

# Measuring Knowledge Management Readiness of Indonesia Ministry of Trade

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*Knowledge is one of the important assets for organization. Managing knowledge properly will enable the organization to achieve its objectives effectively and efficiently. Since risk of failed implementation of Knowledge Management (KM) might occur, organization needs to measure their KM Readiness beforehand to successfully implement KM. This study is intended to measure KM Readiness in government agency, namely Directorate of Bilateral Negotiations in Ministry of Trade. The research model for measuring KM readiness was developed based on previous relevant studies. KM enablers, individual acceptance, and KM SECI processes were used to develop the model and research instruments. KM Readiness in government agency was measured by accommodating factor analysis in research model. Data were collected from 53 employees as valid samples. The result shows that KM Readiness level of the Directorate of Bilateral Negotiations in Ministry of Trade is "ready but needs a few improvement".*

**Keywords:** Knowledge Management, KM Readiness, KM Enablers, Individual Acceptance, KM SECI Processes, Government

## I. INTRODUCTION

Directorate of Bilateral Negotiation (DBN) is one instance of government agency in Ministry of Trade. Based on Ministry of Trade Regulation No.8 on 2016, this organization's main task is conducting bilateral trade negotiation with other countries. The purpose of this organization is to achieve trade-deal agreement toward other countries that benefit most for domestic interests.

Negotiation is the key activity in this agency. While conducting negotiations, DBN-Ministry of Trade also coordinates with other government agencies that provide actual information of export-potential commodities along with related strategies. Hence, this organization not only negotiates with other country's representative, but also collaborates with other domestic government agencies.

There are 15 trade negotiations conducted on the last 6 years. However, based on first quarter of 2018 report, there were only 6 (40%) completed trade negotiations, while the other 9 (60%) were still unfinished. This condition becomes one concern of the agency which is needed to be improved by accommodating knowledge management as the solution.

It is unarguable that KM is fundamentally important for organization [1] [2]. Successful KM implementation enable the organization to achieve its objectives more effective and efficient. However, based on [3] and [4], project of KM has failure rate of 70% because many organizations only focused

on theories without concerning the organization's condition when implementing KM. Before implementing KM, assessing organization's KM Readiness is necessary in order to minimize failure risks [1].

There are lot of previous studies about assessment of KM Readiness. The case studies involved private sector companies [2] [5] [6] [7] [8], education institutions such as universities [9] [10] [11] [12] [13], and government institutions [14] [7] [15] [3] [16]. However, among those studies, there is still no discussion about KM readiness' framework to government agency related to negotiation and coordination activities that has been used empirically.

This study is intended to measure KM Readiness in Directorate of Bilateral Negotiation. The research model is developed using Systematic Literature Review [17] [18] toward relevant previous studies. Objectives of this study are: the research model, KM Readiness level, and most determined factor of KM Readiness in this case study.

## II. LITERATURE REVIEW

### A. KM Process

KM is a process that assists an organization to identify, organize, select, deploy and transfer relevant information and skills which are part of the organizational assets of memory, stored in an unstructured way [5]. Transforming the unstructured to become structured pattern enables the organization to: solve its problem, achieve its objectives effectively and efficiently, perform dynamic learning, conduct strategic planning, and make the best possible decision [5]. According to Beccera-Fernandez & Sabherwal, KM is defined as knowledge-related-activities, such as: capturing, discovering, sharing and applying knowledge in order to increase the impact of knowledge use to achieve organization's objectives [5][19]. There are 4 processes in KM, divided by Nonaka-Takeuchi based on knowledge-type transferring, such as: Socialization, Externalization, Combination, and Internalization [5][19].

### B. KM Enabler

Achieving successful KM implementation in organization must consider several aspects. Previous studies suggest that these aspects are pre-conditions to implement KM process successfully. There are KM Infrastructure[11] [13] [20], KM Enablers [2][5][7][8][9][12][14][21], and KM Critical Success Factor (CSF) [3][15][16]. All these studies emphasize socio-

technical perspective and they similarly emphasize factors such as: Organizational Culture, Organizational Structure, and Information Technology. Hence, these 3 factors are relevant to be considered to determine KM Readiness in an organization.

