EMPLOYEE ACCEPTANCE OF KNOWLEDGE MANAGEMENT SYSTEMS IN BANGLADESH: INTEGRATING UTAUT AND KMS DIFFUSION MODEL

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ABSTRACT

Knowledge management system (KMS) practice and implementation in an organization gradually growing in the global competitive economy. Although, wide-ranging acceptance of KMS by users in the western companies for facilitating knowledge sharing culture is a common scenario. Until now, low acceptance of knowledge management system is a common problem for a successful implementation knowledge management system in Bangladesh. For that reason, its necessity to investigate major factors that affecting acceptance of knowledge management system by the employee. Though, prior research focuses on the practices and implementation of the knowledge management system in Bangladesh. Still, there is a lack of a comprehensive review of the critical factors influence on the KMS adoption. Thus, this study aims to inspect the influence of some selected factors on acceptance of KMS by the employee based on an integrated model of UTAUT (Unified Theory of Acceptance And Use Of Technology) and KMS (Knowledge Management Systems) diffusion model in Bangladesh perspective. By applying convenience-sampling method, the current study collected data from respondents from public and private organizations. Data collected from 210 valid respondents with a closed-end questionnaire. Collected data examined through Partial Least Square approach (PLS) to assess the relationships among studied variables. Our research findings showed that performance expectancy, management support, KMS characteristics have a significant influence on behaviour intention to use KMS. Our finding also reveals that effort expectancy, facilitating conditions, individual factors, organization factors, external pressure have no significant influence on behaviour intention to use KMS by the employee. Finally, findings of this paper will help organizations policymaker to take proper initiative with an emphasis on this specific area to motivate the Bangladeshi employee to attract more KMS users.

Keywords: Knowledge Management Systems, UTAUT model, KMS diffusion model, Behavioural intention; usages behaviour, management support.

INTRODUCTION

In the recent decades, Knowledge management discipline has been one of the major interesting research topics due to the rapid development of information and technology. Even though, western businesses arenas, knowledge management systems practice become an important issue from few years before (Quaddus et al., 2005). There have been several studies in the literature reporting that a company's individual and organizational knowledge serves as one of the cornerstones of its sustained competitive advantages. In other words, a company's

performance is linked directly to the utilization of its knowledge resources, i.e. the knowledge of the organization and its employees (Sharifian et al., 2014). Alavi and Leider (1999) revealed that many companies are accepting Knowledge Management Systems (KMS) specially to facilitate the sharing information and integration of task-related knowledge within different multicultural work people. But, the KMSs are extensively utilized in organizations in the developed country; KMS has no longer been properly explored by the researchers in an experiential way in developing countries like Bangladesh (Kale et al., 2005). Among the limited literature on KMS arena based on successes and failures of KM project purposes, there is a scarcity of empirical research of KMS, especially in the area of adoption and diffusion of KMS in developing country. Second reason most of the prior studies; researchers have come out with various stage models of innovation diffusion. But model KMS diffusion model (Quaddus et al., 2005) study brings out a new stage of diffusion namely it highlights the need for organizational factors, individual factors, Knowledge management characteristics, and external inspiration before the whole organization KMSs adoption and implementation. Still, no existing study combines UTAUT model with KMS diffusion model factor for predict employee continuously usages behaviour of KMSs in Bangladesh. Moreover, for successful KMS implementation in an organization manager should always be concerned KMSs users' risk perception for reducing psychological barrier. But, risk perception of the employee for using KMSs in Bangladesh never empirically tested. Previously KMS diffusion model integrated with TAM model and it tested mostly in developed country perspectives (Quaddus et al., 2005). Furthermore, Quaddus & Xu (2005) mention that KMS model may apply in different organizations, in different countries across the world for its generic approach. To overcome this limitation (Quaddus et al., 2005), researchers give emphasis to combined UTAUT model with KMS diffusion model through this study. On the other hand, UTAUT model (Venkatesh et al., 2003) develop to study technology acceptance for organization perspective. In addition, we include perceived risk as an external variable because Khraim et al., (2011) revealed through their study that perceived risk might be studying in different technological, cultural and developing country perspective. Since, Bangladesh considers as a developing country, we incorporated this variable to overcome this limitation of their study. Therefore, this study is motivated to fill up the research gap by empirically examining those factors influencing the adoption of KMSs from employees' perspective in Bangladesh.

BACKGROUND OF THE STUDY

In Bangladesh, knowledge management system practice and implementation began slowly after the 1990s. Some public and private organizations such as Bangladesh Water Development Board, Bangladesh Haor & Wetlands Development Board, Bangladesh Bureau of Statistics, Bangladesh Meteorological Department, Service Oriented Architecture, Directorate of Land Record and Survey and Local Government Engineering Department are using Knowledge management system for maintaining their information system (BanDuDeltAS, 2015). However, the current situation in Bangladesh in terms of knowledge management practices as well as in technology and innovation is not very outstanding compared to highly developed countries. According to Global Competitiveness Report for 2014-2015, Bangladesh hold position 109th for information and technology uses, Firm-level technology absorption 111

