

ICKM suceg | 2019

*15° International Conference on Knowledge Management
2° Internatoinal Seminar on Corporate Universities and Government Schools*



INTERNATIONAL COUNCIL ON
KNOWLEDGE MANAGEMENT



KM International Experience: Factors influencing knowledge management use in technology enterprises with headquarters in the Southern United States

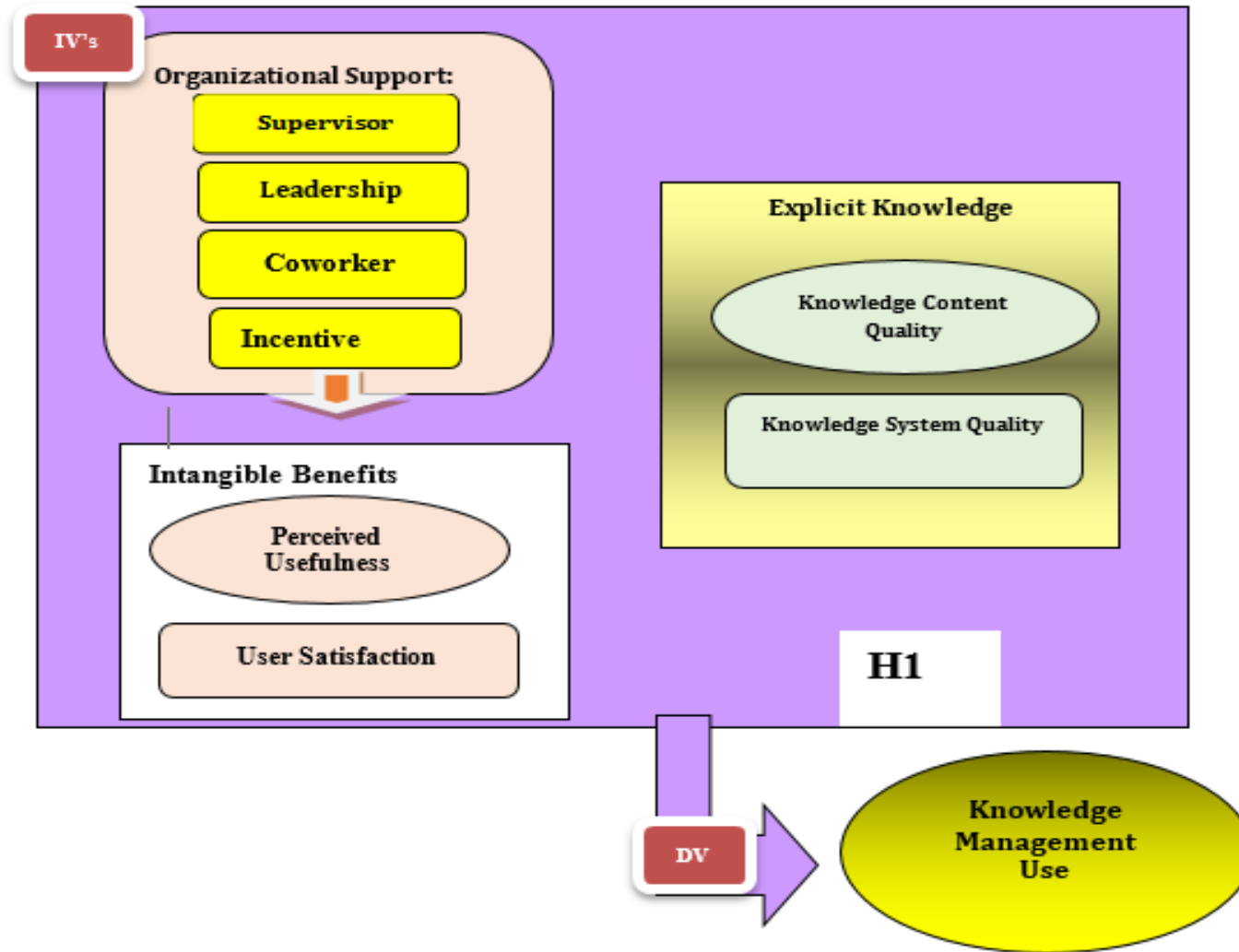
Tereza Raquel Merlo, Ph.D

Introduction

- The purpose of this quantitative study is to investigate the factors influencing with the Knowledge Management (KM) use process in Information Technology (IT) enterprises in the Southern United States.
- This study aims to present an analysis of the use of information systems by IT managers, IT supervisors, and Chief Information Officers (CIOs) from several information technology enterprises.
- It utilizes the theoretical Knowledge Management Successful model developed by Kulkarni, Ravindran, and Freeze (2007), which investigated the use of Information Systems (IS) for successful KM practices in organizations through the examination of available knowledge systems built to the use and reuse of information, content quality, and determinants of users' perceptions of usefulness, user satisfaction and organizational support structure for knowledge management.