C. *KM Readiness*

KM Readiness is defined as a receptive attitude from organization to be involved in KM processes through available sources [8]. KM Readiness is considered as one of indicators and baseline-evaluation to move forward to implement KM, since by knowing KM Readiness, failure risks of KM Implementation are possible to be reduced to minimum [4].

KM Readiness level in this study is determined by using Aydin and Tasci scale [12][23] based on data obtained from survey. Scale measurement can be seen in Figure 1. The scale is given from score 1 to score 5. Score 1 means that factors determine KM are not ready (need some work), while score 5 means fully ready (go ahead).

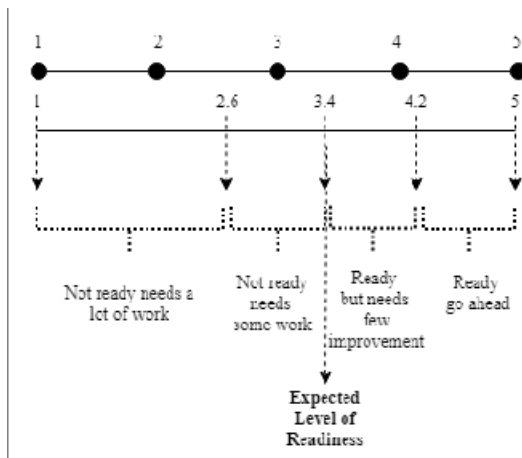


Figure 1 – Aydin & Tasci scale [23]

D. *Individual Acceptance*

When it comes to considering people as one of factors which determine implementation of KM, factor of Individual Acceptance comes to place. There are several theories which emphasize that any changes in an organization may be significantly affected by its individual acceptance [14], such as Theory of Reasoned Action (TRA) [24][25], Theory of Planned Behavior (TPB) [26], Technology Acceptance Model (TAM) [27], Unified Theory of Acceptance and Use of new Technology (UTAUT) [28]. This study adopted two factors from UTAUT: Effort Expectancy and Performance Expectancy. UTAUT itself is derived from TAM, TPB, and TRA, while these factors are already proven in previous studies [2] [5] [8] [12] [14] [20] to measure KM Readiness.

III. METHODOLOGY

A. *Research Model*

Based on Systematic Literature Review (SLR) [17] in 17 previous studies [2][3][5][6][7][8][9][10][11][12][13][14][15][16][20][21][29], the proposed research model were developed

to measure KM Readiness. The theoretical framework or the model is displayed in Figure 2. It contains of 3 aspects: KM Enablers, Individual Acceptance toward KM, and KM SECI Process.

KM Enablers in this study’s research model contains of 8 variables: Collaboration; Trust; Learning; Management Support; Reward; Decentralization; IT Support; and IT Use. Those 8 variables are categorized into 3 factors, such as: Organization Culture, Organization Structure, and Information Technology. The research model also adopted Individual Acceptance which contains of 2 variables, such as Performance Expectancy toward KM, and Effort Expectancy toward KM. As a dependent variable component, aspect of Intention to be Involved in KM SECI Process contains of 4 dependent variables, such as: Socialization, Externalization, Combination, and Internalization. Figure 2 visualize theoretical framework or research model of this study.

