Knowledge management systems utilisation and knowledge sharing effectiveness: an empirical study of social antecedents in Malaysian organisations

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Abstract: This study seeks to determine how social factors in organisations defined by cultural values for innovativeness and collaboration as well as motivating job design influence the use of knowledge management systems (KMS) and at same time build volitional (autonomous) motivation that sustains the utilisation. As the use of KMS is meant to add value to organisational knowledge management (KM) processes, both autonomous motivation to use and the utilisation of KMS are related to knowledge sharing effectiveness to explore the benefits accruing from KMS utilisation. Based on a survey of 306 KMS user, the existence of innovative norm in organisation was found to have substantial influence on KMS utilisation. Collaborative desire and motivating job design were found to be significant predictor of autonomous motivation to use, while autonomous motivation in turn was found to greatly influence the utilisation of KMS. Lastly, in making knowledge sharing effective in a knowledge sharing environment, both autonomous motivation to use and KMS utilisation were found to be playing prominent roles.

Keywords: knowledge management system; cultural values; motivating job design; autonomous motivation; knowledge sharing.

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1 Introduction

The application of knowledge management (KM) tools otherwise known as knowledge management systems (KMS) in organisations KM practices is a research direction attracting interest because of the mixed results being reported from the implementation of KMS. While some organisations achieved significant benefits from KMS implementation, others have their losses to count (Nantapanuwat et al., 2010). For example, Malhotra (2005) mentioned that 70% of KMS implementation surveyed resulted in failure. Despite this, Lai et al. (2009) highlights that little studies have attempted to empirically investigate the success factors of KMS. An important direction commonly mentioned in literature is the need for the integration of both social and technical factors impacting the use of KMS. While review of literature depicts that technical factors influencing KMS has gained much attention from researchers (Halawi et al., 2008; Wu and Wang, 2006; Jennex and Olfman, 2002), the number of studies exploring the social factors are quite few (Kalkirni et al., 2006–2007). Ciganek et al. (2008) highlight the importance of complimentary environment for KMS to be successful. Hong et al. (2011) also highlight the need to overcome 'cultural wall' for KMS to thrive. Thus, further studies are needed to explore what contribute to effective

use of KMS. While acknowledging significant studies that have contributed to the technical factors of both information systems (IS) and KMS (DeLone and McLean, 1992, 2003; Jennex and Offman, 2002; Maier, 2002), this study anticipates to giving deserved attention to the social factors.

With the current development in information technology, the use of KMS has been described based on three dimensions (Wu and Wang, 2006). These dimensions involved the use of technologies for collaboration and virtual interaction, the creation of knowledge memory or storage of explicit knowledge and the creation of network or maps (Lai et al., 2009) of knowledge experts. Getting knowledge exchanged via technology as a medium goes beyond ordinary implementation. Most researches have treated KMS as enabler to KM processes without much consideration for factor influencing its implementation success. According to He et al. (2009), making KMS available is not a guarantor of the willingness of employees to use the systems. Therefore, this study argues for the need to see beyond KMS implementation by emphasising that technologies require some enabling conditions for it to be effectively utilised in enabling KM processes. As highlighted by Ciganek et al. (2008), the engagement of KMS for knowledge activities involves intricate acts that should be based on both technical and social factors just like the management of knowledge itself. In looking for important social factor that may play core roles in KMS usage, KM literature provide the theoretical guide to establish a direction for this study. Two important social factors in KM literature are the organisation culture and structure (Lee and Choi, 2003; Alavi et al., 2005–2006). In delineating the approach of this study to culture, the work of Alavi et al. (2005–2006) which describe culture in terms of values provides a guide. According to them; "few studies have attempted to systematically investigate the types of cultural values that exist in organizations and how these values might be associated with certain types of KM activities, technology choices, and related outcomes".