- In this study the data was collected from a sample size of 166 individuals, per *G*Power 3* statistical power analysis program, to determine the sample and effect between the 8 (eight) predictors variables for estimating change among scores depicting Knowledge Use.
- Statistical analysis used SPSS package to test the hypothesis. The relationships between the predictor and criterion variables were evaluated using simultaneous multiple regression modelling to support inferences related to the omnibus research questions.
- The 8 (eight) predictors variables (Explicit Knowledge, Knowledge Systems, Supervisor, Co-Worker, Leadership, Incentive, Perceived Usefulness, and User Satisfaction) in this model were regressed independently onto scores on the Knowledge Use scale.
- This study concludes that the model predicting knowledge use is both statistically significant and practically significant, and that scores associated with Explicit Knowledge, Leadership, Perceived Usefulness, and User Satisfaction yielded statistically strong predictive relationships.

Conceptual framework



Research Omnibus question

- To what extent do the independent variables (Knowledge Content Quality; Knowledge System Quality; Organizational Support: Supervisor, Coworker, Leadership, and Incentive; User Satisfaction; Perceived Usefulness) explain the variation in the dependent variable (KM Use) in technology enterprises with headquarters in the Southern US.

Research Sub-questions

- **SubResQ 1.1:** To what extent does Knowledge Content Quality explain the variation in KM Use in high tech organizations in the Southern US?
- **SubResQ 1.2:** To what extent does Knowledge System Quality explain the variation in KM Use in high tech organizations in the Southern US?
- **SubResQ 1.3:** To what extent does Supervisor explain the variation in KM Use in high tech organizations in the Southern US?
- **SubResQ 1.4:** To what extent does Coworker explain the variation in KM Use in high tech organizations in the Southern US?
- **SubResQ 1.5:** To what extent does Leadership explain the variation in KM Use in high tech organizations in the Southern US?
- **SubResQ 1.6:** To what extent does Incentive explain the variation in KM Use in high tech organizations in the Southern US?
- **SubResQ 1.7:** To what extent does User Satisfaction explain the variation in KM Use in high tech organizations in the Southern US?
- **SubResQ 1.8:** To what extent does Perceived Usefulness explain the variation in KM Use in high tech organizations in the Southern US?

The omnibus hypothesis of this study

H_0 : The IVs (Knowledge Content Quality, Knowledge System Quality, Supervisor, Co-worker, Leadership, Incentive, User Satisfaction, and Perceived Usefulness) do not significantly explain the variation in the DV (KM use) in high tech organizations in the Southern US.

H_a : The IVs (Knowledge Content Quality, Knowledge System Quality, Supervisor, Co-worker, Leadership, Incentive, User Satisfaction, and Perceived Usefulness) do significantly explain the variation in the DV (KM use) in high tech organizations in the Southern US.

Research design

This study used a quantitative, non-experimental design to investigate the IS and the KM success model theory from Kulkarni et al (2007) in high tech enterprises in Southern United States. It contributes to discussions surrounding KM use and reuse in organizations by examining the correlation between the level and quality of knowledge use and individuals' perceived satisfaction.

This quantitative non-experimental correlational survey research used a linear multiple regression to explain the variation in the DV and the relationship among variables having a research design consistent with the study's research question

SAMPLE

The sampling target population for this study is IT managers, IT supervisors, and CIOs working in the technology industry in the Southern United States.

Inclusion Criteria:

The sample criteria will include professionals working in IT enterprises in the Southern US who: a) work with IS management in any industry; b) work with KM projects/programs in a leadership and/or supervisory position; and c) voluntarily complete the survey.

Exclusion criteria:

- a) Professional and nonprofessional workers in the IT field with no supervisory or leadership experience and/or
- b) under the age of 18.

Recruitment process

Recruitment of participants was completed using the **SurveyMonkey PRO service** after recruitment for participants via the researcher's posting on LinkedIn. The sampling procedure included the simple random sampling of 166 individuals from the defined sample frame from SurveyMonkey PRO account, the computation of **166 *minimum statistically acceptable sample*** size was defined using **GPower**

3.1.8.2. The sample framing consisted of the application of the inclusion and exclusion criteria to the set of respondents to the researcher's LinkedIn recruitment posting.