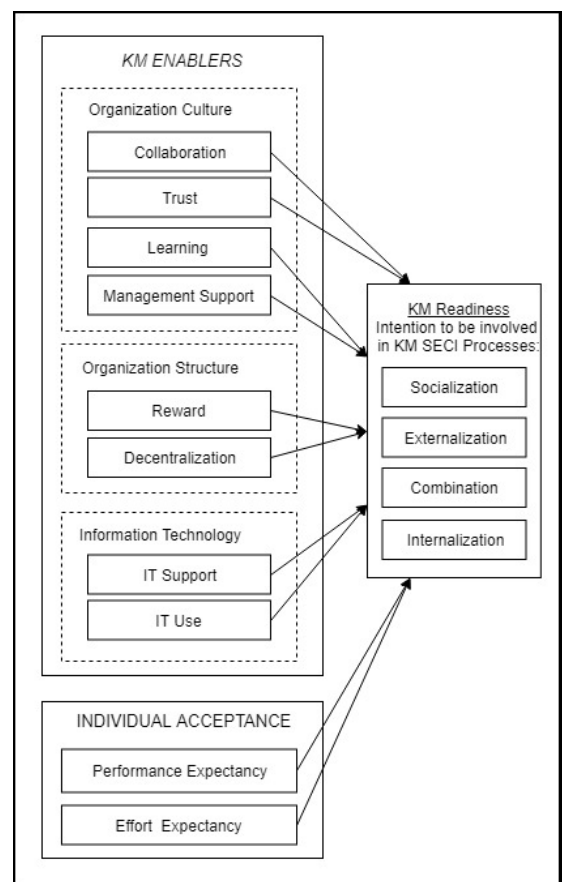


Figure 2 – Research Model KM Readiness in DBN Ministry of Trade

B. *Research Instrument*

Research instrument contains of list of questionnaire’s questions. It used 5-likert-scale. There are 47 main questions, added with 4 demographic questions. The research instrument is derived from instrument variables. Those 47 questions represented 14 factors, divided into 4 dependent factors and 10

latent factors. The reference for each instrument variable is shown in Table 1.

Table 1 Instrument Variables

No.	Variable	References
1	Collaboration	[5],[7],[8],[12],[14]
2	Trust	[5],[7],[8],[12],[13],[14],[29]
3	Learning	[5],[7],[8],[14],[16],[29]
4	Management Support	[5],[8],[11],[12],[29]
5	Decentralization	[5],[8],[11],[12],[14]
6	Reward	[5],[7],[8],[12],[14],[29]
7	IT Support	[7],[8],[12],[14]
8	IT Use	[8],[9],[12],[14]
9	Performance Expectancy	[2],[5],[8],[9],[12],[14],[20]
10	Effort Expectancy	[2],[5] [8],[12],[14],[20]
11	Socialization	[2],[5],[6],[8],[9],[12],[14]
12	Externalization	[2],[5],[6],[8],[9],[12],[14]
13	Combination	[2],[5],[6],[8],[9],[12],[14]
14	Internalization	[2],[5],[6],[8],[9],[12],[14]

C. Sample and Data Collection

KM Readiness assessment was conducted in DBN Ministry of Trade by using survey with non-probability sampling, as what Creswell suggests [30]. The online questionnaire was distributed to 70 of total population, then there were only 53 returned and answered. Respondents are categorized based on several demography criteria such as: educational background, working experience (in years), gender, and age.

D. Validity and Reliability

Before calculating the score of KM Readiness, based on statistic-quantitative methodology [30] and previous studies, both validity and reliability test need to be performed in order to make sure the model along with received data are valid and reliable. Validity test was carried out using convergent and discriminant validity [3][5][12], while reliability test was carried out using composite reliability [3][5][12].

Convergent validity shows that all AVE value for each variable of the model is not less than 0.5 (see Table 2), which is the acceptable value [12]. While discriminant validity (see Table 3) shows that the model is valid based on the criteria of discriminant validity [5][12][30]. Regarding reliability aspect, composite reliability shows that the model is reliable since each CR value is more than 0.7 [3] (see Table 2). Hence the model is considered as valid and reliable.