positions, Business-to-business Internet user 130 positions, Business-to-consumer Internet user 124 positions among the 144 countries (Schwab et al., 2015). In case of individual using Internet 128 rank, these statistics indicate that Bangladesh hold below the standard of network readiness or acceptance of ICT (Information and communications technology) comparative to other less income country and economic impacts of acceptance of knowledge management system or ICT only 7.3% (Osorio et al., 2016). Siddike, Kalam, and Munshi (2012) discuss major challenges face Bangladeshi all organization for successful implementation of KMS is remove organizational and psychological barriers. For that reason, to implement the KMS successfully for getting the benefit from this system, every employee in an organization requires to accept the KMS in Bangladesh like other developed countries (Akhavan et al., 2006). So far, there has been a few amount of research carried out identify factor influencing on adoption of knowledge management in the organization in less developing and developing country(Sillah et al., 2014; Kale et al., 2005). Most of the empirical research conducted in the developed country (Islam et al., 2010). However, researchers found that only one empirical research carried out on the adoption of knowledge management system in Bangladesh (Mursalin, 2012). But this research paper conducted Bangladeshi SMEs owner perspective based on UTAUT model (Venkatesh et al., 2003).Moreover, Venkatesh et al. (2003) suggest that UTAUT's ability to explain the adoption and usage of new systems could be enhanced by extending or combining it with other theories or models to account for more potentially important factors that might affect end-users' behavioural intention (Marsan et al., 2012; Money et al., 2004). For that reason, increasing predicting power of UTAUT model adds some external factors from KMS diffusion model.

Research Objectives

This paper explores the factors influencing the adoption of knowledge management systems (KMSs) in developing country perspective like Bangladesh. The second objective of the study is to develop an extension of the UTAUT model for investigating employee acceptance of KMS with the help of KMS diffusion model. The third objectives empirically test the impacts of individual factor and organizational factor on performance expectancy of KMS usages in Bangladesh. The fourth objective is to investigates external inspiring factor, KMS characteristics on usages behaviour directly previous study those variables showed the mediating relationship between usages behaviour in the developed country. The fifth objective is to consider the perceived risk as an external factor with existing literature to explain employee behaviour intention to use the KMS based on Bangladesh context. Finally, the findings provide awareness for the manager in order to effectively and efficiently practice the KMS in their respective organization. Also, researcher's findings help to overcome the shortcomings relating to prior studies in the area of KMS adoption.

Research questions

The following research question is formulated in this study based on objectives:

- ✓ What are the key factors influencing employees' acceptance and diffusion of KMS in Bangladesh?

- ✓ How do Unified Theory of Acceptance and Use of Technology (UTAUT) and KMS diffusion model integrate to study those factors in Bangladesh context?
- ✓ What are the impacts of individual factors and organizational factors on performance expectancy of KMS usages in Bangladesh?
- ✓ What are the impacts of perceived risk, KM system characteristic, external inspiring upon usage behaviour of KMS in Bangladesh?

THEORETICAL FRAMEWORK AND HYPOTHESES

Knowledge, Knowledge management, and Knowledge management systems

Alavi et al. (2001) defined knowledge as a process to convert raw data into meaningful information and store that information for creating, sharing and distributing among the employees for generating new knowledge. Further, revealed that knowledge is two types: explicit knowledge and implicit knowledge. Explicit knowledge means academic or technical knowledge that is described in a formal language, print or electronic media, like manuals, mathematical expressions, copyright, and patents (DAVIES, 2014).On the other hand, implicit knowledge sharing can be expressed in verbal, symbolic, or written form but has yet to be expressed (e.g., know-how, know-where, know-whom, expertise) (Zhang, 2011).

Nassuora (2011), knowledge management is all managerial activities which help the employee to create new knowledge and share this knowledge with another employee for improving organizational and individual performance in an organization. In the words of Nickols (2000) "knowledge management is a discipline that promotes an integrated approach to identifying, capturing, evaluating, retrieving, and sharing all of an enterprise's information assets".

Gallupe (2001) recommended knowledge management systems capable of handling and securing knowledge. Xu and Quaddus (2005) noted that Knowledge management systems practices are different in the way of their user in different organizations. Sillah and Chang recommended knowledge management systems are capable of handling and securing knowledge. Knowledge management system shows the structural relationship model how people, knowledge and technology work together in an organization (Koenig, 2012).

Unified theory of acceptance and use of technology (UTAUT) and KMS diffusion model

The most popular technology acceptance Theory , The Unified Theory of Acceptance and Use of Technology (UTAUT) model was formulated by Venkatesh et al. (2003). It is a review and synthesized 32 assumptions of eight prominent adoption theories: theory of Reasoned Action (TRA), Technology Acceptance Model (Prado Tamez), Motivational Model (MM), Theory of Planned Behaviour (TPB), Model Combining the Technology Acceptance Model and Theory of Planned Behaviour (C-TAM-TPB), Model of PC Utilization (MPCU), Innovation Diffusion Theory (Wen Chong, Holden, Wilhelmij, & Schmidt), and Social Cognitive Theory (SCT). The UTAUT model incorporated four key independent constructs

among them performance expectancy, effort expectancy, social influence, are direct determinants of usage behaviour intention and mediating effect on usages behaviour (Venkatesh et al., 2003). Fourth construct facilitating conditions direct determinants of usages behaviour. Venkatesh et al. (2003) also added gender, age, experience, and voluntariness as moderator variables in his model and all those factors influence on usage intention by moderately. Numerous studies have attempted to explain the reason behind the acceptance of an information system by utilizing UTAUT model (Sharifian et al., 2014). However, the main limitation in the UTAUT model utilizing empirical study, they did not consider individual factors and organizational factors to be direct determinants of performance expectancy (Allahyari et al., 2012). The attitude towards using technology has no direct influence on other external factors such as KM system Characteristic, External Inspiring, Perceived Risk. Moreover, UTAUT model has been used widely in developed countries to identify reasons behind the acceptance of different type's technology and information system for example in Australia, Twain, Canada (Abiagam et al., 2012). But, very few research conducted in developing countries (Mursalin, 2012).Therefore current study grounded this model as one of base model for investigating employee usages behaviour of knowledge management system in Bangladesh.

