KNOWLEDGE MANAGEMENT MATURITY LEVEL ASSESSMENT
(CASE STUDY OF PT. XYZ)

Sigit Ramadhani, Jann Hidajat Tjakraatmadja, and Nurianna Thoha
School of Business and Management
Institut Teknologi Bandung, Indonesia
sigit.ramadhani@sbm-itb.ac.id

Abstract— *Knowledge Management nowadays is largely implemented in every organization and often mentioned in publications, but little shows about the relation with the organization performance itself. KM in XYZ has been started in 2008, at least since a global team under HR organization was established. Some KM initiatives were born by the team. But some sample conditions shows otherwise. This study helps to explain the use of KM assessment and the important factors to be improved in relation with the organization performance. This study utilizes APO's approach in assessing the organization KM maturity level through qualitative survey. Analysis of this research shows the different maturity level for each type of gender, age, and position in the organization and taken further to see the relation with the organization performance from its financial reports.*

Keywords: APO, knowledge management, level, maturity.

I. INTRODUCTION

Knowledge management is no longer strange words in today's industrial landscape. Most of the large or successful companies are having knowledge management inside their organization; in fact some of them are heavily focusing on their knowledge management unit. What makes them do that? Is it really important for their success rather than their business units or sales teams? To answer that question of course an insight into the company is needed, but the crucial thing is that understanding of the basics of knowledge management is needed. Therefore the importance of it for a company will be known, how it could leverage their business performance, improves their effectiveness, and many other positive impacts. Also a very important thing is how the company manages to implement knowledge management in their organization.

Through this final project, which selects PT. XYZ Indonesia as part of the multinational company, XYZ, which based in Finland as the object, it is expected that the researcher can learn the maturity level of having knowledge management implementation in the company. XYZ is one of the largest global telecommunications hardware, software and services companies in the world. The joint-venture company, XYZ, was officially launched at the 3GSM World Congress in Barcelona in February 2007. XYZ then began full operations on 1 April 2007.

As a relatively new company although consist of business experts from the parent companies, XYZ have to struggle in the industry and maintain its strong position as well as aligning the internal structure of the joint venture. Thus, such condition can be seen in the first years of its life. Many changes happens inside the organizations; people joins and lefts, organizational structure changes, new rules, policies, and defined processes, new initiatives in cost control, etc.

Those massive changes were of course having its impact to the employee as well as XYZ is trying to get itself the best shape. The impact that are going to be discussed is the information flow inside the company and how it would be better managed as the company's intention to keep on innovating which should start from the inside.

As a global company with a big number of employees, it is a challenge for the leaders to manage and shares the diverse knowledge and information among every employee. It is difficult already to get all team members in a single team to have the same information and knowledge,

moreover if they are apart and scattered in different home bases and countries. It is even more difficult to share the knowledge across different teams.

Although Knowledge Management team has been created in 2008 under the Human Resource organization, and some initiatives has been launched but little did it seems to have an impact to the employees in their daily routines, at least in Indonesia. Some tools like IDEAS used to gather new ideas and innovation from employees, KNOW community for sharing and discussing knowledge. While some business units are also having their own Knowledge Management team but at which only serves their team members in particular, such tool called ASSIST, MyASWS, and IT Self Help portal. However, researcher can still see sometimes employees whose struggling to get information on how to do administrative tasks, financial task, etc.

The time loss in exchange for employees' effort in finding information they need to fulfill their job directly or indirectly has cause the same for XYZ in general. To get a concrete picture, as example just imagine if 1/3 of their time in a day was only wasted on information seeking to get an administrative task done, causing delays in finishing their done in time. Some others might just give up and continue without completing it, which would just cause them future problem, such as their access to the company's server blocked, which would cause them more time loss in fixing it.