Table 2 Std Item Loading, AVE, and CR values

Variable	Indicator	Std. Item Loading	AVE	CR
Collaboration	OCC2	0.649	0.563	0.836
	OCC3	0.831		
	OCC4	0.696		
	OCC5	0.810		

Variable	Indicator	Std. Item Loading	AVE	CR
Trust	OCT1	0.906	0.825	0.934
	OCT2	0.876		
	OCT3	0.941		
Learning	OCL1	0.895	0.798	0.922
	OCL2	0.906		
	OCL3	0.879		
Management Support	OCMS2	0.844	0.825	0.903
	OCMS3	0.968		
Decentralization	OSD1	0.914	0.769	0.908
	OSD2	0.954		
	OSD3	0.749		
eward	OSR1	0.864	0.826	0.934
	OSR2	0.917		
	OSR3	0.943		
IT Support	ITS1	0.912	0.734	0.931
	ITS2	0.916		
	ITS3	0.925		
	ITS4	0.847		
	ITS5	0.652		
IT Use	ITU1	0.629	0.656	0.882
	ITU2	0.892		
	ITU3	0.885		
	ITU4	0.806		
Effort Expectancy	IAE1	0.888	0.764	0.907
	IAE2	0.838		
	IAE3	0.895		
Performance Expectancy	IAP1	0.919	0.874	0.954
	IAP2	0.957		
	IAP3	0.928		
Socialization	IS1	0.825	0.596	0.946
	IS2	0.820		
	IS3	0.782		
Externalization	IE1	0.637	0.596	0.946
	IE2	0.662		
	IE3	0.675		
Combination	IC1	0.785	0.596	0.946
	IC2	0.817		
	IC3	0.742		
Internalization	I11	0.889	0.596	0.946
	I12	0.803		
	I13	0.784		

Table 3 Discriminant Validity

	OCC	OCT	OCL	OCMS	OSD	OSR	ITS	ITU	IAE	IAP	Int-SECI
OCC	<b>0.750</b>										
OCT	0.658	<b>0.908</b>									
OCL	0.227	0.398	<b>0.893</b>								
OCMS	0.259	0.153	0.194	<b>0.908</b>							
OSD	0.177	0.101	0.455	0.625	<b>0.877</b>						
OSR	0.312	0.208	0.512	0.664	0.706	<b>0.909</b>					
ITS	0.285	0.307	0.633	0.455	0.511	0.504	<b>0.857</b>				
ITU	0.346	0.347	0.157	0.290	0.148	0.017	0.326	<b>0.810</b>			
IAE	0.438	0.436	0.217	0.391	0.296	0.176	0.304	0.463	<b>0.874</b>		
IAP	0.288	0.280	0.047	0.274	0.006	-0.047	0.075	0.623	0.708	<b>0.935</b>	
Int-SECI	0.272	0.354	0.277	0.226	0.253	0.076	0.298	0.539	0.781	0.619	<b>0.772</b>

IV. RESULT AND ANALYSIS

A. KM Readiness Level

Measuring the KM Readiness Level was done by calculating total means of each variable. The total means then was mapped to Aydin & Tasci scale level [23]: ready go ahead; ready yet needs few improvements; not ready needs some work; and not ready needs a lot of work.

Calculation of validated and reliable data in this study resulting in level 3.84 of KM Readiness in DBN Ministry of Trade. This level means “ready but needs a few improvements”. Table 4 shows the readiness level for each variable and total as well.

B. Factors Analysis

Factors analysis was conducted to get insight of the result. The analysis was done by using SmartPLS 3 as tool. This research model was built also by using SmartPLS 3. The model consists of 11 variables and 47 indicators. Those variables and indicators were tested in term of validity and reliability. Based on validity and reliability test result, out of 47 indicators only 2 of them were eliminated, without eliminating any variable, which means all variables were still intact.

Evaluation of this model was done to predict causality between independent variable and dependent variable. T-Statistic [5] was used to test the hypothesis derived from research model. The hypothesis is accepted if it has a t-static value higher than 1.64 for one-way hypothesis (1-tail) and 1.96 for the two-way hypothesis. alpha value is 5% which means confidence level at 95%. Since mostly of each factor is one-way (1-tail), then the value of 1.64 is used as parameter value.

As displayed in Table 5, this study has found that Effort Expectancy has value of T-Statistic 3.923 which is more than 1.64. This means Effort Expectancy affects employee to be more involved in KM SECI Process.