On the other hand, KMS diffusion model is a popular model in the area of adoption and diffusion of KMS practice in an organization. This model was proposed by Xu and Quaddus (2005). The author traces the KMS diffusion concept, such way that new innovative system of KM and social system for supporting the prospective users of KMS in an organization (Quaddus et al., 2005). They summarized the stage of KMS adoption by the employee, which is divided into six stages. The first stage is an initiation, the second stage is adoption, the third stage is pilot implementation, the fourth is organic growth, the fifth is organizational implementation, and the last stage is diffusion that occurred in an organization. Many other scholars have proposed a modified model for the implementation of KMS to meet different viewpoint from this model (Idris et al., 2015). For that reason, current study takes few variables from KMS diffusion model to forecast the adoption of KMS among the employees in Bangladesh.

PROPOSED RESEARCH MODEL AND HYPOTHESIS DEVELOPMENT

A conceptual model for the current study was developed with the help of UTAUT model and KMS diffusion model shown in Figure 1. Proposed model includes three factors as predictors of employee behaviour intention to use KMS and five factors as predictors of employee usages matters.

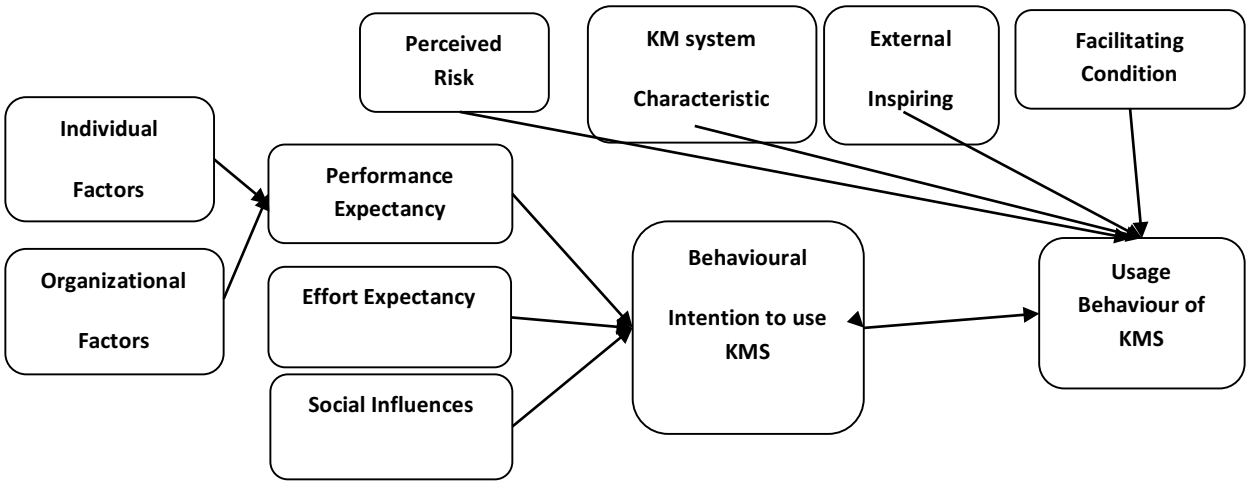

Figure 1: Proposed Model

HYPOTHESIS DEVELOPMENT

Performance expectancy

Performance expectancy means an individual believes that using a KM system would provide fitness for performing a task or fulfilling a requirement as of time and place (Hossain, Ouedraogo, & Rezania, 2013). The performance expectancy component of the UTAUT model was similar to five different constructs from different model perceived usefulness (TAM/TAM2 and C-TAM-TPB), and C-TAM-TPB), extrinsic motivation (MM), job-fit (MPCU), the relative advantage (Wen Chong et al.), and outcome expectations (**Social Cognitive Theory;** SCT) (Venkatesh et al., 2003). Xu and Quaddus (2012) noted that a knowledge management system has to be useful for the employee otherwise organizations and individuals won't have the interest to adopt or use it. Akbar (2013) suggests that a knowledge management system in the organization must ensure that employees can do what they want to do with the system for achieving their target. Oye et al. (2012) indicated that using KMS improve users' working performance and efficiency. Xu and Quaddus (2013) suggested that knowledge management system reduces cost, enhance employee performance. Previous many research reports that performance expectancy was a significant forecaster of behavioural intention for using information system (Xu et al., 2013, 2012; Keong et al., 2012; Oye et al., 2012; Surendran, 2012). But, few researcher conducted the study based on developing country like Bangladesh (Mursalin, 2012). Therefore, we developed the first hypothesis for our proposed model is:

Hypothesis 1: Performance expectancy will have a significant positive influence on behavioural intention to Use KMS.

