ANALYSIS MODEL OF DEVELOPMENT FUNCTIONAL REQUIREMENT KNOWLEDGE MANAGEMENT CYCLE FOR PERFORMANCE BUSINESS COMPETITIVENESS IN INDONESIA SMALL AND MEDIUM SCALE ENTERPRISES (SMEs)

Junita Juwita Siregar, Bina Nusantara University
Aryusmar, Bina Nusantara University

ABSTRACT

The presence of business owner in the small and medium enterprises (SMEs) is the most important part of the economy at Indonesia. The contribution of the micro, small and medium (SMEs) business sector to the gross domestic product increased from 57.84 percent to 60.34 percent in the last five years at Indonesia (Departement Perdangan R.I, 2008). The current information of development a creative industry, the role of the Knowledge Management System (KMS) to manage knowledge in small and medium businesses in increasing insight and sales in various fields continues to be done. The aims of this research is to analyse the benefits of discussion forum as a process of transforming tacit knowledge into explicit knowledge that exists in SMEs businesses through the SMEs knowledge management portal. The research methodology used is explanatory research with quantitative methods. Data collection techniques in the form of a questionnaire using a semantic differential scale (semantic differential scale) and the population of this study is the SMEs, amount to 204 people spread over Jabodetabek. Inferential statistical analysis using the Structural Equation Model (SEM). The result of this investigation is the Knowledge Management Tools discussion forum (MF) has positive affect on the increase in individual knowledge (KI) and has positive affect the willingness to share knowledge (SK) so that it's affects to the willingness for use Knowledge Management (WKM) system. The benefits of discussion forum have a positive effect on creative business ideas (CS), but it's doing not have a positive effect to willingness for use Knowledge Management (WKM) system.

Keywords: SMEs, Knowledge Management, SEM, Discussion Forum.

BACKGROUND

The Indonesian Creative Industry in 2002-2006 was able to absorb 5.4 million workers or with a National Labor Participation Rate of 5.79%, as well as with Labor Productivity of Rp 19,466 thousand/year per worker (Departemen Perdagangan, 2008) one of the biggest motors. Employment absorption in this sector also increased, from 96.99 percent to 97.22 percent in the same period.

Small and medium enterprises were one of the biggest motors. Employment absorption in this sector also increased, from 96.99 percent to 97.22 percent in the same period. SMEs contributed 59.89% (Departemen Perdagangan, 2008) of Indonesian Gross Domestic Product (GDP). The development of the creative economy in Indonesia was face with various problems,

namely the low quality and quantity of labor. Accelerating the growth of the creative economy requires the support of workers who have a creative and innovative mindset (Bekraf, 2017).

The availability of infrastructure and technology is a requirement to improve the competitiveness of Indonesia's creative industries (SMEs). Therefore, Indonesian SMEs need to increase their competitive advantage because the Sustainable competitive advantage in SMEs can be boosted by Knowledge Management (KM). Knowledge Management System (KMS) is a system created to manage knowledge (Becerra, 2015; Ključnikov et al., 2019; Bure & Tengeh, 2019; Suvittawat, 2019). One of them is through the collection, classification, and dissemination of knowledge through a Content Management System (Becerra, 2015) discussion forum. The process of the Knowledge Management model was use a SECI (Socialization, Externalization, Combination and Internalization) model (Nonaka, 2009). Results of the discussion will be concluded and stored as explicit new knowledge that can provide clues as to how to find the intended tacit knowledge (Nonaka, 2009; Lawal et al., 2018; Roopsing et al., 2019). The essence of this approach is to build a social environment or practical community that needs to facilitate the process of sharing (Rajalakshmi, 2012) and communicating tacit knowledge (Takeuchi, 2000). Information storage systems that support classification and ease are absolutely needed in the transformation to knowledge (Nonaka, 2009). The most important stage in developing a knowledge management system is the functional requirements which are the process of distributing knowledge to obtain knowledge (Davenport, 1998). Dissemination of knowledge (Alegre, 2013) is determined as a process for transferring, sharing, disseminating and transferring knowledge to make it available to those who need it.

