems like HRIS and is thus considered by Seymour et al (2007) to be better suited than TAM itself to the practical assessment of end-user acceptance of accounting systems, enterprise systems and others whose use is mandatory.

The theory was, however, mainly developed and tested in a developed or Western context (Imran et al, 2005), while few studies have applied it to developing contexts such as Saudi Arabia. The aptness of the UTAUT model in explaining the adoption of new technology in Saudi culture was nevertheless examined in two separate studies by Al-Gatani (2003, 2008). When compared to TAM and TRA, UTAUT was found to explain more of the variance in the predicate constructs of use and intention to use. However, these studies were set in a voluntary environment where users could choose whether to use the system or not. Furthermore, the social culture and regional history of Saudi Arabia are unique, making it difficult to reduce the influence of sociological factors on IS acceptance without any loss in its reliability (Al-Gatani et al, 2007). The cultural differences between Western countries and Saudi Arabia are so strong that they may produce conflicting results in apparently similar situations, making it impossible to forecast via Western models the results obtained in a country like Saudi

Arabia. Western studies play safe on system acceptability, due to their compatible cultures and the substitutability of their sub-cultures. In particular, when considering the choice of model it is essential to address the difference between voluntary and compulsory use in the culture of Saudi Arabia. Finally, there has been no research into HRIS adoption in the public sector which has used UTAUT as a framework. Considering all the above factors, this research takes UTAUT as the basis of its conceptual model.

As to the many different models and theories which have been proposed to measure IS success, these include Expectation Confirmation Theory (ECT), the theory of critical success factors (CSFs), and the D&M IS success model. Given that ECT has been used in marketing research to study consumer satisfaction (Oliver, 1999), while CSFs measure success through the issues vital to an organization's current operating activities and to its future success (Boynlon et al, 1984), neither of these theories is of any real value for the present research.

The D&M IS success model proved to be the most suitable for this research. It is regarded as one of the most extensive and elaborative information assessment models present in the information system literature (Myers et al, 1997; Heo and Han 2002; Halawi et al, 2008) and many researchers believe that it constitutes a revolution in the field of IS research. It has therefore been used widely as an evaluation framework during the past few years, receiving strong theoretical and empirical support. The model has also been examined in different cultures and societies worldwide, including Jordan, the USA, Taiwan, Kuwait and Iran (Alshaliby, 2010). The applicability of the D&M model to Saudi Arabia has even been discussed, by Petter and McLean (2009), who have also tried to determine how the model has proved to be of unique value in such contexts, where mandatory use is important. DeLone and McLean (2003) also suggest further development and validation is needed for their model. Hence, the D&M's updated IS Success Model can be adapted to the measurement success of HRIS.

While the D&M model is in itself the major theoretical framework used to assess IS success, its combined use with the UTAUT model produces a more comprehensive means of doing so. For the purpose of the present study, which aims to measure the adoption and success of HRIS, these models have been integrated in order to identify the factors that influence these outcomes.

While the use of the system examined here (HRIS) is mandatory, there are contradictory results. Many researchers argue that examining intention may cause the organization to focus on the wrong set of factors when attempting to motivate the acceptance and use of technology (Brown et al, 2002) and that attitude becomes more important than intention in these settings (Brown et al, 2002; Bagchi et al, 2003). In other research, Venkatesh and Davis (2000) found that the relationship between intention to use and usage behaviour fell in the range of 0.44 to 0.57 in a mandatory use environment. They also determined that intention to use strongly mediated the effects of perceived usefulness, perceived ease of use and subjective norms on usage behaviour. DeLone and McLean (2003) contend that Intention to Use and Use are alternative in their model, and that Intention to Use may be worthwhile to include in the context of mandatory usage.

They also claim that IS use should be seen as restricted in any IS success model. They argue that there can be “variability in the quality and intensity of the use” (ibid: 16) even in mandatory settings, which will affect the benefits gained from the system, and that no system is completely mandatory; while use may be mandatory at one stage, continued adoption and system use itself may be completely voluntary. As the framework of system usage differs between mandatory and voluntary, some researchers insist that IS success can still be measured via the system usage construct, a number of empirical studies have continued to be tested and developed this constructs by different IS researchers (Dowing, 1999; McGill et al , 2003; Linders, 2006). According to Iivari (2005), reasonable variability in the use construct can be obtained (when use is mandatory), while maintaining significant correlation with other constructs in the D&M model.

