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KNOWLEDGE RETENTION STRATEGY EVALUATION & KNOWLEDGE MANAGEMENT SYSTEM DESIGN AT PLASTIC INJECTION COMPANY IN INDONESIA

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Abstract

The potential of knowledge loss when an employee retires or resigns is high at PT. XYZ a plastic injection company in Indonesia. Therefore, it is required to evaluate their knowledge retention strategy (KRS) and developing a knowledge management system (KMS). The evaluation of KRS using Organizational Knowledge Retention Framework developed by David DeLong and for designing KMS model using the 10-Step KM Roadmap method developed by Amrit Tiwana. Through a well-developed KRS and KMS design model, PT. XYZ can overcome the problem of losing the knowledge that occurs because employees retire or resign.

***Keywords**: Knowledge Loss, Knowlege Retention Strategy, Knowledge Management System.*

INTRODUCTION

The era of globalization is characterized by the rapid development of science and technology and supported by innovation in various fields of life. In order to face increasingly severe competition, it is necessary to change organizational paradigms from previously relying on resources to knowledge-based. This knowledge-based paradigm relies on developing data mining, data warehouses, intelligent agents, case-based reasoning, etc. Another effort that needs to be done in the future is the development of human resources and the culture of knowledge sharing among employees is very important in order to improve human capacity to produce innovation. In the context of maintaining organizational existence, knowledge management is a necessity for every organization. Knowledge management itself can be interpreted as a systematic action to identify, document, and distribute all relevant knowledge tracks to each member of the organization, with the aim of improving organizational competitiveness. Knowledge is increasingly recognized as the most important economic resource, exceeding the traditional resources of capital, labor and land (Drucker, 1992). In addition, the role of knowledge in increasing operational efficiency and effectiveness is undeniable (DeLong, 2004).

Knowledge management is a process of identifying, developing, and utilizing knowledge throughout an organization with the aim of achieving a competitive advantage (Alavi & Leidner, 2001). In addition, knowledge management must focus on intellectual capital and human resource strategies that stimulate worker creativity and innovation (Beveren, 2002). Knowledge management involves a broad spectrum of activities, designed to enable management, exchange, creation, or increase in intellectual assets in an organization (Halawi, Aronson & McCarthy, 2005). Knowledge management is a strategy

ARTICLE INFO

Article history:
Received: 12 February 2019
Accepted: 25 April 2019

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E-ISSN 2621-654X

framework that helps both organizations or individuals to create, record, analyze, use and reuse knowledge to achieve competitive advantage as the result of the interaction of people, process and technology {Bhatt, 2001). In addition, organizational knowledge retention is an important part of knowledge management. Knowledge loss can be caused by employee departures, outsourcing, resistance to learning, information technology (IT) breakdowns, or unexpected events (Daghfous, Belkhodja & Angell, 2013).

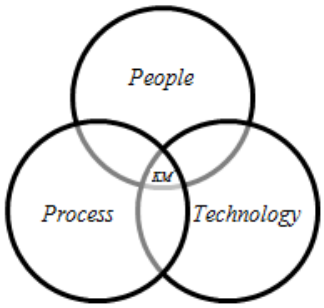

Figure 1. Knowledge Management

Several ways have been found to increase organizational knowledge retention and minimizing unintentional knowledge loss. Human resources and knowledge management strategies have been proposed to deal with knowledge retention (DeLong, 2004). Unintentional corporate knowledge loss tends to view loss as a consequence of a lack of retention (Levallet & Chan, 2016). There are, therefore, two main research questions for this study:

RQ1. How effective is knowledge retention strategy at PT. XYZ?

RQ2. How is the design model of knowledge management system in accordance with the needs of PT. XYZ?

The main objective of this study is to develop knowledge retention strategy and model design knowledge management system that suit the needs and conditions of PT. XYZ to solve problems with knowledge loss and make it easier for PT. XYZ to manage, store, and disseminate knowledge that exist in the company so that it can help to be more innovative and boost the competitiveness of the company against its competitors. There are four types of initiatives in implementing knowledge retention in companies (DeLong, 2004). The four types of initiatives are as follows: HR processes and practices; knowledge transfer practices; IT application to capture, store & share knowledge and knowledge recovery initiatives.

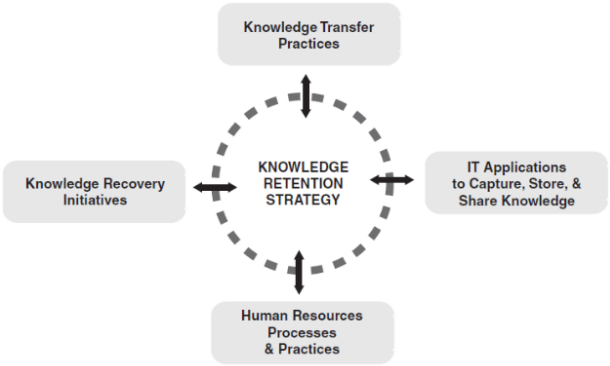

Figure 2. Framework for Organizational Knowledge Retention.