Effort Expectancy

Venkatesh et al. (2003) defined Effort expectancy means the degree of ease associated with the use of the system. Effort expectancy this construct root comes from TAM and TAM2 models they are perceived ease of use, complexity, and ease of use (Venkatesh et al., 2003).According to Xu and Quaddus (2013), effort expectancy refers to simple to learn KMSs and ease of accessibility of the system. Prasanna and Huggins (2016) found that higher user experience enhanced the relationship between effort expectancy and behavioural intention. Previous research supports that effort expectancy were significant for determining a person's intention to adopt new technology (Xu et al., 2013 Venkatesh et al., 2012). But, this factor never empirically tested on employee behavioural intention to use KMS in Bangladesh. Thus, we make our second hypothesis is:

Hypothesis 2: Effort expectancy will have a significant positive influence on behavioural intention to use KMS.

Social influence

Social Influence refers to peer pressure, supervisor encouragement to use knowledge management system (Xu et al., 2013). The social influence this construct similar to the subjective norm in TRA, TAM2, TPB/DTPB and C-TAM-TPB, social factors in MPCU, and image in IDT (Venkatesh et al., 2003). Numerous studies have attempted to explain that there is a positive relationship between social influence and behaviour intention (Sargent et al., 2012; Marchewka et al., 2007; Quaddus et al., 2005; Venkatesh et al., 2003). Still, social influence factor has impact on employee behavioural intention, but social influence factor never tested among employee in Bangladesh. As a result our third hypotheses for our proposed model:

Hypothesis 3: Social influence will have a significant positive influence on behavioural intention to use KMS.

Facilitating Conditions

Facilitating conditions means the degree to which an individual believes that an organizational have enough technical support and infrastructural facility for using the new information system (Venkatesh et al., 2003). Facilitating Conditions this construct contains four items which come from the PC Utilizations 3 items, the Theory of Planned Behaviour 1 item. Mosweu, Bwalya, and Mutshewa (2016) summarized that the availability of enough resources smooth to exercise more knowledge management system inside the organization. Several studies have revealed that facility condition directly influences on usages behaviour (Alazzam et al., 2015; Alhirz et al., 2015; Lescevica et al., 2013; Venkatesh et al., 2003). Even though, the researcher found no experimental study based on how facilitating conditions influence on usages behaviour of KMS in Bangladesh (Mursalin, 2012) .Thus, our fourth hypothesis is:

Hypothesis 4: Facilitating conditions will have a significant positive influence on usages behaviour of KMS

Organizational Factor

Organizational factor act as an external factor with extended TAM model was first highlighted by Igbaria, Zinatelli, Cragg, and Cavaye (1997). He supported that internal and external organizational supports essential for successful implementation information system in an organization. Xu and Quaddus (2005) reported that organizational performance, growth, organizational structure, culture, IT infrastructure, organizational processes, and IT function all factors related to adoption and diffusion of KMS in a country. Previous research has also shown that organizational factors positively influence on acceptance of information system (Allahyari et al., 2012; Sabherwal et al., 2006). Zain, Rose, Abdullah, and Masrom (2005) performed experimental investigations on organizational factors, how it influence IT adoption in an organization. Their analysis revealed that organizational external variables such as employee involvement, employee task characteristics, organizational characteristics, and employee experience of using information system will have a significant effect on perceived usefulness of information system. Based on KMS diffusion model author Xu and Quaddus (2005) investigated the direct relationship with organizational factor on perceives usefulness. But, current study first time tries to find out relationship organizational factor influence on performance expectancy. So, we developed the fifth hypothesis for our proposed model is:

Hypothesis 5: Organizational Factor will have a significant positive influence on performance expectancy to use KMS.

Individual factor

Individual's perception regarding the degree to which the target system is applicable to his or her job (Venkatesh, 2000). Individual factors such as job relevance, output quality were significantly influenced on technology acceptance (Ramazani et al., 2012). Based on KMS diffusion model author Xu and Quaddus (2005) investigated the direct relationship with individual factors on perceives usefulness. But, current study first time tries to find out relationship Individual factor on performance expectancy. Therefore, we developed our sixth hypothesis:

Hypothesis 6: Individual factor will have a significant positive influence on performance expectancy to use KMS.

KMS Characteristics

KMS Characteristics means employee perception regarding KMS protection, availability, execution their requirement of the task (Xu et al., 2005). Hossain et al. (2013) defined KMS characteristics system trialability, visibility, compatibility, accessibility, interactivity with organizational processes. There is a large volume of published studies describing KM system

characteristics have a meditating relationship with usages behaviour (Hossain et al., 2013; Xu et al., 2013). For that reason in this study tried to investigate new direct relation KMS characteristics influence on usages behaviour. As a result, formulated our seventh hypothesis:

Hypothesis 7: KMS Characteristics will have a significant positive influence on usages behaviour.