The data collection process was designed and conducted in a way that confidentiality of participants was protected and the self-administered electronic survey was sent over internet connection via LinkedIn to a SurveyMonkey.

RESEARCH instrument

A survey was applied for data collection. The **interview instrument (questionnaire)** is a validated instrument from the quantitative work of Kulkarni et al. (2007).

The study involved the gathering of users' perspectives on information systems and knowledge management use tools and technologies related to KM culture, incentive, and organizational support.

Questionnaire survey

A nominal quantitative analysis using a **five point Linkert scale from 1 to 5**, strongly disagree to strongly agree, throughout the use of the survey instrument developed by Kulkarni et al. (2007), which contained 30 question convened in three subcategories defined by the authors as:

- (a)Explicit Knowledge,
- (b)Organizational Support, and
- (c) Intangible Benefits.

Data analysis

The **regression analysis** estimating the influence of predictor variables on life satisfaction yielded a statistically significant model, $F(8, 165) = 18.03, p < .01, R^2 = .48$ indicative of a large effect size in which model predictors account for approximately 48% of the change among scores estimating knowledge use.

Data analysis

The statistical power analysis, as a priori power analysis was conducted to identify the required sample size for establishing statistical power for the research design at the .80 level based on $\alpha = .05$ using the *G*Power 3* statistical power analysis program.

This analysis revealed that a sample size of 55 was necessary to detect a medium effect ($f^2 = .15$) between the 8 (eight) predictors variables for estimating change among scores depicting Knowledge Use. Given the sample of 166 participants, the results can be regarded as dependable for describing the nature of relationships between predictor and criterion variables.

Data analysis

The SPSS statistical software was utilized for data processing, generating routine descriptive statistical question responses and creating graphical representations of questionnaire data. The data analysis procedure used in the study in question was a multiple regression quantitative analysis.

The researcher checked the data for the assumptions of parametric tests, including normality and homogeneity of variance for an effect size of .15, alpha of .05, and power of .95. Incomplete surveys were discarded.

An SPSS outlier labeling technique was utilized to identify outliers, which were either filtered (to preserve the integrity of the data set) or removed. Checks for skewness (the asymmetry of the probability distribution), kurtosis (the shape of the probability distribution), and normality (the data is well-modeled by a normal distribution) were performed.

RESULTS

Variables Correlation

Correlations

		ExpKnow	KnowSys	Supervisor	CoWorker	Leader	Incentive	PerUseful	UserSat
ExpKnow	Pearson Correlation	1	.343**	.294**	.163*	.277**	.239**	.335**	.390**
	Sig. (2-tailed)		.000	.000	.036	.000	.002	.000	.000
	N	166	166	166	166	166	166	166	166
KnowSys	Pearson Correlation	.343**	1	.418**	.226**	.390**	.432**	.412**	.440**
	Sig. (2-tailed)	.000		.000	.003	.000	.000	.000	.000
	N	166	166	166	166	166	166	166	166
Supervisor	Pearson Correlation	.294**	.418**	1	.497**	.585**	.438**	.478**	.561**
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.000	.000
	N	166	166	166	166	166	166	166	166
CoWorker	Pearson Correlation	.163*	.226**	.497**	1	.392**	.399**	.396**	.341**
	Sig. (2-tailed)	.036	.003	.000		.000	.000	.000	.000
	N	166	166	166	166	166	166	166	166
Leader	Pearson Correlation	.277**	.390**	.585**	.392**	1	.526**	.390**	.483**
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.000	.000
	N	166	166	166	166	166	166	166	166
Incentive	Pearson Correlation	.239**	.432**	.438**	.399**	.526**	1	.283**	.496**
	Sig. (2-tailed)	.002	.000	.000	.000	.000		.000	.000
	N	166	166	166	166	166	166	166	166
PerUseful	Pearson Correlation	.335**	.412**	.478**	.396**	.390**	.283**	1	.496**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000		.000
	N	166	166	166	166	166	166	166	166
UserSat	Pearson Correlation	.390**	.440**	.561**	.341**	.483**	.496**	.496**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	
	N	166	166	166	166	166	166	166	166

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

RESULTS

The table above shows that all predictors have significant correlations with the variable, knowledge management use, and their intercorrelations are all below .80 so multicollinearity is not a problem.

Based on this analysis the H_a : The IVs (Knowledge Content Quality, Leadership, Incentive, User Satisfaction, and Perceived Usefulness) do significantly explain the variation in the DV (KM use) in high tech organizations in the Southern US.