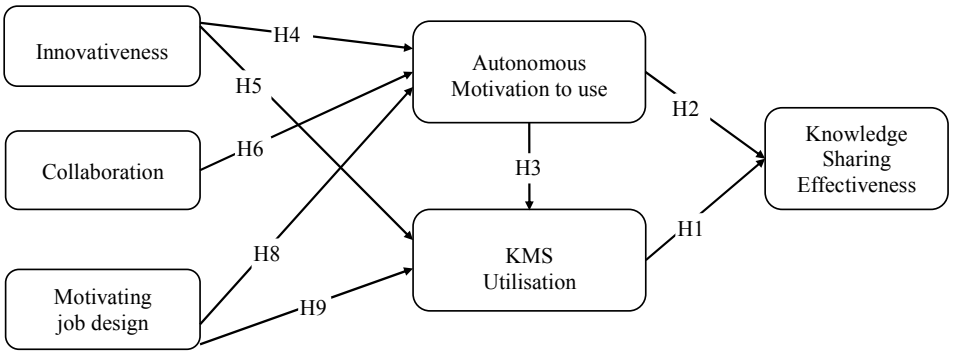
Furthermore, our approach to structure is conceptualised on the design of jobs or tasks in organisation. According to Encyclopaedia of Management (Helms, 2000), organisation structure is how work is done based on the arrangement of people and job. Akin to culture, organisation structure has been conceptualised in various ways in literature. For example; decentralisation and formalisation (Lee and Choi, 2003); document confidentiality status and communication flow (Syed-Ikhsan and Rowland, 2004). Earlier studies such as Cabrera and Cabrera (2005), Alavi et al. (2005–2006), and Gagne (2009) have pointed to the importance of job design as a practical manifestation of structure that can enable or impede knowledge practices. Apart from believing that organisational cultural values and motivating job design can directly influence KMS utilisation, this study is also of the opinion that they are important promoters of personal norms towards the usage KMS; personal norms with respect to KMS are herein referred to in this study as autonomous motivation to use. Lastly, the study explores the impact of KMS on knowledge process by relating the influence of both autonomous-motivation to use and KMS usage to knowledge sharing effectiveness in organisation.

2 Literature review and hypotheses

Although, culture have been investigated with respect to KM and KMS (Singh and Sharma, 2011; Al-Busaidi et al., 2010; Ciganek et al., 2008), research gaps still exist on how cultural values influence the behavioural disposition of organisation members to the

utilisation KMS. In this study, earlier studies by Schein (1985) and Alavi et al. (2005–2006) serve as the building block upon which cultural values for innovativeness and collaboration are conceptualised. In addition, motivating job design (Gagne, 2009) is conceived as an important structural impetus for effective utilisation of KMS. Figure 1 presents the theoretical model depicting the causal relationships among the variables of the study.

Figure 1 Theoretical model and hypotheses



2.1 Dependent variables

Dependent variables in this study are knowledge sharing effectiveness, KMS utilisation and autonomous motivation to use. However, both autonomous motivation to use and KMS utilisation are also independent variables to knowledge sharing effectiveness, while autonomous motivation to use is also a predictor of KMS utilisation.

2.1.1 Knowledge sharing effectiveness

Knowledge sharing effectiveness is described as the exhibition of knowledge sharing behaviour among employee and its contributing influence on task execution (Hsu and Wang, 2008). Sharing of knowledge among employees has been described as a competitive necessity (Chow and Chan, 2008), but its effectiveness is a precursor for positive performance. According to Hoof and Huysman (2009), sharing of knowledge is not limited to ordinary transfer of knowledge between donor and receiver, but also involves the creation of new knowledge via interaction which exists in a rich social network. Therefore, effective knowledge sharing contributes a great deal to the competency of organisational human capital.