External inspiring

The external inspiring factor motivate an employee to use information system such as competition/competitive pressure, customer demand/ expectation (Quaddus et al., 2005). Currently, the rapid development of information system makes pressures every organization to cope up new technology for completing their competitor's. The relationship between external inspiration and behaviour intention to use information system by the employee has been widely investigated mediating way (Abubakar et al., 2013; Xu et al., 2012, 2005). Recent evidence suggests that external inspiring factor influence directly on usages behaviour to use information system (Sargent et al., 2012; Xu et al., 2005).Therefore we develop our eight hypothesis is:

Hypothesis 8: External inspiring factor will have a significant positive influence on usages behaviour of KMS.

Perceived Risk

Featherman and Wells (2004) defined perceived risk as a feeling of psychological discomfort and anxiety caused by using the technology system. Poba-Nzaou, Raymond, and Fabi (2008) defined perceived risk is a perception of an employee probability of an undesirable outcome by using KMSs. Morrow and Crum (1998) revealed that risk is related to the KMSs operate such as database management system, server network maintains. Most of the previous study perceived risk influence on usages behaviour information system empirically test in the developed country (Nzaou et al., 2008). Still, very few research conducted in developing country like Bangladesh. That's why, we develop our ninth hypothesis:

Hypothesis 9: Perceived Risk will have a negative influence on usages behaviour of KMS.

Usages behaviour

KMS usages behaviour refers to the degree of use of KMSs in searching and contributing knowledge (Xu et al., 2005). Hung et al. (2005) refers to usage behaviour implementation and diffusion of knowledge management system in an organization. A number of studies have found that behaviour intention positively influences on usages behaviour (Khalifa et al., 2015; Keong et al., 2012). According to many research results (Venkatesh et al., 2003), gender has a moderating effect on the relationship between the explaining constructs performance expectancy (PE), effort expectancy (EE), and social influence (SI), and the dependent variable behavioural intention. Therefore, we develop our tenth hypothesis is:

Hypothesis 10: Behavior intention will have a positive influence on usages behavior of KMS.

RESEARCH METHODOLOGY

In this research, a quantitative approach to collect data and analysis is adopted. Sekaran (2006) defined quantitative approach emphasizing hypothesis testing and examining relationships between a set of variables. The population of the study is considered among employees who are users of knowledge management systems in Dhaka city of Bangladesh. To test the hypotheses, convenience sampling method was used for collecting data among respondents from different public and private organizations because it is cost-effective, convenient, reduce the time for data collection when population size is unknown (Saunders, 2011). According to Wong (2013), to test the structural equation model, the maximum sample size is required depending on the maximum number of arrows pointing at a latent variable in the structural equation model. According to this rule of thumb, the minimum sample size for this study required 10 arrows pointing at a latent variable in the model of 91 responders. We distributed our questionnaire among the 300 employees of different organizations; only 210 usable and completed questionnaires were generated. To collect data, the questionnaire design divided into two sections. Measurement scale and item given in Appendix A. The first section is included of five questions, which consist of the demographic profiles. The second section consists of 37 questions of 11 constructs. The six latent variable 22 items and scales for the UTAUT constructs were adapted from Venkatesh et al. (2003). The extended UTAUT model incorporates four external variables taken from variables KMS diffusion model given by Quaddus and Xu (2005), which are individual factors consisting of 3 items and organizational factors 3 items, KMS Characteristics 3 items, External inspiring 3 items. On the other hand, perceive risk factors of 3 items were taken from Nzaou et al. (2008). Following table 1 demonstrated measurement Items questions. In this study, data were analysed with IBM SPSS 21.0 for conducting the descriptive analysis and the empirical test of the proposed research model and Partial Least Squares (PLS) approach by using Smart-PLS (Version: 3) software. Wong (2013)points out that major advantage of PLS-SEM is that it permits the use of formative measures, which differ considerably from the reflective measures.

DATA ANALYSIS

Demographic and other Information

The demographic characteristics of the respondents (n=210) have been reported below the Table 1 show that 78% respondent's male and 21% respondent female who engaged in this study. The majority of respondents have Postgraduate level education qualification. The average ranges of the respondent's age were 25 to 35 that indicates middle age employee using KMS more than an elder employee. Most of the participants doing a job in financial institutions (43%), education institution (23%), IT& telecommunication industry (23%).

Table 1 Demographic Profile of the Respondents

Aspects	Frequency	%	Aspects	Frequency	%

5.2

Education			Gender		
Bachelor	48	22.86	Male	165	78.57
Diploma	25	11.90	Female	45	21.43
Master	134	63.80			
PhD	03	1.43			
Organization			Age		
RMG	05	2.38	Above 15	10	4.76
Financing	100	47.62	Above 25	138	65.71
Education	50	23.80	Above 35	55	26.19
IT & Telecom	50	23.81	Above 45	7	3.33
Others	05	2.38			

Model Assessment

Prior researchers proposed two steps analytical method of SEM or PLS, which are Step 1: Assessment of the measurement model and Step 2: Assessment of the structural model Analysis of the Measurement Model.