On the basis of these arguments, the use and intention to use constructs will form part of the final model and their validity and authenticity will be evaluated in the mandatory context.

4.0 Proposed conceptual model to examine HRIS adoption and success in public sector

The proposed conceptual model is therefore based on constructs derived from the UTAUT (2003) adoption model and the updated D&M IS success model (2003). The theoretical model so developed integrates constructs from both models, with the aim

of explaining the multidimensional relationships involved in the adoption and success of HRIS in public organizations in Saudi Arabia.

The UTAUT model (Venkatesh et al, 2003) has four core constructs describing adoption beliefs: performance expectancy, effort expectancy, social influence and facilitating condition. Previous studies (e.g. Carlsson et al., 2006; Chen et al, 2007; Venkatesh et al, 2003; Venkatesh and Zhang, 2010; Wang et al, 2006) have demonstrated the generalizability of these constructs to the adoption of different technologies in both voluntary and mandatory settings. In the mandatory context, all four core technology adoption beliefs are considered to be important (Chan et al, 2010). The model has been tested on many occasions without using the four moderator variables of age, gender, experience and voluntariness. However, it was found that these improved the predictive ability of UTAUT model (Rosen, 2004). Therefore age, gender and experience will be included in the final research model whereas the voluntariness variable is excluded, because the use of the system under examination is mandatory.

The revised D&M success model (2003) embraces six elements which are directly connected to each other: information quality, system quality, service quality, system use, user satisfaction and net benefit. Given that subsequent use and user satisfaction will be influenced by the preceding three major quality dimensions (of information, system and service), every aspect should be considered individually. In the same way, the association of use and user satisfaction ultimately results in the net benefit (which is HRIS success in this study). These relationships will have the characteristic of assumptions, because this model cannot reveal the polarity of causal links, so that any arrows used in the presentation of the proposed associations among the dimensions of success are to be understood as depicting processes, not the direction of causality.

The proposed model for examining the adoption and success of HRIS, depicted in Figure 1, assumes that three of the four core constructs of adoption acceptance (performance expectancy, effort expectancy and social influence) are linked to intention to use, whereas the fourth, facilitating condition, will have a direct relation to system use, as Venkatesh et al (2003) have established that it will have no significant relationship with the intention to use any IS in the presence of performance and effort expectancy. These four constructs will be moderated by (Age, gender and experience). The model also shows that the three quality measurement constructs (information quality, system quality and service quality) are linked to user satisfaction

and to employees' intention to use HRIS (where is the intention to use and use are alternative to each other in the D&M IS success model), which in turn influence HRIS success. Finally, user satisfaction and use of HRIS are interrelated.

Owing to the mandatory use of the system in question, other relation was found to be appropriate for representation within the model. To measure the success of various systems, many earlier researchers have accepted user satisfaction as a variable, because most analyses show it to be amongst the most widely used measures in the mandatory use context. With regard to user satisfaction, studies have shown that in the context of mandatory technology adoption, performance expectancy and effort expectancy have significant effects (Adamson & Shine, 2003; Lee et al, 2008). Hence, the HRIS research model will reflect these associations.

A user of a mandatory system also can differ significantly from a volitional user in terms of his or her social environment of use. In a mandatory systems often are used for tasks that are firmly joined with other users' tasks (Nah et al., 2004). Users of a mandatory system cannot avoid paying attention to their managers' and peers' opinions about using the system. According to Taylor & Todd (1995) the user is under the influence of the "social influence". Use of the system now takes on an additional social meaning, namely, earning the user credibility in the eyes of the referents. That will lead the users to perceive the system as more useful (Venkatesh & Davis, 2000; Venkatesh et al., 2003). Therefore, the relation between the performance expectancy and social influence has been adopted in the research model.

The next section then offers a comprehensive description of each construct and hypothetical evidence for including it in the proposed conceptual model.