HR processes, policies, and practices have at least five areas that create the organizational infrastructure for knowledge retention. Five areas in HR processes, policies, and practices are as follows: systems for evaluating skill/knowledge base, career development/ succession planning processes, building a retention culture, phased retirements programs and reinventing recruiting processes.

Infrastructure processes, policies, and practices are also important for supporting long-term knowledge retention needs, but the organization also need to institutionalize an elaborate set of practical knowledge transfer practices. In addition, IT applications to capture, store, and share knowledge have four types of systems as follows: expert locator systems, application to accelerate learning, capturing knowledge, mapping human knowledge. But every organization will also inevitably lose some critical knowledge. In responding to this situation, there are three ways of knowledge recovery programs as follows: programs for effectively utilizing retirees and outsourcing lost capabilities. The

initial capture of knowledge is an important step to mitigate knowledge loss, but it should also be followed by its conversion to social knowledge, notably well-designed IT-based ones (Levalett & Chan, 2018). In addition, Tiwana has developed 10-steps knowledge management roadmap (Tiwana, 2002).

There are four phases in the 10 steps of the roadmap as follows: infrastructural evaluation; knowledge management system analysis, design, and development; system deployment; and evaluation. The first phase involves analyzing existing infrastructure and aligning knowledge management and business strategy. The second phase involves designing the knowledge management architecture and integrating existing infrastructure; auditing and analyzing existing knowledge; designing the knowledge management team; creating the knowledge management blueprint; and developing the knowledge management system. The third phase involves deploying with RDI methodology and change management, culture, reward structure design, and choice of the Chief Knowledge Officer. The last phase involves measuring the results of knowledge management, devising ROI metrics, and evaluating system performance.

MATERIALS AND METHODS

The researchers follow DeLong to evaluate knowledge retention strategy. This research uses a self-developed questionnaire as the instrument. The process of extracting information for HR process & practices and knowledge iniatives recovery using interview while the practice of knowledge transfer and IT applications to capture, store and share knowledge using a questionnaire.

The researcher then designed the proposed knowledge retention strategy roadmap in accordance with the results of the analysis of the implementation of the current knowledge retention strategy. In addition, the researcher designed the knowledge management system model by using The 10-Step Knowledge Management Roadmap developed by Amrit Tiwana. In this study, the knowledge management system model is limited to the first and second phases.

RESULTS & DISCUSSIONS

Analysis of the application of knowledge retention strategy is conducted on data collected using interviews and questionnaires based on Framework Organizational Knowledge Retention developed by David DeLong. Following are the results of interviews related to HR processes and practices and knowledge recovery iniatives with HR Department PT. XYZ.

Table 1. *Interview results HR processes & practices dan knowledge recovery iniatives*

Initiative	Area	Availability (Yes/No)	Remark	Conformity Level
HR processes & practices	Systems for evaluating skill/knowledge base	Yes	Human Resource Information System Application	4
	Career development program	Yes	Supervisory Development Program and Manager Development Program	5
	Employee retention program	Yes	Performance management systems, personal development programs, recruitment and compensation system according to regulations.	4
	Phased retirements program	Yes	Contract employee program for retired employees	4
Knowledge recovery	Retirement employee recruitment program	Yes	Contract employee program for retired employees	4
	Outsource knowledge & skill program	No	Budget limitations	2

Based on the results of the interview, it can be seen that the average suitability level of the implementation of HR processes & practices initiatives is 4.25. While for the application of knowledge recovery iniatives it is known that the average level of conformity is 3.00. Then, analysis of the application of knowledge transfer practices and IT applications to capture, store & share knowledge using a questionnaire method provided to employees of PT. XYZ with a managerial position. The distribution of questionnaire respondents is as follows:

Table 2. *Survey Respondent*

Department	Sample	Response	Percentage
Finance & Accounting	6	5	83%
IT	5	5	100%
HRD	7	6	86%
Logistic	2	2	100%
R&D	2	2	100%
Production	9	6	67%
Engineering	5	4	80%
Marketing	4	3	75%
Total	40	33	83%

Validity tes with significance level 5%.