According to Hsu (2008), "organizational knowledge sharing helps pass down idiosyncratic, competency-enhancing knowledge from the organization to individual or from one individual to another". Though the significance of knowledge sharing is recognised; its effectiveness in the real life has been a challenge (Jiacheng et al., 2010). In attaining effectiveness in knowledge sharing, knowledge workers must be willing to actively participate in knowledge practices and engage all medium particularly technologies in facilitating knowledge exchanges. Therefore, in exploring knowledge sharing effectiveness, this study asks how KMS utilisation and autonomous motivation influence the transfer of knowledge from experts to apprentice, the diffusion of important

lessons learned across organisation, the feeling of satisfaction about knowledge sharing among employees and the exchange of knowledge that improve tasks performance (Hsu and Wang, 2008).

2.1.2 KMS utilisation

Ever since the DeLone and McLean (1992) IS success model was postulated, researchers in the field of IS have given prominence to utilisation as a measure in IS studies (Ali and Money, 2005). This measure has also become a major construct in KMS studies because earlier studies on KMS have their origin rooted in IS success studies (Maier, 2002; Jennex and Olfman, 2002; Wu and Wang, 2006; Halawi et al., 2008; Nantapanuwat et al., 2010). Utilisation in KMS has been described in terms of using technologies as medium of exchange both tacit and explicit (Wu and Wang, 2006). Exchange of tacit and explicit knowledge involves the use of KMS for storage of and access to lessons learned, access to experts via knowledge network and facilitation of active communication and intense collaboration (Al-Busaidi et al., 2010; Ciganek et al., 2008; Tong and Mitra, 2008; Alavi et al., 2005–2006). Earlier studies have found significant relationship between system utilisation and KMS success (DeLone and McLean, 1992, 2003; Jennex and Olfman, 2002; Nantapanuwat et al., 2010). One of the essences of implementing KMS is to enable knowledge sharing. Therefore, the following hypothesis is formulated.

H1 KMS utilisation positively influences the effectiveness of knowledge sharing practices in organisations.

2.1.3 Autonomous motivation to use

Motivation is said to be engendered by the desire of humans to satisfy inner psychological needs Ryan and Deci (2000). According to Malhotra and Dalletta (2003), user motivation is an unexplored construct which is vital for the success of KMS implementation in organisations. As mentioned in self-determination theory (SDT) (Deci and Ryan, 1975; cited by Ryan and Deci, 2000), three needs that drive psychological eagerness in humans are the need for autonomy, competence and relatedness. Based on these factors, SDT through organismic integration theory (OIT) identified the continuum of motivation and articulated the process through which motivation is developed and sustained.

According to OIT, motivation could be described by level as amotivation, external, introjected, identified, integrated and intrinsic motivations. While amotivation is a total lack of motivation, SDT describes motivation as the intention to act and such intention can be engendered by external inducement or internally (self) initiated (Hung et al., 2011; Meyer et al., 2004). Externally induced behaviour can either be temporal or permanent depending on how satisfactory individuals find it to be in satisfying their psychological needs. Therefore, autonomous motivation is comprised of motivations that are intrinsic and that which may be externally induced but which an individual has identified and integrated as personal values based on the perceived benefits (mainly as a means of self development) attributed to such behaviour. Thus, when interactions between individuals and organisational artefacts (Oiry et al., 2010) are reinforced by innovative and collaborative norms as well as task interdependence; the expected result is the development of autonomous motivation. Therefore, this study believes that high degree of autonomous motivation to use KMS is of importance in reinforcing knowledge sharing

practices and sustaining the continued use of KMS in organisation. Thus, the following hypotheses are formulated:

H2 The degree of autonomous motivation to use among KMS users positively influences knowledge sharing effectiveness.

H3 The degree of autonomous motivation to use among KMS users positively influences KMS utilisation.

2.2 Independent variable

Three variables considered as independents in this study are the organisational cultural values for innovativeness and collaboration and organisation structure in terms of job design.