5.0 Context and constructs included in the model and associated hypotheses

5.1 Performance Expectancy

Performance expectancy defined as the extent to which an individual believes that using the system is a way to improve job performance. The constructs in further models which are relevant to performance expectancy are perceived usefulness (TAM, combined TAM-TPB), extrinsic motivation, job-fit (Model of Personal Computer Use: MPCU), relative advantage (DOI) and outcome expectancy (Social Cognitive Theory: SCT) (Vankatesh et al, 2003). According to Hartwich & Barki

(1994), this construct, which is present in each individual model, was the strongest predictor of intention and in both voluntary and mandatory settings it continued to be significant at all points of measurement. Furthermore, this construct has been found to be a significant in all HRIS studies. On behavioural intention, the effect of performance expectancy is speculated to be restrained by gender and age, where men and younger worker are more to be driven by this construct (Vankatesh et al, 2003; Vankatesh and Morris, 2005).

Various earlier studies of the mandatory context have demonstrated that performance expectancy has an important effect on user satisfaction (Adamson & Shine, 2003; Lee et al, 2008; Chan et al, 2010). Chung et al (2008) found that the construct is a highly predictor of use in the mandatory context. As the construct performing significantly in majority of cases, it will expected that users of HRIS really believe that using the system can help them perform better in their job and to be more likely to use the system more and make them more satisfied.

The following hypotheses can be derived from the above practical and theoretical evidence:

H1: Performance expectancy will have a significant positive influence on intention to use HRIS. This influence will be moderated by gender and age

H2: Performance expectancy will have a significant positive influence on the satisfaction of HRIS users.

5.2 Effort Expectancy

Effort expectancy is the degree of ease associated with the use of a system. The constructs present in other models which may capture the similar concept are: complexity (DOI and MPCU) and perceived ease of use (TAM) (Vankatesh et al, 2003). The effect of effort expectancy on intention to use is hypothesized to be moderated by gender, experience and age (Venkatesh and Davis, 2000). Women are more likely to be driven by this variable than men. Moreover, it was shown that increasing age could be a problem for complex problem solving and paying attention to the information necessary to do the job (Venkatesh et al., 2000).

As far as the HRIS studies although Alshaliby (2011) found that the effect of effort expectancy on user satisfaction is non-significant in the majority of the HRIS studies, whilst Haines et al., (1997) and Bal et al., (2012) showed that the relationship between effort expectancy and user satisfaction is significant. However, none of the previous

studies on HRIS have looked at the relationship between effort expectancy and intention to use.

Mather et al. (2002) demonstrated that in a mandatory context ease of use plays an important role in acceptance of the technology. Additionally, many researchers (e.g. Adamson & Shine, 2003; Lee et al., 2008; Chan et al., 2010) found that effort expectancy has a significant effect on user satisfaction in a mandatory context. The construct in an exclusive individual model was important in both voluntary and mandatory conditions.

As the constructs has been found significant in different studies, it will expected that the ease of use HERS might lead the users to use the system more. Accordingly, the related hypotheses are:

H3: Effort expectancy will have a positive influence on intention to use HRIS such that this influence will be moderated by age, gender and experience.

H4: Performance expectancy will have a significant positive influence on the satisfaction of HRIS users.

5.3 Social Influence

The extent to which an individual perceives that people who are important to him or her believe that he or she should use the system is known as social influence. It is similar to other constructs such as subjective norm (TRA, TAM, TAM2, TPB, DTPB, and C-TAM-TPB, image (DOI/IDT) and social factors (MPCU) (Venkatesh et al, 2003).

The contrast between models determines that this construct behaves in a similar manner; it is not significant in voluntary contexts but becomes significant when use is mandatory (AlQaisi, 2009). According to Venkatesh et al. (2003), the effect arises because of compliance in mandatory contexts Venkatesh and Davis (2000) also suggest that in a mandatory environment, there is a considerable influence of subjective norms. The effect of this variable on intention to use is hypothesized to be moderated by age, gender and experience. It becomes essential only during the early stages of personal experience; also, in mandatory use only Social influence will be stronger for women and will be valid for older worker (Venkatesh et al., 2003).

A user of a mandatory system cannot avoid paying attention to his or her supervisors' and peers' opinions about using the system. Put differently, the user is under the influence of the "social influence" (Taylor & Todd, 1995). A user may incorporate his

or her important referents' beliefs about using the system into his or her own belief structure. Use of the system now takes on an additional social meaning, namely, earning the user credibility in the eyes of the referents .