The challenge lies in utilizing the "official" Knowledge Management tools to get it accepted by all employees and maximizing the usefulness of it to share knowledge and information. Evenly spread information will increase employee's effectiveness in day to day activity such as less time needed to find information to do some basic finance task and basic administrative tasks like invoice reimbursement, online leave application, etc.

The study is limited by some factors, first, due to the participant limitation constraint by the company's Human Resource (HR) Head, this research was conducted only on small random employees of PT. XYZ Indonesia. Second, the research subject ranges from staffs to senior managers disregarding their years of dedication to the company, which would affect their answers towards the survey based on their experience. Lastly, the survey conducted is adequately time consuming, causing several participants giving unfinished response which lowers down the valid number of response.

II. BUSINESS ISSUE EXPLORATION

In order to understand how well the existing KM initiatives in the company are, researcher need to assess employees maturity level and the whole organization in general in term of KM. Currently what seems to be the main issue is that it seems that the knowledge management initiatives has not been able to get the buy in from the employees who are in general already fully occupied with their tasks.

A. Conceptual Framework

Day-to-day employees were seen struggling to get information on how to do daily routine such as administrative and financial task; some other was seen hardly working their way out of their IT problems. Employees were seen running here and there asking their colleague from the Finance and Procurement department, or asking tips from their IT department colleague. There were no study on the time loss they spend on this activity, but it gives the idea how much their productive time was lost, and how the knowledge was not spread evenly in the company.

If the KM maturity level can be checked, management would have a good overview of where they are at and prepare a new strategy to improve it, which in returns will benefits XYZ as whole and the employee individually.

B. Method of Data Collection and Analysis

Two main questions need to be addressed in this study that would reveal the maturity level of KM in the company. Those are, how the employee acceptance level of the KM initiatives in the company is and what factors are necessary to be improved to increase the maturity level. Those questions are to be answered by analyzing the result of the survey to be conducted to the employee.

C. Analysis of Business Situation

To find out the KM maturity level in the company, a survey is conducted. It will gather the employee's maturity level for each variable group stated in the surveys. This result will be analyzed to point out the weak point(s) of the current KM implementation. The survey instrument is to be built by considering the Critical Success Factors (CSF) or KM enablers.

III. BUSINESS SOLUTION

The key to determine the business solution is to use a proper assessment instrument that taking into account all of the CSF, then analyzed to propose a solution. Literature study stated CSF that is considered by KM researchers, while most of the researchers did not consider all CSF, a couple of researchers consider all CSF on their research.

Asian Productivity Organization (APO) is one of the mentioned parties that consider all of the CSF. They made a KM framework which believed is generic enough to be used by any organization. As part of the framework there is an instrument to assess the maturity level of KM which will be used in this report.

There are 4 major elements in the APO KM framework: that is Vision and Mission, Accelerators, Knowledge Process, and Outcomes, described in the figure below.

Figure 1. APO KM framework

The framework starts from the Vision and Mission where it provides the strategic directions of the organization. They help identify core competencies required to achieve the business objectives. These provide insights for designing the KM program, roadmap, and action plan for the organization.

Accelerators comprise both drivers and enablers which help to speed up or accelerate the KM initiatives in the organization. Leadership is the driver, while People, Process, and Technology are the enablers. All of the elements play as critical success factor to enable the organization to accelerate the KM initiatives and implementation.

People, is the main role of the whole topic, knowledge management actually trying to setup a system of collecting knowledge from people and the organization in general as well as using it for the other people that runs the organization. In an organization, people are users as well as generators of knowledge and form an important knowledge asset by acting as a repository for tacit knowledge (and even explicit knowledge until it can be documented).

They are part of human capital and create and possess intellectual capital. For example, the material assets of a firm are of limited value unless it has people who know what to do with those assets. It is the value added by people – context, experience, and interpretation – that transforms data and information into knowledge. The success of KM projects largely depends on the employees' willingness to share knowledge. There must be a climate of mutual trust and benefit to encourage knowledge sharing among employees.