2.2.1 Innovativeness

According to Bock et al. (2005), changing people's behaviour towards knowledge sharing is considered the most difficult task in organisations. In the utilisation of KMS for knowledge processes, human behaviour or dispositions is a factor that requires appropriate climate as a motivator. Cultural value for innovativeness is a factor of which its existence in organisation settings functions as socio-psychological motivational driver with the potential of influencing behavioural disposition to knowledge practices (Bock et al., 2005). Innovative norm can contribute to the desire to attain competency among individuals and also facilitate the need for collaboration; it is a norm that allows individuals to explore and use personal judgement (autonomy) to address organisational issues (Massa and Testa, 2009). Hsu (2008) found innovative strategy as an important predictor of organisational attempts towards effective knowledge sharing practices. Based on in-depth interview, Massa and Testa (2009) found knowledge domain and innovative behaviour as main contingencies impacting KMS. As KMS is expected to expedite knowledge processes, innovative cultural value that allows for exploration and exploitation of knowledge is expected to facilitate effective use of KMS for knowledge seeking and contribution and at same time engender motivational values that can consistently influence individual behaviour towards KMS use. Thus, the following hypotheses are proposed.

H4 The existence of value for innovativeness in organisations positively influences autonomous motivation to KMS use.

H5 The existence of value for innovativeness in organisations positively influences KMS utilisation.

2.2.2 Collaboration

Collaborative practice in organisations has been observed and tested to be a prelude to organisation's attempt towards building human and social capitals (Lee and Choi, 2003), as it encourages not only the knowledge savvy individuals but also the laggards (Marett and Joshi, 2009). Collaborative cultural value is manifested when active support on task execution is promoted among organisation members. As highlighted by Lichtenstein et al. (2007), the availability of knowledge sharing culture is essential for all modes of

knowledge sharing practices including technology-supported ones. Collaboration fosters the need for learning and building of competence as it helps to build shared understanding via reflective communication among organisation members (Lee and Choi, 2003). When collaboration is seen as a norm, the utilisation of technologies is expected to play an active role because of the need to overcome time and location barriers. The willingness among knowledge workers to search for recognised experts and willingly contribute to other knowledge domains using the technology is expected to improve as the norm of collaboration emphasises the recognition of active support among employees in organisations (Hung et al., 2011). Because individuals are recognised for their active role, this provides the impetus to individuals to be willing to use KMS for personal development and for organisational benefits. Developing autonomous motivation to use KMS is important because it plays a major role in the sustainability of utilisation. While cultural value for collaboration is believed to be important precursor of KMS use, it is also viewed to be important factor contributing to the development of autonomous motivation which encourages or supports a long term use of KMS. Thus, the following hypotheses are proposed.

H6 The existence of collaborative values in organisation positively influences autonomous motivation to use KMS.

H7 The existence of collaborative values in organisation positively influences the utilisation of KMS.

2.2.3 Motivating job design

Motivating job design refers to the structuring of work activities in ways that enable the formation of work relationships (collaboration and integration), fostering of employees autonomy (less formalisation and decentralisation) to utilise personal competence (Gagne, 2009). Job design has a prominent role in facilitating the establishment of "interdependencies, frequency of interactions and information flow requirements among jobs" and have been proposed to be a prerequisite for promoting the flow of knowledge among individuals (Cabrera and Cabrera, 2005; Gagne, 2009). A previous study by Lin and Huang (2008) found that making tasks to be interdependent in organisation plays significant role in the utilisation of KMSs. Apart from enabling linkages among individuals, it can also facilitate cross-functional or business unit linkages (Mohrman, 2003). Noe et al. (2003) asserts that with the existence of high interrelationship among jobs, knowledge sharing is expected to be improved. Job design that facilitate interdependencies has been said to be a factor fostering strong and cohesive relationships, and enabling the development of cognitive, structural and relational capitals in organisations (Cabrera and Cabrera, 2005). Based on the above arguments, job design that fosters the need for making connections and integration of tasks will be motivating, thus building sustained interest towards knowledge exchange at work and facilitate effective use of KMS for knowledge transfer. Thus, the following hypotheses are formulated:

H8 Motivating job design positively influences autonomous motivation to use of KMS.