Table 3. *Validity Test*

Question	r value	r table	Remark
Q1	0.791	0.3440	*Valid*
Q2	0.849	0.3440	*Valid*
Q3	0.849	0.3440	*Valid*
Q4	0.528	0.3440	*Valid*
Q5	0.871	0.3440	*Valid*
Q6	0.831	0.3440	*Valid*
Q7	0.847	0.3440	*Valid*

Furthermore, the reliability coefficients are measured using Cronbach's alpha for each variable. The Cronbach's alpha is 0.7443 so it can be concluded that the data is reliable because the value of Cronbach's alpha is > 0.7.

Table 4. Survey Results

Question	Conformity Level
Knowledge Transfer Practices	
Do you ever provide training to other employees?	4.00
Do you ever do mentoring to employees under you?	4.21
Is routine sharing session conducted?	4.12
Average	**4.11**
IT Application to Capture, Store & Share Knowledge	
Is Internet connectivity here can be accessed by all employees?	4.52
Do you have access to procedures / work instructions online?	1.45
Are the online discussion forums is already available?	1.33
Are the tools for you to share knowledge online already available?	1.55
Average	**2.21**

Based on interviews and questionnaires related to knowledge retention strategy resulting gap analysis strategy for each initiative. The gap analysis shows that knowledge retention strategy at PT. XYZ still needs to be improved further. The initiative that needs to be followed up immediately is an IT application. This gap analysis will be the basis for developing roadmap knowledge retention strategy.

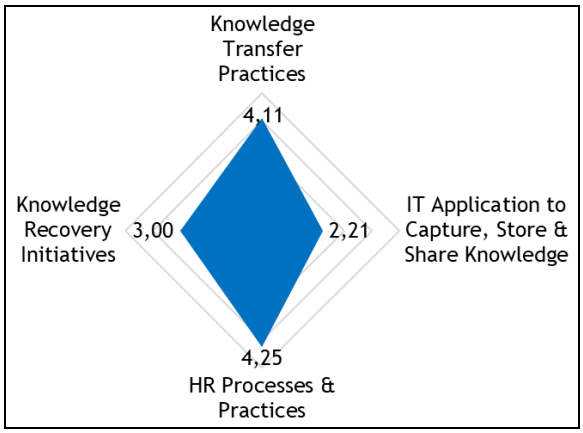

Figure 4. Gap Analysis Implementation Knowledge Retention Strategy

Knowledge retention strategy roadmap at PT. XYZ begins with the preparation of topics and objectives. Based on the results of the condition analysis of the current knowledge retention strategy, the proposed initiatives are as follows:

- First priority: IT application to capture, store & share knowledge initiatives with the objective of applications to accelerate learning and capture knowledge. The IT application initiative is the first priority initiative because currently there is no IT application that can be used to carry out capture, store & share knowledge activities in PT. XYZ.

- Second priority: Knowledge transfer practices initiative with objective training, mentoring and communities of practice. The initiative of knowledge transfer practices is the second priority because according to DeLong (2004) the knowledge retention process cannot only rely on IT applications but must be balanced with daily knowledge transfer activities either through mentoring or communities of practice.
- Third priority: HR processes & practices initiatives with objective systems for evaluating skills/knowledge bases, career development/succession planning processes, building a retention culture, reinventing recruiting processes, and phased retirements programs.
- Fourth priority: Objective knowledge recovery initiatives, programs for effectively utilizing retires, outsourcing lost capabilities and regenerating lost knowledge.

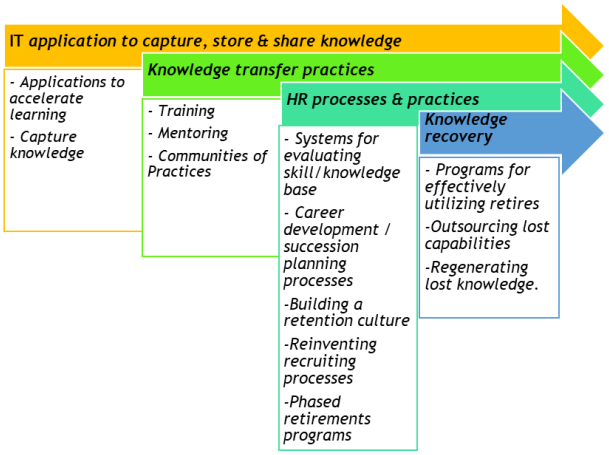

Figure 5. Roadmap Knowledge Retention Strategy

This study will only focus on discussing the first priority in the knowledge retention strategy roadmap which is IT application to capture, store & share knowledge initiative with the objective of applications to accelerate learning and capture knowledge so that the next step is to design the knowledge management system model. The design of the knowledge management system model is based on the 10-step knowledge management roadmap developed by Tiwana. The stages to be carried out in this research are up to the second phase, namely infrastructure evaluation and analysis, design, and development of knowledge management systems. The third and fourth phases were not carried out in this study because this phase is the deployment and evaluation phase which means that the knowledge management system is active in the production environment. Researchers use Zack Framework to map and conduct knowledge gap analysis to identify gaps between the knowledge that the company already has and the knowledge that the company needs to have.