Step 1: Assessment of the measurement

A PLS model is assessing the measurement properties actually to test item reliability, internal consistency and discriminant validity. Hair et al. (2016) prescribed that convergent validity can be checked by calculating outer loading. Outer factor loadings value above 0.70 or higher are preferred, for exploratory research design, lower thresholds are acceptable but values must not be lower than .600 (Henseler et al., 2009). The tested result showed that outer loading value is considered satisfactory except FC3, FC4 and OF1.Therefore; we left those three items for further analysis. Then again run PLS algorithm then get tested result as shown in Table 2, composite reliability values for this study were satisfactory because all values were above 0.70. Recently, researchers used the composite reliability (CR) and Cronbach's alpha for estimating reliability or internal consistency based on latent variables in PLS structural equation models(Wong, 2013). Henseler et al. (2009) suggested that in experimental research, 0.60 to 0.70 is considered acceptable values. The tested result showed that composite reliability (CR) value above 0.70. The calculated value CR (range from 0. 0.891 to 0. 0.954) and Cronbach's Alpha CA (.831 to .928) which are more than the accepted values.

Table 2 Convergent validity and Reliability

Items	Outer loading	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
PE1	0.893			
PE2	0.915			
PE3	0.893			
PE4	0.897	0.922	0.944	0.810
EE1	0.814			
EE2	0.865			
EE3	0.859			
EE4	0.868	0.875	0.914	0.726
SI1	0.913			
SI2	0.884			
SI3	0.792	0.839	0.899	0.748
BI1	0.939			
BI2	0.942			
BI3	0.922	0.928	0.954	0.874
FC1	0.940			
FC2	0.909	0.831	0.921	0.854
IF1	0.912			
IF2	0.872			
IF3	0.868	0.863	0.915	0.782
OF2	0.947			
OF3	0.928	0.864	0.936	0.880
PR1	0.911			
PR2	0.911			
PR3	0.824	0.860	0.914	0.779
EXP1	0.866			

EXP2	0.880	0.817	0.891	0.731
EXP3	0.818			
KSC1	0.900			
KSC2	0.917			
KSC3	0.926	0.902	0.939	0.836
UB1	0.815			
UB2	0.900			
UB3	0.842			
UB4	0.888	0.884	0.920	0.743

Consequently, Convergent validity can also be checked by calculating average variance extracted (AVE). Ahlemann (2010) recommended that each constructs' average variance extracted (AVE) is 0.50 or higher are acceptable for evaluating convergent validity. AVE values our study stands from 0.731 to 0.880, which are more than 0.50. Therefore, both validity and reliability analyses suggest that these constructs are valid and reliable for further advanced study.

Table 3 Discriminant Validity and Correlations (Fornell-Larcker Criterion)

	BI	EE	EXP	FC	IF	KSC	OF	PE	PR	SI	UB
BI	**0.935**										
EE	0.427	**0.852**									
EX	0.245	0.135	**0.855**								
FC	0.374	0.339	0.112	**0.924**							
IF	0.097	0.033	0.115	0.114	**0.884**						
KSC	0.161	0.024	0.186	0.083	0.496	**0.914**					
OF	0.053	0.023	0.009	0.031	0.300	0.177	**0.938**				
PE	0.454	0.306	0.180	0.284	0.168	0.148	0.039	**0.900**			
PR	-0.058	-0.040	-0.038	-0.101	-0.048	-0.045	0.034	-0.034	**0.883**		
SI	0.077	0.229	0.111	0.141	0.035	0.132	0.028	0.112	-0.053	**0.865**	
UB	0.451	0.318	0.268	0.345	0.419	0.359	0.132	0.402	-0.149	0.165	**0.862**

Hair, Black, Babin, Anderson, and Tatham (2007) refers to discriminant validity is a measurement that verifies whether each construct is unique. Evaluating discriminant validity result for empirical study, the AVE for each construct should be greater than the squared correlations of the construct and other constructs in the model. Table 3, showed that, their items all load higher on their own construct than on other constructs in the model. Therefore,

discriminant validity result indicates that the further strength of discriminant validity presence our current study. All correlation coefficients are the positive value and it more than 0.70 and significant at level 0.01. Moreover, it validates that the constructs met the criteria.

Step 2 Assessment of the structural model

PLS have developed two nonparametric approaches to test the relationship between variables: either jackknife or bootstrap techniques (Goodhue et al., 2006). In this study, the bootstrap technique is used for data analysis. The results of our study reveal that tested the extended UTAUT model explain 29.9% of the variance in intention to use KMS and 34.3 % of the variance in actual use of KMS by the employee. Wong (2013) noted that path coefficient valued at approximately .670 substantial, values around .333 average, and values of .190 acceptable and lower weak. Therefore, our proposed model path coefficient valued averagely acceptable. On the other hand, in the extended model, our study has found that supported Hypothesis 1, 2, 4,6,7 and 10 others Hypothesis 3,5,8,9 were found not supported. The summary of the study bootstrapping analysis presented in the Table -4 and presented the figure-2 PLS analysis results of the extended model.