LITERATURE

Knowledge Management Technology

Knowledge Management Technologies are information technologies that can be used to facilitate knowledge management (Dalkir, 2011). Knowledge Management Technologies are intrinsically no different from information technologies, but they can focus on knowledge management rather than information processing (Becerra, 2015). Knowledge Management Technologies also support knowledge management systems and benefit from the knowledge management infrastructure (Alegre, 2013), especially the information technology infrastructure (Dalkir, 2011). KM technologies constitute a key component of Knowledge Management Systems.

Knowledge Management System

Knowledge Management System (KMS) is a system that was built to manage knowledge management because knowledge management is a very broad and very complex matter (Becerra, 2015). KMS is a System of Knowledge Management which a technology that allows Knowlede Management (KM) to run effectively and efficiently (Dalkir, 2011). Knowledge Management System (KMS) is a system based on information technology that was developed to support the core processes of KM (Davenport, 2001), namely, the creation of knowledge (Alegre, 2013), knowledge storage, transfer of knowledge (Nonaka, 2009), and implementation knowledge application in organizations (Becerra, 2015).

SECI Model

New knowledge arises because of the continuous interaction between explicit and tacit knowledge. Explisit knowledge (Takeuchi, 2000) is the form of knowledge that has been documented/formalized, easily store, propagate, disseminate and studied, such as manuals, books, reports, documents, letters, etc. While tacit knowledge (Chena, 2011) is a form of knowledge that is still stored in the human mind, such as ideas, perceptions, ways of thinking, insights, skills, etc. The interaction of persistently includes four stages of the model called SECI Model (Nonaka, 2009).

Knowledge Sharing

Knowledge share is the process through which explicit or tacit (Takeuchi, 2000) knowledge is communicated to other individuals. Depending on whether explicit or tacit knowledge is being shared, exchange or socialization processes are used (Becerra, 2015).

METHODOLOGY

Research Methodology

The research methodologies were use explanatory research. Data Analysis in this investigation of knowledge management system forum discussion for SMEs is inferential statistics using the Structural Equation Model (SEM) (Barbara, 2010). The samples used of this study were 204 originating from SMEs in Jabodetabek. Data collection techniques was used questionnaire is an instrument of data retrieval was to tested validity or suitability by using a likert scale.

Hypotheses

H1: Perceived benefits of discussion forum (FA) has a positive effect on business creative (CS)
H2: Perceived business creative (CS) has a positive effect on willingness to use knowledge tools KM (WKM)
H3: Perceived benefits of discussion forum (FA) has a positive affect the willingness to share knowledge/ (SK)
H4:Perceived willingness to share knowledge (SK) has a positive effect on willingness to use Knowledge Tools KM (WKM).
H5: Perceived benefits of the discussion forum (FA) has a positive effect on the increase in individual knowledge (KI)
H6: Perceived Increased individual knowledge (KI) has a positive affects pn the willingness to use Knowledge Tools KM (WKM).

RELATED WORK

This section will discuss some of the research that analyse about Knowledge Management research:

Shunkun (2009) analyse the purpose of this paper is to discuss how to use the basic principles of knowledge engineering to facilitate knowledge management Weisong (2012), analyses the new challenge of knowledge management because of knowledge innovation. Finally, this paper puts forward specific strategies for enterprise knowledge establishing the internal and external cooperation mechanism etc.

Bao Zhuang (2010), analyse the mutual relationship between the process of knowledge creation and the strategy of knowledge management, combining with the quantitative research of knowledge creation model, the paper puts forward the suitable different strategies of knowledge management which corresponds to different process of knowledge creation, in order to achieve the best level of organizational knowledge creation.

Yang xue et al. (2011), investigate model indicates that Knowledge Management (KM) is consisted of access, sharing, analysis, application, evaluation, motivation, innovation and protection of knowledge. Commercial bank guides and constraints the aforementioned eight process through scientific and rational management, builds up a sound knowledge sharing mechanism this within the bank. This method can strengthen the knowledge capital and KM level, to improve the production and flow of knowledge. Furthermore, it can improve operational performance and resilience to risk, and create continue strength in market competition.

Siregar, et al. (2018), analyze the model of technology acceptance model (TAM) in the implementation of knowledge management for Indonesia SMEs base on mobile application.

RESULT AND DISCUSSION

Descriptive Statistics Analysis

This research was used statistical analysis for test each variable to be examined. The total of sample is 204 with purposive sampling technique.