As far as the HRIS studies, none of them has looked on this construct. However, in other studies especially in the mandatory use system it was found to be significant. Therefore, the following hypotheses can be designed on the basis of the arguments given above:

H5: Social influence will have a positive influence on intention to use HRIS; this influence will be moderated by gender, age and experience.

H6: Social influence will have a positive influence on performance expectancy

5.4 Facilitating Condition

Facilitating condition can be defined as the extent to which an individual believes that system use can be facilitated by the organizational and technical infrastructure. This definition encompasses three constructs in the present models: perceived behavioural control (TPB/DTPB and combined TAM-TPB), compatibility (DOI) and facilitating conditions (MPCU) (Venkatesh et al, 2003). Comparison of the models reveals that the relationship of this construct to intention in every model applies in both voluntary and mandatory settings during initial training but that this effect disappears during the second period, a month after implementation. The facilitating conditions become irrelevant when both effort expectancy and performance expectancy are present (Venkatesh et al, 2003)

The significance and positivity of this relationship has been determined by a number of studies concerned with IT adoption, even when the abovementioned variables are present. Moreover, Venkatesh et al (2003) have validated the interaction between facilitating conditions related to the adoption (or use) of IT systems. This effect is supposed to strengthen with experience of technology, as users find numerous opportunities for support and assistance. Therefore, the effect of facilitating conditions on usage is postulated to be diluted by factors like age and experience. Where is will stronger for older workers with incused experience (AlQaisi, 2009). Thus, facilitating condition is considered useful in predicting the use of HRIS and the following hypothesis can be designed:

H7: Facilitating condition will have a significant positive influence on the use of HRIS and this influence will be moderated by age and experience.