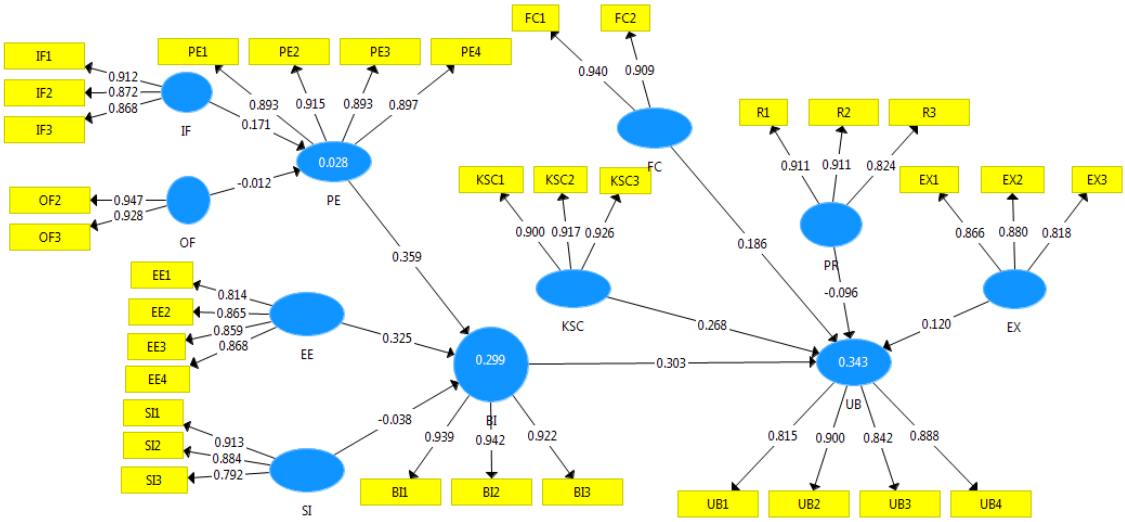

Figure 2: Tested result of the proposed model

Table 4 Summary of Bootstrapping Results (Beta)

No	Path relation	Path coefficient	T Statistics	P Values	Result
H1	PE -> BI	0.359	5.005	0.000	supported
H2	EE -> BI	0.325	4.332	0.000	supported
H3	SI -> BI	-0.038	0.565	0.573	Not supported
H4	FC -> UB	0.186	2.342	0.020	supported
H5	OF -> PE	-0.012	0.147	0.883	Not supported
H6	IF -> PE	0.171	1.990	0.047	supported

H7	KSC -> UB	0.268	3.064	0.002	supported
H8	EXP -> UB	0.120	1.757	0.079	Not supported
H9	PR -> UB	-0.096	1.802	0.072	Not supported
H10	BI -> UB	0.303	3.866	0.000	supported

p< 0.05* (t > 1.645) significant , P <0.01 ** (t > 1.96) Very significant ,P<0.001 (t>2.58)Extremely significant.***

DISCUSSION AND FINDINGS

This section has discussed the results of the proposed research model presented in Fig. 1 by extending UTAUT model. The major aim of this study investigates the factors influencing on the usages behaviour of KMSs. In this study, the research result supports the hypothesis H1 that states that effect of performance expectancy (PE) on behavioural intention (BI) was significant and strong and that definitely reflects the perceived benefits obtained from using KMS by the employee. The relationship between PE and behaviour intention has supported the cases of extending model (β = 0.359, p =0.000). this study suggests that they the employees intent to usage more KMS when Knowledge management system useful in their job (Xu & Quaddus, 2012). The result indicates that effort expectancy has a positive and significant relationship with behavioural intentions to usage KMS by the employees in Bangladesh. This result was also supported by various previous research findings and models to identify end-users' usage intention in the field of KMS acceptance by the employees (Krstic & Petrovic, 2012). This study indicates that the relationship between EE and behaviour intention was not supported by the data (β = 0.325, p =0.000). This study has shown that employee acceptance of KMS is higher when they feel they are getting the better benefit, doing their task effectively. The further finding also revealed insignificant impact social influence on behavioural intention by the employee in Bangladesh. This result social influence on behavioural intention (β = -0.038, p =0.573) also contradicts with the model's Theory of Planned Behaviour and TAM2. In addition, our findings of the result showed that facilitating condition is significant for predicting usage's behaviour of the employees. This outcome (β = 0.186, p =0.020) of the result is consistent with the study conducted by who Venkatesh et al. (2003) justified the significant influence of facilitating conditions on usage's behaviour. Furthermore, the result showed that organizational factor no influential power on performance expectancy, which was consistent with the finding of Xu and Quaddus (2005). Tested result OF impact on BI (β = -0.012, p =0.883). But individual factor have influential power on performance expectancy (β = -0.171, p =0.047).,. On the other hand, from KMS diffusion model, only KMS Characteristics factor make a significant influence on usages behaviour. The findings of this study (β = 0.268, p =0.002) suggest that a knowledge-friendly culture enriches the predictive power of usages behaviour of KMS by the employees in Bangladesh. On the other side, the outcome of analysis found that behavioural intention has a significant influence on usages behaviour of the employees also supported by previous studies. Our finding also revealed that external inspiring factor from the employee and perceived risk of using KMS did not have any effect on the usages behaviour of knowledge management system by the employee in Bangladesh (Featherman et al., 2003).

IMPLEMENTATIONS

Theoretical implementations

The present study aims to integrate two behavioural intentional models into a unified theoretical model that captures the essential elements of both models. This research developed and tested a comprehensive integrated model of UTAUT model and KMS diffusion model for predict employee usages behaviour of KMSs in the context of Bangladesh. In addition, this study first time identifies individual factors relationship with performance expectancy and KMS Characteristics direct relationship with usages behaviour. On the other hand, the tested result indicated the partial validity of UTAUT model. From UTAUT model performance expectancy and effort expectancy significant influence on behaviour intention of usage KMSs. In addition, behaviour intention positively influences on KMSs usages behaviour.