Knowledge processes refers to the knowledge development and conversion processes. There are five steps in the knowledge processes identified in the APO KM Framework: Identify, Create, Store, Share, and Apply.

The APO KM framework diagram shows two levels of outcomes. The expected outcomes from KM are enhanced individual capability, team capability, and organizational capability, and increased social capacity. All together these expected outcomes will stimulate productivity, improve product and service quality, and contribute to company growth and profitability as stated: "Knowledge Management will increase Performance, Productivity, Quality, Profitability and Growth" (APO, 2009: 40)

The instrument used to assess the maturity level of KM is a questionnaire consists of 42 questions. The questionnaire consists of 7 categories representing the CSFs with 6 questions each. Scoring is made with a rating scale with max score is 5, making it total of max score of 210.

Table 1. Rating and descriptor

Descriptor	Rating Scale
Doing Very Poorly or Doing None at All	1
Doing Poorly	2
Doing Adequately	3
Doing Good	4
Doing Very Good	5

In addition to the questionnaire, a set of demographic questions is added to give a picture of the maturity level on the different groups of respondents. The questions are: age, gender, position, and organization group.

The result of the assessment is classified into 5 levels: Maturity, Refinement, Introduction, Initiation, and Reaction. The levels are explained in the APO documentation. The result of the assessment will be presented in a table of questionnaire group scores and a radar chart.

Figure 2. APO KM maturity level model (APO, 2009: 145)

The assessment conducted at PT.XYZ on 14 - 22May 2012 with an online tool and returned with 42 valid responses. The overall result of the assessment provided in table 2 where it shown majority of the respondents scored Introduction level.

Table 2. Research data based on total score of all respondents

Level	Score	Frequency (N=42)
Maturity	189 – 210	
Refinement	147 – 188	38%
Introduction	126 – 146	45%
Initiation	84 – 125	17%
Reaction	42 – 83	
		100%

Table 3 below shows more Male employee feels that the organization is at Introduction level than their Female counterparts. What they have answered represents their experience within the company, but surely it is not because of gender discrimination..

Table 3. Research data based on gender

Level	Score	Gender	
		Male (N=21)	Female (N=21)
Maturity	189 - 210		
Refineme	147 -	24%	52%

nt	188		
Introduction	126 - 146	57%	33%
Initiation	84 - 125	19%	14%
Reaction	42 - 83		
		100%	100%

Meanwhile, Age factor shows that it is quiet 'balanced' in terms of scoring variety. But it also shows that employees at the age of 35-54 are less 'mature' than their younger colleagues as shown in table 4 below.

Table 4. Research data based on age

Level	Score	Age	
		25-34 (N=14)	35-54 (N=28)
Maturity	189 - 210		
Refinement	147 - 188	43%	36%
Introduction	126 - 146	43%	46%
Initiation	84 - 125	14%	18%
Reaction	42 - 83		
		100%	100%

Table 5 shows a surprising result based on employees positions. Staff hits the score of Refinement and Introductory with adjacent percentage. But on the contrary, most of the Manager scored Introduction level and just slightly below that they score the Initiation level.

Table 5. Research data based on employee position

Level	Score	Position		
		Staff (N=21)	Manager (N=18)	Senior Mgr (N=3)
Maturity	189 - 210			
Refinement	147 - 188	52%	17%	67%
Introduction	126 - 146	48%	44%	33%
Initiation	84 - 125		39%	
Reaction	42 - 83			
		100%	100%	100%

Table 6 shows the spread of the result based on employees' organization group. Mobile Broadband (MB) is more mature than the others while Quality organization hits the lowest score.