Table 1
FREQUENCY DISTRIBUTION NUMBER OF RESPONDENTS BY

VARIABLE					
Variable	**p < N**	**%**	**N > p**	**%**	N
FA	72	35.3	132	64.7	204
CS	114	55.88	90	44.12	204
IK	82	40.2	122	59.8	204
SK	96	47.05	108	52.95	204
WKM	92	45.1	112	54.9	204

According to Table 1 above the results of descriptive statistical analysis for each variable states that:

1. 132 of 204 respondents (64.70%) state that discussion forum (FA) has advantage and 72 of 204 respondents (35.30 %) state discussion forum (FA) is unuseless.
2. 90 of 204 respondents (44.12%) stated that business creative (CS) has advantage and 114 of 204 respondents (55.88) state that that business motivation (CS) has disadvantage.
3. 122 of 204 respondents (59.80%) stated that individual knowledge (IK) has knowledge increment and 82 of 204 respondents (40.20 %) stated that has not knowledge increment.

4. 108 of 204 respondents (52.95%) stated that willingness to share knowledge (SK) and 96 of 204 respondents (47.05 %) stated that has not willing to share knowledge.
5. 112 of 204 respondents (54.90%) stated willingness to use web km (WKM). and 92 0f 204 respondents (47.05%) stated not willing to using web km (WKM).

Inferential Statistics Analysis

Inferential analysis is done using Structural equation modeling (SEM) is a statistical methodology that takes a confirmatory (hypothesis-testing) approach to the analysis of a structural theory bearing on some phenomenon (Barbara, 2010). Typically, this theory represents causal processes that generate observations on multiple variables (Kline, 2005) (Table 2-6).

Table 2
PERCEIVED BENEFITS OF DISCUSSION FORUM (FA)

Indicator	Skewness	CR	Curtosis	cr
FA1	-0.021	-0.125	-0.404	-1.177
FA2	-0.321	-1.87	-0.273	-0.795
FA3	0.251	1.464	-0.403	-1.176

Table 3
PERCEIVED WILLINGNESS SHARE KNOWLEDGE (SK)

Indicator	Skewness	CR	Curtosis	cr
SK1	0.999	0.576	-0.954	-2.572
SK2	0.151	0.882	-0.539	-1.573
SK3	0.178	1.041	-0.145	-0.422

Table 4
PERCEIVED INCREASED INDIVIDUAL KNOWLEDGE (IK)

Indicator	Skewness	CR	Curtosis	cr
IK1	-0.588	-2.428	0.681	1.985
IK2	-0.159	-0.927	-1.24	-2.516
IK3	-0.572	-2.335	0.477	1.39

Table 5
PERCEIVED BUSINESS CREATIVE (SC)

Indicator	Skewness	CR	Curtosis	cr
SC1	0.191	1.115	-0.307	-0.895
SC2	-0.639	-2.215	-0.161	-0.468

Table 6
WILLINGNESS TO USE KNOWLEDGE TOOLS KM (WKM)

Indicator	Skewness	CR	Curtosis	cr
WK1	-0.297	-1.732	-0.029	-0.085
WK2	0.206	1.203	-1.012	-2.561

According to Software Amos output results in the all table Assessment of Normality, the values found in the column c.r are all within a recommended value of between $-2.58 \leq CR \leq 2.58$ and thus the data is normally distributed to qualify for further data analysis (Rick, 2012).

Chi-Square Statistic

The most basic measurement is a chi-square statistical likehood ratio. The tested model will be considered good if the chi-square value is low because chi-square is low or small and insignificant is expected so that the null hypothesis is difficult to reject and the basis for acceptance is probability with a cut-off value of $p \geq 0.05$ or $p \geq 0.10$ (Barney, 2010).

RMSEA

RMSEA (Root Mean Square Error of Approximation) The index is used to compensate for the chi-squared statistics for large samples. The RMSEA value shows a goodness of fit that can be expected when the model is estimated for the population (Siregar, 2018).

Goodness-of-Fit Index (GFI)

This index will calculate the weighted proportion of the variance in the matrix covariance of the sample explained by the population covariance matrix which is estimated (Rick, 2012). GFI is a non-statistical measure that has values range from 0 (poor fit) to 1.0 (perfect fit). Value of which high in the index indicates a better fit (Rick, 2012).