Practical implications

To be best of author knowledge UTAUT model and KMS diffusion model factor tested separately in the different developed country. Therefore, this model provides guideline for empirically test this model in the developing country to predict the employee's usages behaviour of KMSs. The tested result indicates that facilities condition and social influence have no influence on behavioural intent of using KMSs in Bangladesh. Organizational factor has less important on performance expectancy in context of developing country. Moreover, external pressure and perceived risk play no significant role in usages behaviour of KMSs.

Managerial implications

Our result from proposed model also gives managerial implication for the organization. The tested result proved that employee usages behaviour influence by the performance expectancy and effort expectancy. The empirical result showed the convergent validity and discriminate validity all latent variables. For that, reason integrated UTAUT and KMSs diffusion model factors can successfully utilize for identifying factor-influencing adoption of new KMSs in their organization. Moreover, this study helps organization manager and policymaker to set up policies for ensuring continues KMSs in their organization and reduce shortcoming of technology acceptance perceived risk barrier.

CONCLUSION

This research proposed to explain the factors of employees' acceptance behaviour of knowledge management system by using integrated UTAUT model with the KMS diffusion model in Bangladesh. This study identified performance expectancy, effort expectancy, KMS Characteristics variables that are more dominant than other factors on Knowledge management system adoption by the employees in Bangladesh. However, the findings present a support to the existing theoretical links of UTAUT model and KMS diffusion model, as well as to the ones that were newly hypothesis in this study. Specifically, KMS Characteristics factors

directly affect the KMS usages behaviour in Bangladesh. These studies provide new effective assessment measures of acceptance of knowledge management system by the employee. To provide a practical contribution to organizations and managers by offering a tool that enables the employee to plan KM systems adoption both effectively and successfully, to improve performance, competitive advantage, and to enhance their work.

LIMITATION AND DIRECTION OF FUTURE RESEARCH PERSPECTIVE

However, this study has offered the valuable contribution to KMS usages behaviour literature, there are some limitations as most field surveys suffered. One of the limitations of this study was that the respondents were only taking only from one city and the moderating effects based on UTAUT model were not tested. On the other hand, KMS diffusion model only adoption stage factors tested in this proposed model. Rest of other stages from KMS diffusion model were not tested in this current study. Therefore, future research should explore the influence of demographic variables as moderator's influence on behaviour intention to use the KMS in Bangladesh and other stages of KMS diffusion model.

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Appendix A Measurement Constructs Development

Latent variables 7 point Likert scale (Strongly Disagree to Strongly agree)	**KMS acceptance adopted literature**
PE1: I find Knowledge management system useful in my job.	
PE2: Using Knowledge management system enables me to accomplish tasks more quickly.	
PE3: Using Knowledge management system increases my productivity.	
PE4: Using Knowledge management system increases my chances of getting a good grade for performance appraisal report.	Venkatesh et al. 2003
Effort Expectancy(EE)	
EE1:Learning to operate KMS would be easy for me	
EE2:My interaction with KMS is clear and understandable	
EE3:I find KMS easy to use	
EE4:It is easy for me to become skillful at using KMS	Venkatesh et al. 2003
Facility conditions(FC)	
FC1: I have the resources necessary to use the KMS	
FC2:I have the knowledge necessary to use the KMS	
FC3:A specific person (or group) is available for assistance with KMS difficulties to me	
FC4:Specialized instruction and education concerning KMS is available to me.	Venkatesh et al. 2003
Social influence(SI)	
SI1. People who influence my behavior think that I should use the KMS	
SI2:The senior management of this business has been helpful in the use of the KMS	
SI3:In general, the organization has supported the use of the KMS	Venkatesh et al. 2003
Behavioral intention to use the system(BI)	
BI1:I intend to use the KMS system for my new job searching	
BI2: I predict I would use the KMS system in the next 2 months for get latest recruitment information	
BI3:I plan to use the KMS system in the next 6 months	Venkatesh et al. 2003
Individual Factors (IF)	
IF1: In my job, usage KMS is important.	
IF2: In my job, usage KMS is relevant.	
IF3: The quality of the output I get from KMS is high.	Xu and Quaddus (2005a, 2005b)
Organizational factor (OF)	
OF1:Nature of my organization helps me knowledge learning	
OF2:Specialized instruction and education concerning KMS is available to me.	
OF3: Our organization provide training for KMS	Xu and Quaddus (2005a, 2005b)
KM System Characteristics (KC)	
KSC1:I can access it online from anywhere	

KSC2: I feel secure using it KC3: I am satisfied with the services provided by it	Xu and Quaddus (2005a, 2005b)
External Inspiring	
EXP1:KMS usage meet our competition pressure	
EXP2:KMS in your organization fulfill customer demand	
EXP3:KMS compatible with commercial trend	Xu and Quaddus (2005a, 2005b)
Perceived Risk	
PR1: I feel secure conducting my task using the KMS	
PR3 :I know that the KMS will handle organizational work correctly	
PR4 :There is little danger that anything will go wrong when I use the KMS	
Usages bahvior	
USB1: I spent a lot of time using KMS	
USB2: I used KMS frequently	
USB3 : I used KMS intensively.	
USB4: Usage of KMS is my routine task	Venkatesh et al. 2003 and Xu and Quaddus (2005a, 2005b)