Table 6.   Research data based on organization group

Level	Score	CFO (N=8)	COO (N=8)	CEM (N=1)	GS (N=18)	MCA (N=5)	MB (N=1)	Quality (N=1)
		Organization Group						
Maturity	189 - 210							
Refinement	147 - 188	13%	38%		50%	40%	100%	
Introduction	126 - 146	75%	25%	100%	39%	60%		
Initiation	84 - 125	13%	38%		11%			100%
Reaction	42 - 83							

Note:
CFO= Chief Financial Office
COO   = Chief Operation Office
CEM   =   Customer   Experience Management
GS = Global Services
MCA   =   Marketing   and   Corporate Affairs
MB = mobile broadband

To ensure the instrument used in the project is valid and reliable, a validity and reliability test is conducted.

Validity of the instrument is analyzed by comparing the value of Corrected Item to Total Correlation for each variable with the r-table. Analysis shows the value of Corrected Item to Total Correlation for each variable, which is between 0.403 until 0.866, compared with the r-table at significant level of 5% and 2-tailed with df = 40 (42-2) which is 0.3044 are all above the r-table or in other word valid.

Reliability of the instrument measured with the Cronbach's Alpha coefficient, where at this test resulted in 0.964 which is more than 0.7 (Nunnaly, 1978), which means the instrument /questionnaire used is reliable.

As APO KM Framework suggest, the score of each of the questions category is to be analyzed in radar chart. In order to get the data, average score of each question category from 42 respondents is calculated and shown in the table below.

Table 7.   Category scores

Category	Max	Average Score
Leadership	30	20.86
Process	30	20.69
People	30	20.38
Technology	30	24.4
Knowledge Processes	30	19.26
Learning and Innovation	30	19.95
KM Outcomes	30	19.71
		145.26

Then from the data of the category scores, a radar chart can be generated.
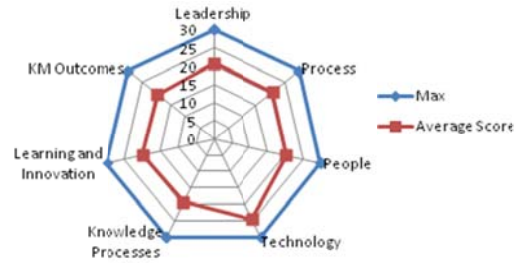

Figure 3.   Radar chart

From the radar chart it is clearly seen that the highest score is the Technology, with average score of 24.4 or average score for each question is 4 or Doing Good. This research concludes that XYZ already has a good technology and IT (Information Technology) infrastructure that is being used increasingly for accessing information.

Both Leadership and Process category are having tie score when if rounded to 21 will have an average score of each variable at 3.5. Answers are balanced between Doing Adequately and Doing Good. Which could mean employees are quite confident with the leaders and are also agrees to the organizational processes. Learning & Innovation and KM Outcomes both also have a tie score with average 3.325 and 3.285. Therefore this research interprets that employee most answer is Doing Adequately, or in other word not good enough.

The lowest score is on the Knowledge Process, with average score of 19.6 or average score for each question is 3.21 or Doing Adequately. This might means systematic knowledge process is quiet well deployed in the organization or it could also means that it is hardly understand by employee. It is because there are 14 respondents which have total score on this category less than 18, with lowest 13, meaning their average score for the questions is 3 or less which also represents as Doing Adequately and Doing Poorly.

The total score result already as shown in section 3.7 shows that most of the respondents are interpreting KM in XYZ at Introduction level. This is also the same result with the calculated average score of the 42 respondents which ranges from the smallest score of 106 to the highest 183 and resulted in 145.26, which still in

the range of Introduction level, that means KM practices is implemented and deployed.

Further explanations on Introduction level based on APO KM Framework Maturity Level interpretation and juxtaposed with the actual survey results taking the highest/lowest score of the questionnaire items are shown below to highlight the significant area:

- Leadership

  APO interpretation:

  - Management leads in the implementation of KM
  - A reward and incentive system is in place.