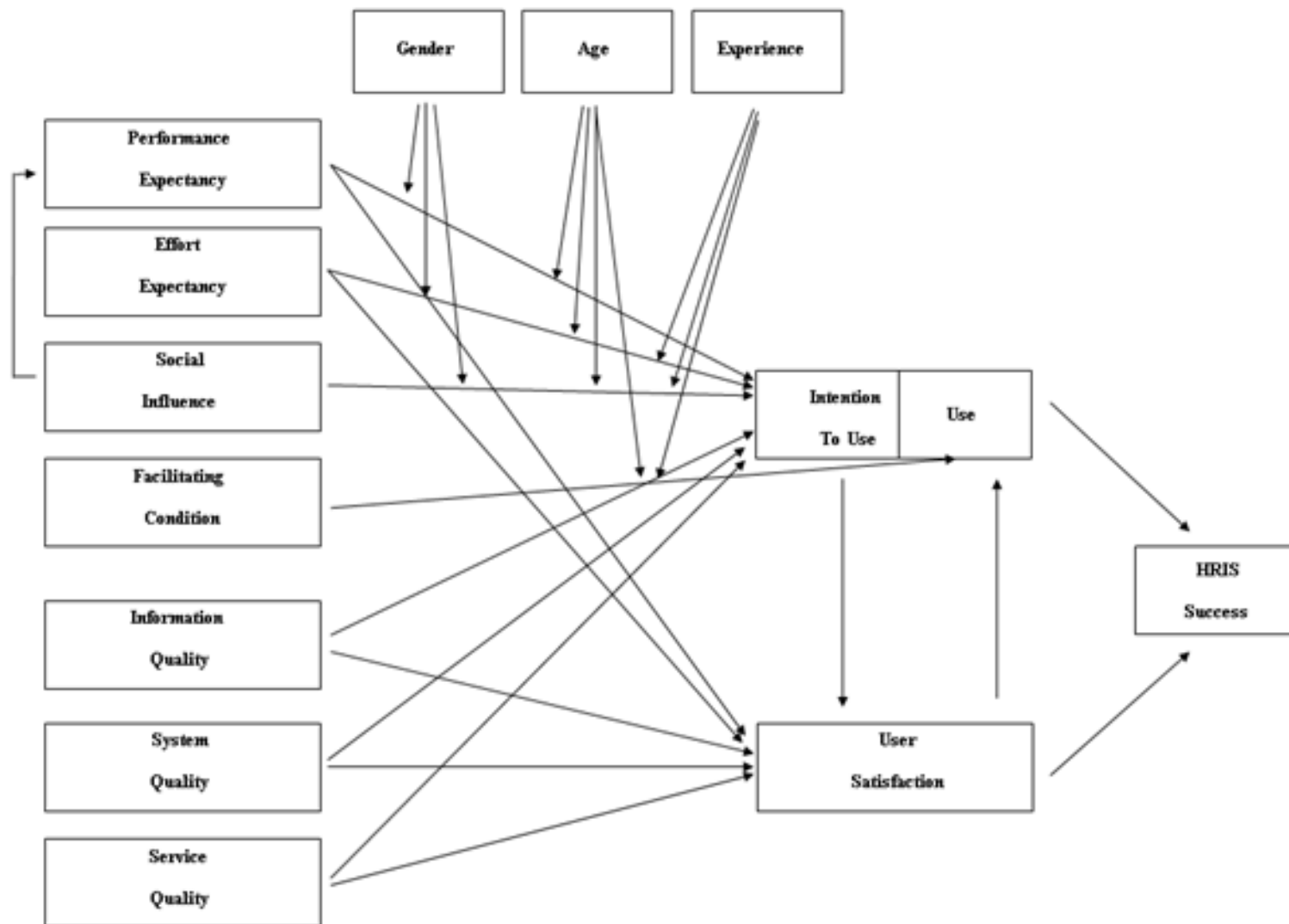


Figure 1. Proposed Conceptual Model

5.5 Information Quality

It can be defined as the quality of the information that the human resource information system produces and delivers (DeLone and McLean, 1992). This means that delivering relevant, updated and easy-to-understand information will influence user satisfaction significantly (Wixom and Todd, 2005). Petter et al (2008) claimed the information quality is often considered as a key dimension for user satisfaction. Many studies (e.g Rai et al, 2002; Urbach, 2011) have support this claim through finding a strong consistent relationship between information quality and user satisfaction. In the mean while, authors including McGill et al (2003) report no significant relation between information quality and intention to use, others (e.g. Rai et al, 2002; Halawai et al, 2007) have found information quality to be significantly related to use or intention to use. Furthermore, Petter and Mclean (2009) conducted in meta-analysis to determine the validate of the D&M IS success model they found that five different studies have found a significant relation between information quality and use, while another ten studies have found a strong positive relationship between information quality and user satisfaction. Regarding the HRIS the Majority of these studies has found information quality has a positive significant relationship with the user satisfaction. Whereas none of these studies has looked at the relationship between the system quality and intention to use the system. Based on the above arguments the following hypotheses can be concluding :

H8: Information quality will have a significant positive influence on intention to use HRIS.

H9: Information quality will have a significant positive influence on the satisfaction of HRIS users.

5.6 System quality

System quality is a desirable characteristic of any information system (Urbach et al, 2011). It represents the quality of the information system processing itself, which includes software and data components, and it is a measure of the extent to which the system is technically sound. Many studies have found that system quality has a positive relationship with intention to use in a variety of systems at individual level (Venkatesh & Davis, 2002; Venkatesh & Morris, 2000; Hong et al, 2002). There is also strong support for the relationship between this construct and user satisfaction at the individual level (Iivari, 2005). Petter and Mclean (2008) present in their metal-

analysis nine different studies that looked at the relation and use and user satisfaction. Their finding shows that all the analysed studies have found system quality has a strong positive influence on use and user satisfaction. Whereas, (Floropoulos et al, 2010) found that relationship between the system quality and user satisfaction is non-significant in mandatory use. However, (Ramezan, 2010; Alshaliby, 2011; Bal et al, 2012) in their studies to measure the success of HRIS they have found that system quality have a significant positive relationship with user satisfaction. Based on the previous discussion the following hypotheses can be derived :

H10: System quality will have a significant positive influence on intention to use HRIS.

H11: System quality will have a significant positive influence on satisfaction of HRIS users.

5.7 Service Quality

An information system comprises all of the support provided by the service supplier, regardless of whether this is a separate organization or the IS department itself (DeLone and McLean, 2003). Because of the increasing importance of IS and the enlarged role of the IS department, quality of service has been considered as one of the measures of IS success (Chiu, Chiu & Chang, 2007). A user has the same sort of expectations of support service irrespective of whether it is provided directly by the IS department or by some other organizational unit in the case of a call centre support service. This is clear from the fact that the user will not regard the quality of service as inferior just because the provider is part of the same organization .