Adjusted Goodness-of-Fit Index (AGFI)

The recommended level of acceptance is if AGFI has value equal to or greater than 0.90 (Rick, 2012). Value of 0.95 can be interpreted as a good level overall model fit while the magnitude of values between 0.9 - 0.95 indicates sufficient levels-adequate fit (Barney, 2010).

Comparative Fit Index (CFI)

The magnitude of this index is in the range of values of 0-1, which is increasingly close to 1, indicating the highest level of fit - a very good fit (Barbara, 2010). The recommended value is $CFI \geq 0.95$.

Tucker Lewis Index (TLI)

TLI is an alternative incremental fit index that compares a model that is tested against a baseline model. Value of which recommended as a reference for the acceptance of a model is acceptance ≥ 0.95 (Kaplan, 2005) and a value that is very close to 1.

Confirmatory Factor Analysis (CFA)

Confirmatory Factor Analysis in SEM is used to confirm the most dominant factors in one group of variables (Barney, 2010).

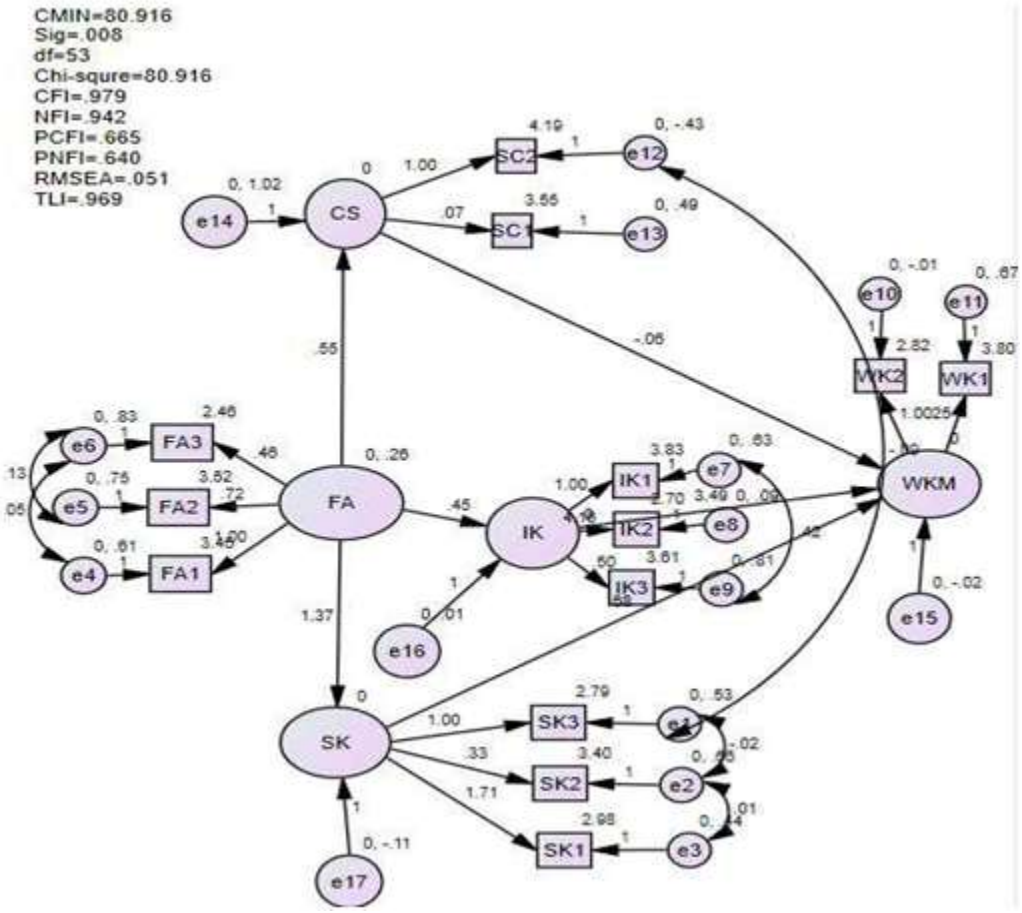

FIGURE 1
THE CFA MODEL OF DEVELOPMENT OF FUNCTIONAL REQUIREMENT KNOWLEDGE MANAGEMENT SMEs

Test of Conformity Model in accordance with the objectives of the research will be tested using a model of structural equations model (Kaplan, 2005) through AMOS Software 8.0, based on the existing theoretical framework. The test results on the model presented in Figure 1 give the following results (Table 7):