Table 4 Result of KM Readiness Level for Each Variable and Total

KM Aspects	Variable	Total Mean	Readiness
Organizational Culture	Collaboration	4.26	Ready, go ahead
	Trust	3.90	Ready, but needs a few improvement
	Learning	3.45	
	Management Support	3.65	
Organizational Structure	Decentralization	3.29	Not ready, needs some work
	Reward	2.81	
Information Technology	IT Support	3.27	Ready, go ahead
	IT Use	4.24	
Individual Acceptance	Performance Expectancy	4.46	Ready, but needs a few improvement
	Effort Expectancy	4.18	
Intention to be Involved in KM SECI Process	Socialization	4.14	Ready, go ahead
	Externalization	4.08	
	Internalization	4.14	
	Combination	4.23	
<b>TOTAL</b>	<b>KM Readiness level</b>	<b>3.84</b>	<b>Ready, but needs a few improvement</b>

Table 5 Path Coefficient

Path Correlation	Original Sample (O)	Standard Deviation (STDEV)	T Statistics ( O/STDEV )
Collaboration → Intention to be Involved in SECI (II-SECI)	-0.136	0.132	1.024
Trust → II-SECI	0.019	0.145	0.129
Learning → II-SECI	0.104	0.148	0.704
Management Support → II-SECI	-0.168	0.200	0.838
Reward → II-SECI	-0.033	0.182	0.182

Decentralization → II-SECI	0.107	0.186	0.574
IT Support → II-SECI	0.007	0.165	0.043
IT Use → II-SECI	0.241	0.151	1.593
Performance Expectancy → II-SECI	0.041	0.178	0.233
Effort Expectancy → II-SECI	0.706	0.180	3.923

V. DISCUSSIONS AND IMPLICATIONS

This study has shown that level of KM Readiness in DBN Ministry of Trade is 3.84 which means “ready but needs few improvement”. This implies that the organization has good start to implement KM successfully. Yet several things need to be improved are: Organizational Culture, Organizational Structure, Information Technology, and Individual Acceptance.

Organizational culture aspect in this study consists of Collaboration, Trust, Learning and Management Support. Among those 4 variables, regarding Table 4, only Collaboration obtained level 4.26 or “ready, go ahead”. Others were relatively same on level “ready but needs few improvement”. Regarding Learning and Management Support variables, which were at level 3.45 and 3.65, this organization needed to improve learning process by conducting more quality-relevant training. It also needed to increase support from management toward employee activity in KM SECI process.

Organizational structure consists of Decentralization and Reward. Both variables were in the same level of “Not Ready, needs some work”. Decentralization was at 3.29 and Reward was at 2.81. Reward was the first lowest level among all variables, while Decentralization was the third lowest. Nevertheless, Reward variable needed the most improvement in this organization to encourage employees to involve better in KM SECI processes. Adding more incentives in KM activity might be one of many ways to improve KM. Decentralization also must be improved by delegating more adequate power regarding decision making in top-down approach. This way might exploit latent potential of each employee to perform better and share their knowledge in organization.

There are 2 variables in Information Technology (IT) aspect: IT Support and IT Use. Apparently, IT-Use had readiness level of “ready, go ahead” at 4.24 (Table 4). On the contrary, IT-Support had readiness level of “not ready, needs some work” at 3.27. From these result, IT-Support needed to be improved. Organization needs to provide better support of IT to their employee to encourage them to involve better in KM SECI process.

Individual Acceptance encapsulated 2 variables: Effort Expectancy and Performance Expectancy. Based on t-statistics value (Table 5), Effort Expectancy variable had strong influence for employee to be involved in KM SECI process, since it had the highest value at 3.923, which is greater than 1.64 as parameter value.

VI. CONCLUSIONS

The purpose of this study is to assess KM Readiness level of DBN Ministry of Trade. The assessment was carried out by determining the appropriate framework model through literature review of previous relevant studies. The framework model then used to asses KM Readiness. The research model generates several relevant questions in questionnaire which were asked to DBN’s employee to obtain their perception.

The result of this study is the KM Readiness level of DBN in Ministry of Trade which is “ready but needs a few improvement”. This study also developed suggestions to the organization to conduct few improvements to successfully implement KM in the future.

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