There have been a number of studies of the relation between user satisfaction and quality of service provided (Petter et al, 2008), and little research has been conducted into the relation between service quality and users' intentions. However, these researches (e.g. Kim et al, 2009; Floropoulos et al, 2010; Udo, 2010) have found a significant influence on intention to use and user satisfaction. Regarding the HRIS studies there is only one study that have looked of the relation of service quality and the user satisfaction and use and found it to be significant (Haines et al, 1997). These hypotheses follow:

H12: Service quality will have a significant positive influence on intention to use HRIS.

H13: Service quality will have a significant positive influence on satisfaction of HRIS users.

5.8 User Satisfaction

User satisfaction is an individual assessment on a pleasant-unpleasant scale of various aspects of an IS (Seddon, 1997). Great emphasis has been placed on this concept (DeLone & McLean, 1992; Klenke, 1992; Melone, 1990) as a determinant of the success of an information system. It is thought to be one of the most extensively used measures of IS success. Most people believe that user satisfaction is more applicable to measuring the system's success rather than intention to use in a mandatory environment (Teo et al., 2008; Lee & Park, 2008; Rawstorne et al., 1998). Petter and Mclean (2008) in their meta-analysis has found that a total of 31 studies have found a significant relationship between user satisfaction and net benefit.

Several studies have examined the relation between the user satisfaction and intention to use a system (DeLone & McLean, 1992; Seddon et al 1999; Rai, Lang, & Welker, 2002). These studies have found that the positive influence of higher levels of user satisfaction on intention to use and actual use of information systems. On the topic of HRIS all the studies have found the positive relationship between user satisfaction and HRIS success and use. The following hypotheses have been formulated accordingly:

H14: The satisfaction of HRIS users will have a significant positive influence on intention to use HRIS.

H15: The satisfaction of HRIS users will have a significant positive influence on HRIS success.

5.9 Intention to use and Use

Intention to use is a consumption of an IS or its output in the future is the objective of utilizing the system. Where use is the extent to which staff makes use of the capabilities provided by the information system is defined as the system use. (DeLone & McLean, 2003). Considering acceptable variability in mandatory, some scholars (e.g. Iivari, 2005) find use will be appropriate to add these variables into the model. Quantifiable variation will increase if these constructs are included, but this is debated by many researchers considering mandatory use (Seddon et al, 2004). The complex phenomenon of system acceptance would be easily understood if all the associated factors were taken into account, as it is dependent on the abovementioned variables.

Use of the system that is the object of the present study is essentially mandatory; thus it would be appropriate to count together the constructs of use and intention to use when interpreting variations in user preference. Different empirical studies such as (Chiu et al, 2007; Halawi et al, 2007) found a significant positive relationship between use and user satisfaction. Whereas the HRIS studies none of these studies has looked or measure the use of the system and its influence in the user satisfaction or the success of the system. Petter et al (2008) also call for further research is needed to evaluate the relation between use and user satisfaction Therefore, the following hypotheses do:

H16: Use of HRIS will have a significant positive influence on the satisfaction of HRIS users.

H17: Use of HRIS will have a significant positive influence on HRIS success.

5.10 HRIS success

It can be defined as an achievement of both the firm's objectives and achievement of the end-user related objectives from using the HRIS (Al-Shaliby, 2011).

6.0 Methodology:

In order to investigate the possible adoption of HRIS in Saudi Arabian public organizations, qualitative research method might be quite suitable for conducting such type of research. A questionnaire survey will be used to examine the adoption and success of HRIS in Saudi Ministries. It's the most appropriate tool to obtain the data associated with the reality nature of HRIS according to the comprehensive reviewing of the previous studies.