Table 7
OVERALL FIT INDICACES OF THE CFA MODEL

Good of Fit Index	Recommended Value	Result	Model
Absolute Fit Measures			
Chi-square	< 80.916	80.916	Fit
CMIN/DF	< 2.00	1.527	Fit
P-value (Sig)	> 0.05	0.008	Fit

RMSEA	< 0.08	0.051	Fit
Incremental Fit Measures			
TLI	> 0.95	0.969	Fit
NFI	> 0.90	0.942	Fit
CFI	> 0.95	0.979	Fit
Fit Measures			
PNFI	> 0.60	0.64	Fit
PCFI	> 0.60	0.665	Fit

Hypothesis Test

The Formula of Variabel laten Exogen H0: γn=0; No Influence (Accept H0)
H1: γn ≠ 0; Influence (Reject H0)
The Formula of Variabel laten Endogen H0: ßn=0; No Influence (Accept H0)
H1: ßn ≠ 0; Influence (Reject H0)

Hypothesis Result

Table 8
HYPOTHESIS TEST RESULT

Hypothesis	P(sig)	Result
H1 : (FA - CS)	***	Reject H0
H2: (CS - WKM)	0.674	Reject H0
H3 : (FA - IK)	***	Reject H0
H4: (IK - WKM)	***	Reject H0
H5: (FA- SK)	***	Reject H0
H6: (SK - WKM)	***	Accept H0

According to the Amos Output in Table 8 All Probability (Sig) Results of Hypothesis value <0.05 except hypothesis H6 (SK-WKM) Sig value >0.05 be explained that (H1) Knowledge Management Tools discussion forum (FA) has positive affect on the increase in individual knowledge (IK) and has positive affect the willingness to share knowledge (SK) so that it's affects to the willingness for use Knowledge Management (WKM) system. The benefits of discussion forum have a positive effect on creative business ideas (CS), but it's doing not have a positive effect to willingness for use Knowledge Management (WKM) system.

Limitation Future Research

This research should have socialization or training to SMEs who will use the technology Knowledge Management because some of them still don't know how to store digital tacit knowledge. For next research need to analyse how to motivate individuals to contribute their knowledge to a KM system. How to verify the efficacy, relevance of knowledge contributed to a KM system and knowledge dissemination.

CONCLUSION

After conducting an investigation in analysing the benefits of implementing a knowledge management system (KMS) for SMEs in terms of knowledge sharing and distribution, the authors conclude as follow:

1. Knowledge Management Tools discussion forum (MF) has positive affect on the increase in individual knowledge (KI) and has positive affect the willingness to share knowledge (SK) so that it's affects to the willingness for use Knowledge Management (WKM) system. The benefits of discussion forum have a positive effect on creative business ideas (CS), but it's doing not have a positive effect to willingness for use Knowledge Management (WKM) system.
2. The sub-systems that support Knowledge Management System, includes searching documents, uploading and downloading knowledge, discussion forum, private messages, and information systems for users are part of the goal knowledge.

ACKNOWLEDGMENTS

This research was fully funded by the Directorate General Supporting Research and Development, Ministry of Research, Technology, and Higher Education Republic of Indonesia as a part of a Penelitian Terapan Unggulan Perguruan Tinggi Research Grant to Bina Nusantara University Analisis dan Penerapan Knowledge Management pada sektor Industri Kreatif dengan pendekatan TAM with contract number 23/AKM/MONOPNT/ 2019 and contract date: March, 27th 2019. Republic Indonesia.

REFERENCE

Alegre, J., Sengupta, K., & Lapiedra, R. (2013.). Knowledge management and the innovation performance in a high-tech SMEs industry. *International Small Business Journal, 31*(4), 454-470.

Bao Z. (2010). The strategy of knowledge management and knowledge creation, 3rd International Conference on Information Management. *Innovation Management and Industrial Engineering*.

Barbara, M., & Byrne. (2010). Structural equation modeling with AMOS: Basic concepts, applications and Programming. (2nd ed). *Routledge Taylor & Francis Group*, New York.