H9 Motivating job design positively influences KMS utilisation.

3 Methods

3.1 Sampling and data collection

Based on a prior investigation which reveals that the executive MBA students across the institutions offering the program in Malaysia are from diverse establishments including public, private, local and multi-national firms; and have an average to high level of exposure to one or more KM technologies in their respective organisations, a survey questionnaire was distributed to a random sample of working class MBA students from four out of the 13 institution offering the programme in Malaysia. All the four institution constitute the best four business schools in the country according to eduniversal ranking of business school. Because of their location within the vicinities of core economic cities in the country, the executive MBA student population of these four institutions constitute almost 70% of the entire executive MBA student population across the country as at the time of this study's data collection. Prior to conducting the actual study, a pre-test of the questionnaire was carried out to evaluate the degree of difficulty involved in understanding the questionnaire leading to adjustments of some of the items. In addition, a pilot test was conducted based on 39 responses which confirms the reliability of the instruments used. A sample of 600 knowledge workers among the MBA students was randomly selected from these four institutions and survey questionnaire was administered to them via their institutions. Of the 600 questionnaire distributed, a total of 311 questionnaire were returned but with five incomplete and consequently excluded from the analysis. Thus, a total of 306 responses representing 51% of the sample were used for further analyses.

Analysis of the respondent's information shows the following: First, majority of the respondents are female (63.9%). 54.6% have work experience of about have years or less, followed by (25.5%) with work experiences ranging between six and ten years and (13.4%) with work experience ranging between 11 and 15 years. The job positions of the respondents show a good mix with senior managers constituting (9.5%), middle managers making up of (27.5%), and supervisors constitute (32.4%). The clerical executives made up (12.1%) and technical executives constitute (18.6%) of the respondents. Most of the respondents work in service industries (17%), then software or IT industry (15.7%), then manufacturing (15.4%), then banking and finance (14.7%) and education sectors (14.7%). Majority of the respondents (39.2 %) work in organisations with more than 500 employees; followed by (37.9%) who work in organisations with at most 100 employees, while (22.9%) work in organisations with employee number ranging between 100 and 500.

3.2 Measures

In order to operationalise the constructs used in the study model, items used in previous study were adapted and reworded to suit the KMS utilisation context. Multiple items were used to measure all constructs with a seven point Likert scale ranging from 1 = strongly disagree and 7 = strongly agree. A list of items used in measuring the constructs is given in the appendix. A three-item scale measuring innovativeness was adopted from Bock et al. (2005). These items focused on the tolerance and practice of innovation in organisation. Collaborative norm is measure based on the five items adapted from Lee and Choi (2003). These items encompass norm of inter-unit

cooperation, willingness to collaborate among employees and the readiness to assume collective responsibilities in organisation. In measuring motivating job design, five-item scale was adapted from the scale developed by Campion (1988). These items focus on job design that allows for autonomy, relatedness, learning, collaboration and access to communication facilities. The six-item questions for measuring autonomous motivation gauged both the valued extrinsic reasons and intrinsic reasons that encourage the use of KMS and were adapted from Malhotra et al. (2008). Furthermore, five-item scales adopted from Wu and Wang (2006) is used to measure KMS use. The items focus on the use of KMS for explicit and tacit knowledge sharing. Lastly, knowledge sharing effectiveness was measure using four items adapted from Hsu and Wang (2008).