  Survey result:

  - Employees agree that policy for safeguarding knowledge is implemented by the management
  - Employees perceive that financial resource allocated for KM is minimum or none.
  - Employees perceive performance improvement, organizational and employee learning, sharing of knowledge, and knowledge creation and innovation are not recognized and/or rewarded by management.

- Process

  APO interpretation:

  - Systematic processes are in place, with increasingly better deployment of these processes.

  Survey result:

  - Employees perceive that there is no organized system for managing crisis situations or unforeseen events that would interrupt operations.

- People

  APO interpretation:

  - People are exchanging knowledge more frequently and beyond their own unit.
  - There is increasing inter-unit collaboration in the implementation of activities, projects, and programs.

  Survey result:

  - Employees are organized into small teams/groups to respond to workplace problems/concerns.
  - Employees perceive that there were no database of staff competencies

- Technology

  APO interpretation:

  - Increasing usage of IT (Information Technology).

- More people have access to a computer linked to the Internet/intranet.
- Information and knowledge required by employees in the performance of their tasks are readily accessible anytime and anywhere.

  Survey result:

  - Employees agree that IT infrastructure is capable to facilitate KM and information was updated regularly.
  - Employees perceive that the IT infrastructure is not aligned with the company's KM strategy.

- Knowledge Processes

  APO interpretation:

  - Systematic knowledge processes are in place and are well deployed throughout the company.
  - People are starting to make use of the knowledge obtained from sharing in improving the way they do things.

  Survey result:

  - Employees perceive that critical knowledge from employees leaving the company is not retained, and best practices and lesson learned were not shared.

- Learning and Innovation

  APO interpretation:

  - A systematic evaluation and improvement process and some organizational learning, including innovation, are in place for improving the efficiency and effectiveness of key processes.

  Survey result:

  - Employees perceive that their ideas and contribution are not valued by the company.

- KM Outcomes

  APO interpretation:

  - The organization has exhibited good organizational performance results including some trends that have been sustained over time.
  - The organization has shown good relative performance against benchmarks.

  Survey result:

  - Employees perceive that the company has improved quality of product and services.
  - Employees perceive that the company has not been able to sustain growth.

In general, factors that slow down the maturity level identified from the low scores of the questionnaire in PT.XYZ are as follows:

- Financial resources for KM is not visible to employee
- Lack of reward and recognition for performance improvement, sharing of knowledge, and knowledge creation and innovation
- Lack of employee training and development program
- Induction process for new staff, especially about KM is minimum
- Critical knowledge from someone leaving is not retained
- Best practices and lesson learned frequently duplicated
- Cross-functional teams are not established
- People feel their ideas and contributions are not valued
- No clear commitment on incentive for sharing information
- Employee sees the company as failed to sustained growth

Taking all into account, it can be concluded that the KM initiatives penetration effort is not intense, employee are not willing to participate due to the lack of reward and recognition, lack of training & development due to constraint budget, and the knowledge retain process is not going well.

As a benchmark for testing the correlation of KM maturity level and company success as suggested by APO (page 3), PT. XYZ employees' performance report from the past 1 year is brought in for analysis. Table 12 below was given by HR taken from the performance measuring tool which is used by all employees on a yearly basis to reflect their full year performance.

Table 8.   Employees' performance index

Measurement	Expected base line	2011 result
Outstanding	5%	10%
Exceptional	15%	25%
Valued	70%	60%
Improvement Required	10%	5%

The base line scores are the expected result by HR that they would get from the employees. The table report shows that PT. XYZ employees' performance in 2011 was at the good trend because the scores were above the expected base line. Outstanding employees were 10% than the expected 5% as well as Exceptional employees scored 25% than the expected 15% which is good. Meanwhile Valued employees were down 10 point to 60% and Improvement Required employees also down 5 point to 5% which is also good since that means they have become an Exceptional or even an Outstanding employees.

Although the result of the research can only be considered as a snapshot, but KM in XYZ did seems to have an impact on employees' performance. However a KM Maturity level assessment should be done regularly in order to better understand the impact of KM to the employees' performance.