Becerra I.F., & Sabherwal, R. (2015). Knowledge management: Systems and Processes. Armonk (N.Y.); Newyork: M.E. Sharpe.

Bekraf. (2017). Rencana Strategis Kreatif Indonesia 2015-2019. www.bekraf.go.id/berita/page/17/rencana-strategis-badan-ekonomi-kreatif 2015-2019.

Bure, M., Tengeh, R.K. (2019). Implementation of internal controls and the sustainability of smes in Harare in Zimbabwe. *Entrepreneurship and Sustainability Issues, 7*(1), 201-2018

Chena, G.L., Ling, W.Y., Yang, S.C., Tang, S.M., & Wu, W.C. (2011). Explicit knowledge and tacit knowlegde sharing. *IEEEE*, International Conference.

Dalkir., & Kimiz. (2011). Knowledge Management in Theory and Practice. The MIT Press.

Davenport, T.H., & Laurance, P. (1998). *Working knowledge: How organization manage what they know*. Harvard Busisnes School Press, Boston.

Davenport, T.H., & Volpel, S.C. (2001). The rise of knowledge towards attention management. *Journal of Knowledge Management, 5*(3), 212-21.

Departemen Perdagangan, R.I. (2008). Creative Industry Development Plan Towards a Creative Economic Vision.

Kaplan, (2005). Structural equation modeling: Foundations and extensions. Thousand Oaks, CA: Sage. Kline, R. B. Principles and practices of structural equation modeling (2nd ed.), New York: Guilford Press.

Ključnikov, A., Mura, L., & Sklenár, D. (2019). Information security management in SMEs: Factors of success. *Entrepreneurship and Sustainability Issues, 6*(4), 2081-2094.

Kline, R.B. (2005). Principles and practices of structural equation modeling, (2nd ed.). New York: Guilford Press.

Lawal., Fatai Alani., Omotayo A. Adegbuyi., Oluwole O. Iyiola., Ezekiel O. AYOADE., & Akeem A. Taiwo. (2018). Nexus between informal networks and risk-taking: Implications for improving the performance of Small and Medium Enterprises (SMEs) in Nigeria. *Academy of Strategic Management Journal*, *17*(2).

Nonaka, I., & Von Krogh, G. (2009). Perspective Tacit knowledge and knowledge conversion: Controversy and advancement in organizational knowledge creation theory. Organization science, *20*(3), 635-652.

Rajalakshmi, S., & Banu, R.S.D.W. (2012). Analysis of tacit knowledge sharing and codification in higher education. International Conference on Computer Communication and Informatics (ICCCI).

Rick, H., & Hoyle. (2012). Handbook of structural equation modeling. New York: Guilford Press.

Roopsing., Taweesak., & Thabhatr, A. (2019). Factors affecting the management success of small and medium enterprises in the electrical and electronic industry in Thailand. *Academy of Strategic Management Journal, 18*(2), 1-17.

Shunkun, Yu., Lin, Liu., & Ming, Fu. (2009). The application research on knowledge management of project manager. *International Conference on Information Management, Innovation Management and Industrial Engineering.*

Siregar, J.J., & Puspokusumo, R.A.A.W.(2018). The Analysis of Technology Acceptance Model in Implementing Knowledge Management for Small Medium Sized Enterprises (SMEs) in a Cretaive Industry Base on Mobile Application. International Conference on Enginering, Applied Science and Technology (ICEAST).

Suvittawat, A. (2019). Passions and enthusiasm of small and medium enterprises (SMEs): A case study of Nakorn Ratchasima province, Thailand. *Entrepreneurship and Sustainability Issues, 6*(3), 1169-1179.

Takeuchi, N. (2000). The knowledge-creating company: How Japanese companies create the dynamics of innovation.oxford ", Oxford University Press.

Wei, Y. (2010). *Analysis on influencing factors of tacit knowledge sharing and solutions for high-tech enterprises*. International Conference on Information Management. *Innovation Management and Industrial Engineering.*

Weisong,Y.C. (2012). Research on enterprise knowledge management strategy from the perspective of knowledge-based innovation. *International Conference on Information Management, Innovation Management and Industrial Engineering.*

Yang, Xue, & Bo, W. (2011). Research on the application of knowledge management process model in commercial banks,18th International Conference on Industrial Engineering and Engineering Management.