6.1 Data Collection

This Study population involves employees of the human resource departments at the Ministry of Education in Saudi Arabia, which implemented HRIS in March 2011 at a cost of 120 million Saudi riyals. The aim of this system is to facilitate the tracking of the data of the Kingdom's 550,000 employees. The data covers employment history, past and current payment details and records of their skills, training and education. In addition, the data includes their performance assessment and productivity evaluation,

absenteeism, accidents, medical and warning records, plus holiday entitlements, pension's data and termination records

The Ministry of Education has 1400 employees in its administration departments, and these individuals are considered to be the most appropriate population to test the hypotheses associated with this research regarding the adoption and success of HRIS. Having determined the research population, the next step will be to distribute a survey to the entire HR employee department who use the system in mid June 2013.

6.2 Analysis method:

The next step is to analyze the collected data in order to test the proposed hypotheses. This research will adopt the structural equation modeling (SEM) framework and use AMOS 19 for data analysis. The use of SEM is appropriate because it allows the examination of more than one regression relationship at a time. One factor, in general, influences other factors and is also influenced by others, and regression models are unable to capture that complexity. Furthermore, SEM enables researchers to construct latent variables and examine the intricate relationships between them. Finally, SEM estimates and removes measurement error, leaving only the common variance, thereby taking into account the unreliability of measurement in the model (Ullman & Benter, 2003).

7.0 Summary and conclusion

The purpose of this paper was to present a conceptual model to measure the adoption and success of HRIS in public sector organizations across Saudi Arabia. It has briefly analysed some theories, such as TAM and the DeLone and McLean IS success model, as used in limited studies of HRIS adoption and success.

UTAUT was identified as the most suitable model for this research, being a unified theory whose constructs are mapped onto those of eight adoption theories (including TAM, DOI and TBI), while no existing research has used this model to measure the adoption of HRIS. It is also appropriate in contexts of mandatory system use. In addition, the D&M model has been widely accepted to measure the success of IT systems. Most success studies in HRIS (Ramezan, 2010; Alshaliby, 2011; Bal et al, 2012) have tried to use the D&M IS success model, but none of them has empirically validated the constructs, as considered for the six dimensions of this model.

Therefore, driven by the previous adoption and success research at the user level and looking at all aspects, integrating these two models may be the best choice to produce a useful combination to examine the factors that influence the adoption and success of HRIS in public sector organizations in Saudi Arabia.

Based on the analysis of the constructs, their significance, overall applicability and relevance in the context of public sector organizations in particular, a total of four constructs of the UTAUT model and six dimension of the D&M IS success model were considered appropriate as the determinants of the adoption and success of HRIS. Moreover, looking at the mandatory use of the system, additional relations were adopted.

The proposed research model constitutes a total of 17 hypotheses which have been selected after careful investigation from a set of many constructs used for the organization, adoption and success of IT systems in general and HRIS in particular. Due consideration has been given to picking the right constructs as relevant for the adoption and success of HRIS across public sector organizations in Saudi Arabia. Moreover, all these constructs were found to be significant in predicting the adoption and success of HRIS. With this set of constructs this research will be able to analyse successfully the adoption and success of HRIS in the public sector in Saudi Arabia.

7.1 Research contributions

The proposed research model has been devised on careful consideration of the models used across IT adoption and success studies at the user level. The research model, based on the UTAUT and D&M IS success model, has produced a rare and useful combination, the development of a simple model that explains the importance of HRIS quality factors as criteria for HRIS success. The model seems to provide useful insights into HRIS success. The role of the three IS quality components (system quality, information quality and service quality) is not new. However, the developed understanding of these quality components in the context of Human resource information system with presence of UTAUT variables, through theoretical integration, provides new material.

7.2 Limitations and Future Research Directions

Experimental confirmation of the constructs used in this research model is still to be provided. The aim of this research is to collect data from Saudi organizations in the public sector to test the hypotheses. The research model could be further used to demonstrate whether its functioning differs in other Arab countries or remains the same, if it finds success in becoming an accepted model for the adoption and success of Saudi Arabia's HR information systems. However, the present research model has been devised on the experimental confirmation of the constructs that were acquired from various IT adoption and success research studies at the user level, rather than being completely developed from present HRIS adoption and success research. Another limitation of this research is that as this is a three years PhD project it will be difficult to measure the actual success of the system. due the period that is available for the research not being long enough to observe the success of the system. In addition, it will difficult to obtain public information (e.g. cost saving) from the ministries under study to determine the success of the system. Therefore, this will be a useful direction to consider in the future by looking at the actual success of the system and if it supports our finding.

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