3.3 Validity and reliability assessment

Because of the similarity in some of the items used to measure organisation values for innovativeness and collaboration and structure in terms of motivating job design, it is important to examine the convergent and discriminant validity of these constructs. Thus an exploratory factor analysis using principal component analysis with varimax rotation was performed. Based on the analysis, three factors were found emerged but with some changes arising from cross loading. One of the items of collaboration which ask on self belief about the satisfactory of collaborative practice was loaded onto three items measuring innovativeness; because innovativeness could be an output of productive collaboration, the construct innovativeness is retained and measured by the four items in the new factor. Two out of the four remaining items measuring collaboration were deleted for cross-loading highly into more than one factor. Thus, the remaining two items of collaboration loaded separately on a single factor and are used as measure of collaborative value. These two items are specific on the desire of individuals to collaborate with colleagues and the assurance that colleagues will reciprocate the same gesture. Lastly, one of the items of motivating job design was deleted cross-loaded highly onto two factors. Thus four items were finally used as measure of motivating job design. The items for the three independents variable were also analysed by factor analysis yielding three distinct factors with items of each variable loading highly on their factor.

Further, a reliability test of the items measuring each of the variables was conducted with the following Cronbach alpha values: innovativeness (α = 0.79), collaboration (α = 0.71), motivating job design (α = 0.66), autonomous motivation to use (α = 0.91), KMS utilisation (α = 0.90) and knowledge sharing effectiveness (α = 0.91). Except for motivating job design variable, the rest variables have Cronbach alpha value greater than 0.7 According Hair et al. (2006), 0.6 is the minimum acceptable Cronbach value in an exploratory study.

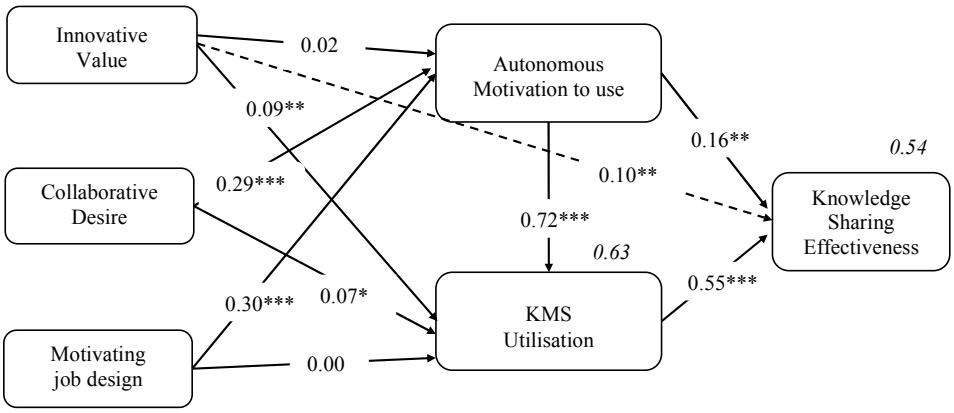
4 Results

To test the relationships between the exogenous and endogenous variables, structural equation modelling (SEM) approach using AMOS 18 was used. AMOS provides the means to test a set of regressions equations simultaneously, providing parametric statistics for each of the regression equation and indices showing the fitness of a model to data (Hooff and Huysman, 2009). Depending on the fitness achieved, adjustment can be made to a model based on suggestion of the modification indices. Based on the items

retained for each variable after the validity and reliability tests, AMOS was used to test the hypothesised relationships strength and significance.

The first model test had statistics with mixed model fits: χ^2 = 8.986, df = 3, χ^2/df = 2.995 (below the 3.0 threshold), AGFI = .933, NFI = .990, CFI = .993, RMSEA = .081. While the chi-square degree of freedom ration is below the threshold value of 3 and the absolute, incremental as well as the comparative fit indices are all above the critical value of 0.90; the root mean square error of approximation (RMSEA) value is above 0.08 indicating a lack of adequate fit of the data to the model. Based on the re-specification suggested by the modification indices, a path (shown in broken line in Figure 2) between innovative value and knowledge sharing effectiveness was added to the model and the model was re-tested.