RESULTS

The model summary, in Table below, demonstrates that R coefficient was .695 reflecting a positive correlation between the variables. Therefore, as knowledge use increases, so does the Knowledge Content Quality, Knowledge System Quality, Leadership, User Satisfaction, and Perceived Usefulness, Co-worker in significant ways, while Supervisor and Incentive presented statistically insignificant result.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.695 ^a	.483	.456	1.070

a. Predictors: (Constant), UserSat, CoWorker, ExpKnow, KnowSys, Leader, PerUseful, Incentive, Supervisor

RESULTS

The R Square result of .483 indicates that the predictors are statistically significant, meaning that the percentage amount of variation in the DV is explained by the IVs in 48% of Knowledge Use.

Within the model, scores associated with Knowledge Content Quality (Explicit Knowledge), Leadership, Perceived Usefulness, Knowledge Systems, Co-worker, and User Satisfaction yielded statistically strong predictive relationships.

RESULTS

Based on the statistical analysis, the null hypothesis for Ho1.3 and Ho1.6 could not be rejected. Therefore:

H_0 1.3: Supervisor does not significantly explain the variation in KM Use in high tech organizations in the Southern US and

H_0 1.6: Incentive does not significantly explain the variation in KM Use are in high tech organizations in the Southern US.

For the purpose of this study, the collinearity diagnostic show that variables are correlated with the DV, but not overly correlated, leading to the conclusion that regression analysis was appropriated, predictor was positive, and test of hypothesis was confirmed.

Stepwise regression method was utilized in this study in order to examine the variables explained in Table 7 where the coefficients R Square and ΔR^2 , labeled R Square Change, are positive, with ΔR^2 results justifying the addition of variables in the calculation with significant results.

Table 7 – Model Summary Stepwise

Model Summary ^a									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.544 ^a	.296	.292	1.220	.296	69.078	1	164	.000
2	.619 ^b	.383	.376	1.146	.087	23.015	1	163	.000
3	.652 ^c	.426	.415	1.109	.042	11.894	1	162	.001
4	.673 ^d	.453	.440	1.086	.028	8.127	1	161	.005
5	.684 ^e	.468	.451	1.075	.015	4.391	1	160	.038
6	.694 ^f	.481	.462	1.064	.013	4.132	1	159	.044
a. Predictors: (Constant), UserSat									
b. Predictors: (Constant), UserSat, Leader									
c. Predictors: (Constant), UserSat, Leader, ExpKnow									
d. Predictors: (Constant), UserSat, Leader, ExpKnow, PerUseful									
e. Predictors: (Constant), UserSat, Leader, ExpKnow, PerUseful, CoWorker									
f. Predictors: (Constant), UserSat, Leader, ExpKnow, PerUseful, CoWorker, KnowSys									
g. Dependent Variable: KnowUse									

Thus, the relationship between Knowledge Use and User satisfaction (29.6%), Leadership (8.7%), Knowledge Content Quality, referring to the explicit knowledge, (4.2%), Perceived Usefulness (2.8%), Coworker (1.5%), and Knowledge Systems (1.3%) is significant, with detailed results shown in Table 4- Model Summary Stepwise above.

Conclusions

This study demonstrated that there are several factors influencing with the organizational ability to use the information system available in the organization in a manner that it is perceived as useful, valuable, and satisfactory for effective work performance.

The factors investigated: knowledge systems, knowledge content quality – explicit knowledge-, leadership, perceived usefulness, co-workers, and user satisfaction were proven as strongly correlated with knowledge use in organizations.

The variables: knowledge systems, knowledge content quality, co-worker, leadership, user satisfaction and perceived usefulness significantly affect the knowledge use in organizations. Conversely, no significant findings were found regarding incentive and supervisor as factors influencing the knowledge management use process among the investigated population in high tech industry in Southern United States.

Those conclusions lead to the claim that the effective use and management of knowledge in organizations are decisive in the effective use of KMS resources and job performance.

It was evidenced through the research findings that leaders have a great responsibility in creating an organizational culture of knowledge use and sharing that will foster creativity, participation, and innovation, enabling the creation of capital intellectual as characteristic of a learning organization that aims at ensuring competitive advantage in the current global business market. The results of this investigation highlight the importance of an organizational culture of sharing for capital intellectual and competitive advantage.



15ª Conferência Internacional de Gestão do Conhecimento
2º Seminário Internacional de Universidades Corporativas e Escolas de Governo

Thank you!
Obrigada!

Contact: tereza.merlo@unt.edu

ICKM suceg 2019

ORGANIZADO POR



engin



IGTI



EGC



PATROCINADORES E APOIADORES



FIESC
A FORÇA DA INDÚSTRIA CATARINENSE