IV. CONCLUSION AND IMPLEMENTATION PLAN

People are one of the important assets of the company. APO KM framework also suggests the same that people, together with the process, leadership, and technology contributes a lot to the company's future success. Company without people is like a car without a driver, it will not run and it will not speed up. In the KM perspective, people runs the company needs to have a good knowledge sharing practice. They also need to be well informed about the KM initiatives in the company to make them aware of it, understand the importance, and become a part of it.

The company should have more focus to re-invigorate KM, such recommendations could be done as follows:

- Re-induction to all employees about the importance of KM.
  Company conducts an induction event for existing employees for just about an hour to explain the importance of KM and the tools available in the company in order to make them KM conscious. The company maintains the KM induction for new hires as well.
- Conduct KM tools and initiatives show case.
  An even better than induction where the company create an event for a full day or two in a wide area of the office with banners, displays, booths and classrooms to explain and demonstrate the KM tools and initiatives.
- Intensify Low-budget trainings.
  Trainings which are always available in the company, where the trainers are some of the employees themselves, should be intensify. Light topics can be brought up, since even a little expertise or experience can gives benefit

for the company if it were proven useful for many employees.

- Clear commitment on incentives for participating in KM.

  Incentive is a stimulant for many things, and it can be implemented as well in this case. But most importantly it needs to be made clear on how to get it and how company would give the incentives. As an example, the company can make a short listed of 20 (or more) active participation which will get the incentives and top 5 most useful or favorite participation to get higher incentives.

- Re-visit KM process and procedures.

  The company should check and fine tune the KM process regularly, perhaps on yearly basis to ensure that knowledge doesn't leave the company along with the person.

- Focus on Manager.

  As described in the previous sub section, Manager scores lower than the Staff. So a special focus on managers to improve their KM maturity level is needed. This could be done by putting KM participation as a required objective for them.

- Regular check on KM Maturity level

  Regular check on a yearly basis for example should be done to assess the company's KM Maturity level progressing. Which the result could indicate if the KM initiatives are aligned with the roadmap or it needs to be fine tune.

REFERENCES

Aggestam, L., 2006, Learning Organization or Knowledge Management - Which Came First, the Chicken or the Egg?, Information Technology and Control, 35: 295-302. http://itc.ktu.lt/itc353/Aggestam353.pdf

Ajmal, M., 2009, Critical Factors for Successful KM Initiatives in Project Background, IBIMA, 8:1-8.

Anvari et al, An assessment of Knowledge Management (KM): A consideration of information, culture, skills and technology, African Journal of Business Management, 5: 11283-11294

APO, 2009, Knowledge Management: Facilitators' Guide. Quoted from http://www.apo-tokyo.org/00e-books/IS-39_APO-KM-FG.htm

APO, 2010, Knowledge Management Tools and Techniques Manual. Quoted from http://www.apo-tokyo.org/00e-books/IS-43_KM-Tools_and_Techniques_2010.htm

Dunamis, 2012, Indonesian MAKE study. Quoted from http://www.dunamis.co.id/events/award/MAKE

Kaveh, M., Amir, K., & Babak, S., 2009, Organizational Readiness Assessment for Knowledge Management, International Journal of Knowledge Management, 5(1): 29-45

Mason, M. K., 2012, What is a Learning Organization?. Quoted from http://www.moyak.com/papers/learning-organization.html

Middle Tennessee State University, Critical Values for Pearson's Correlation Coefficient. Quoted from http://frank.mtsu.edu/~dkfuller/tables/correlationtable.pdf

Prijono, K., Evaluasi Kesiapan Organisasi Dalam Menerapkan Knowledge Management, ITB. 2009.

Tjakraatmadja, J. H. & Lantu, D. C., 2006, Knowledge Management dalam Konteks Organisasi Pembelajar, Bandung: SBM-ITB.