Figure 2 Final model results: standardised path coefficients



Notes: Solid arrows represented hypothesised paths; dashed arrow represented the added path. Covariance was allowed among the exogenous variables. Figures cutting across the arrows represent standard regression weights, figures in italics represent the proportion of variance explained. ***p < 0.01, **p < 0.05, *p < 0.10

The final model has all the fit criteria satisfied: χ^2 value (9.738, df = 6, p = 0.197 insignificant at (p < 0.05), then χ^2/df ratio of 1.623 (below 3.0) was achieved. AGFI = 0.963, NFI = 0.996 and CFI = 0.999 all above the 0.90 critical value. The Tucker Lewis index (TLI) has a sufficiently close to 1 value of 0.989. The RMSEA value of 0.045 is less than 0.05 indicating a good model fit. Most relationships in this model are significant at levels p < 0.01, and p < 0.05.

Hypotheses 1 through 3 represented the predicted relationships among the endogenous variables are all supported. While Hypotheses 4 and 9 are not supported, Hypotheses 5 through 8 are all supported and the added path predicting relationship between innovative value and knowledge sharing effectiveness is also supported. Square multiple correlations R2 indicate the explained portions of the endogenous variables in the model. The model explained 54% of the variance in knowledge sharing effectiveness, 63% of the variance in KMS utilisation and 27% of the variance in autonomous motivation to use KMS.

As shown in Table 1, KMS utilisation was found to be positively and highly related with knowledge sharing effectiveness; providing support for Hypothesis 1. Autonomous motivation to use was found to have positive significant influence on knowledge sharing

effectiveness and at same time a high predictor of KMS utilisation, thus supporting Hypotheses 2 and 3. Cultural value for innovativeness was found to be an important variable positively influencing KMS use for the exchange of explicit and tacit knowledge, thus providing support for Hypothesis 5. Furthermore, collaborative willingness among knowledge workers was found to have positive significant influence on both autonomous motivation to use and KMS utilisation, thus confirming Hypotheses 6 and 7. In addition, motivating job design which involves less formalisation of job procedure, some degree of autonomy for knowledge workers and task interdependence were found to be positively influencing autonomous motivation to use KMS, providing support for Hypothesis 8. Lastly, the added path which predicted relationship between innovative value in organisation and effectiveness in knowledge sharing processes is also found to be significant.

Table 1 Model testing results

Hypothesis	*ß*	*p*	*Remark*
H1: KMS utilisation → knowledge sharing effectiveness	0.55	$p < 0.01$	Supported
H2: Autonomous motivation → knowledge sharing effectiveness	0.16	$p < 0.05$	Supported
H3: Autonomous motivation → KMS utilisation	0.72	$p < 0.01$	Supported
H4: Innovative value → autonomous motivation	0.02		Not supported
H5: Innovative value → KMS utilisation	0.09	$p < 0.05$	Supported
H6: Collaborative desire → autonomous motivation	0.29	$p < 0.05$	Supported
H7: Collaborative desire → KMS utilisation	0.07	$p < 0.10$	Supported
H8: Motivating job design → autonomous motivation	0.30	$p < 0.01$	Supported
H9: Motivating job design → KMS utilisation	0.00		Not supported
H10: Innovative value → knowledge sharing effectiveness (added path)	0.10	$p < 0.05$	Supported

Note: ß is the estimated standardised path coefficients.

5 Discussion

The results achieved in this study demonstrate that all the three variables representing cultural values and job practice in organisation are directly or indirectly related to KMS utilisation. Similar to the work of Bock et al. (2005), this study also found tolerance or value for innovativeness by top management which allows for exploration and exploitation among employees to be of strong influence on the use of KMS. Innovative cultural value is an important factor that encourages the usage of KMS for explicit and tacit knowledge sharing. As it fosters an environment where individuals have the freedom to display their competence and are given deserved recognition for their creativity, knowledge workers will be motivated to acquire diverse knowledge. Consequently, implemented KMSs will be properly utilised as they facilitate the means to learn something new and make new knowledge to be known.

Collaborative willingness is a cultural norm that encourages people to cooperate for collective interests against the pursuit of personal interests. Its strong influence on autonomous motivation can be attributed to the need for reciprocation. In an environment

of trust and cooperative practice, individuals are more likely to internalise the social norm and develop a sustained motivation to engage in knowledge activities including the use of KMS as tools. In addition, this study demonstrates that motivating job design is highly influential in developing autonomous motivation to KMS use. The extent to which job design allows for collaborative practice, learning and connectedness is important in influencing employees desire to use KMS in satisfying their psychological needs for autonomy, competence and relatedness (Deci and Ryan, 1975). Thus, to develop personal (autonomous) motivation at using KMS, motivating job design could be an extrinsic source of motivation that can be valued, integrated and taken as personal norm (Malhotra et al., 2008) by individuals.

In congruence with the expectation of this study, autonomous motivation to use was found to be of great influence on the utilisation of KMS and also positively influence knowledge sharing effectiveness. Beyond the 'intrinsic-extrinsic dichotomy' of motivation (Malhotra et al., 2008) is autonomous motivation accounting for a combination of intrinsic motivation as well as valued and integrated extrinsic motivation that helps to build a sustained behaviour. For knowledge process such as sharing and the use of technological tools (KMS) for such process to be successful over a long period of time, sustained behaviour developed autonomously among employees is an important factor which organisation practices must aspire to build. Lastly, it was found that KMS usage also influenced knowledge sharing effectiveness greatly. This study demonstrates that apart from good technical characteristics of KMS, the utilisation success of KMS is also contingent on social factors of which the norm of innovation, collaboration and fit structure play prominent roles.

6 Conclusions

This study proposed and empirically tested a theoretical model focusing on the social factors contributing to KMS success. Some key conclusions have been arrived at in this study. First, apart from the technical characteristics of the KMS which have been the focus of most KMS success studies, the social factors also play prominent roles which this study have been able show. Second, implementing KMS is necessary but not enough condition for its effective utilisation, this study demonstrates the need for managers to create enabling conditions and work processes that facilitate the building of autonomous motivation among individual towards the use of KMS. It is only when individuals personally appreciate the use of the technologies that effective and sustained utilisation can be achieved. Lastly, the study also contributes to the success aspects of KMS implementation. By establishing significant relationship between KMS use and knowledge sharing effectiveness, the study extends our knowledge on the impacts of KMS utilisation in organisations.

In terms of practical implications, the results of this study signifies that management could indirectly foster effective usage of KMS and make knowledge sharing effective by nurturing an organisation climate that allows for

1 knowledge exploration, exploitation and the freedom to exercise individual expertise for collective goodness

2 building of trust and reciprocal trait via collective reward system.

Secondly, management should focus on task interdependence that helps to build the relational, structural as well as the cognitive dimensions of social capital in organisations. The social norms emanating from the existence of social capital is a good source through which organisation members develop personal or autonomous norms necessary for the sustenance of knowledge practices.

Although the approach of this study is aimed at generalisation of results, the combination of responses from individuals working in different organisation settings is a shortcoming that future result can address. Future study can focus on a particular organisation to confirm the suitability of this study outputs to such organisation. Secondly, since the unit of study in this research is at individual level, future study can explore how individual differences such as gender, age and experience level can influence the relationships proposed in this study. In addition, organisation characteristics such as firm size and industry type may also be employed as moderators of the proposed relationships. Third, it is important to note that this study only focus on some organisation factors as enable of KMS utilisation, earlier studies have shown that technical characteristics of KMS such as knowledge quality, system quality and service quality are also important determinants of KMS success, thus future study can combine these antecedents with those investigated in this study as determinants of autonomous motivation to use and usage of KMS for knowledge sharing. Fourth, this study focuses on knowledge sharing effectiveness as the impact or success of KMS utilisation, future research can use other non-financial impacts such intellectual capital development, organisational innovative capability to test the impact of KMS usage in organisations. Lastly, because autonomous motivation is an important and relatively new construct which is expected to provide sustained usage behaviour to KMS, future study can employ longitudinal research approach to explore the causal effects of organisation factors on it and its influence on sustained usage of KMS.

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