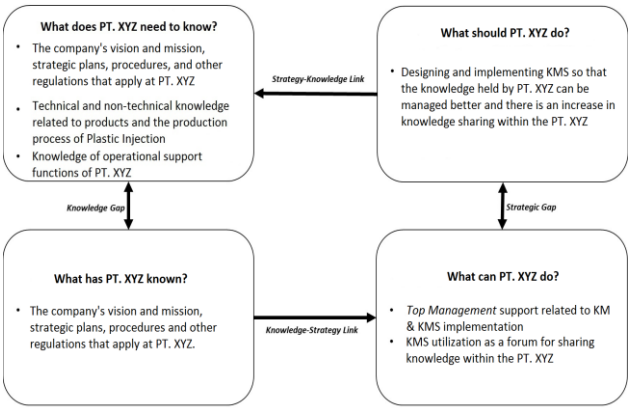

Figure 6. Results of Gap Analysis with Zack Framework

The next step is designing the blueprint of knowledge management system. There are two roles in the knowledge management system: user and administrator. In context of module, there are 3 modules in this knowledge management system. The modules are as follows:

- Jenius Center
  Jenius Center is a module for storing knowledge in the form of articles, writings, and other supporting data.

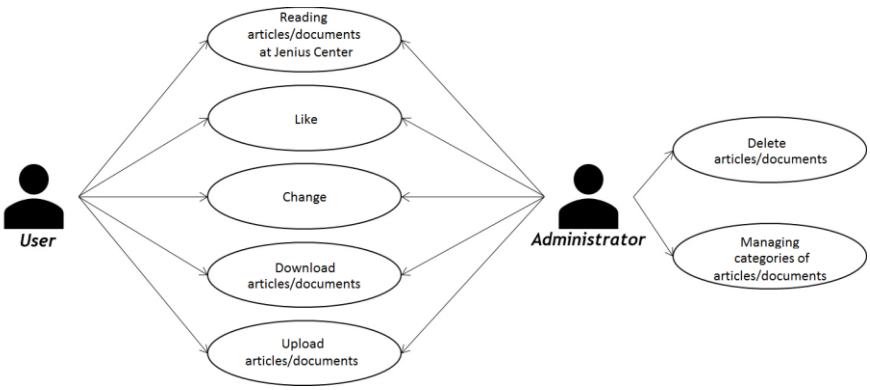

Figure 7. Use Case Diagram Jenius Center

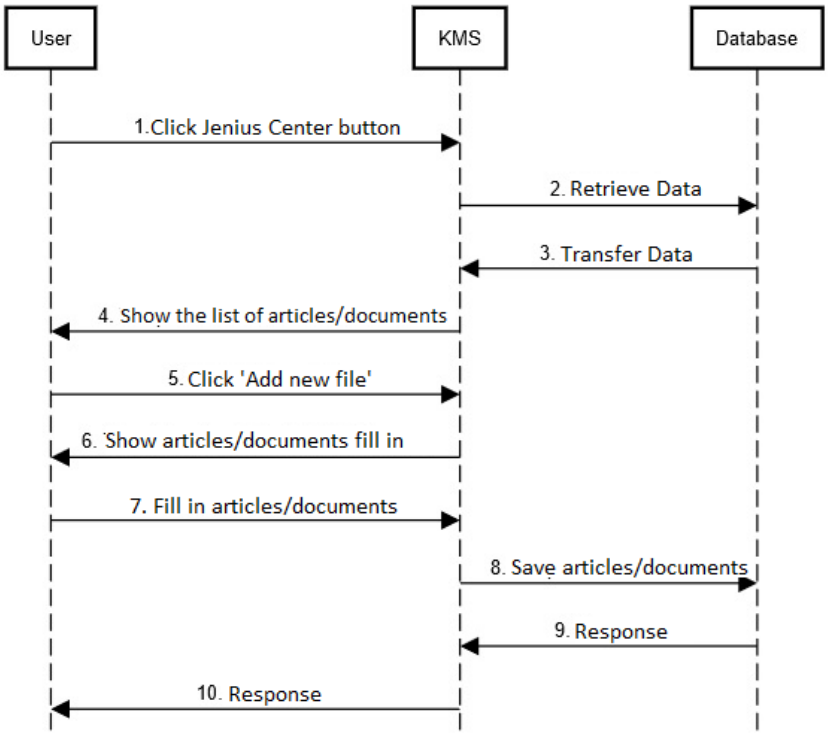

Figure 8. Sequence Diagram Jenius Center

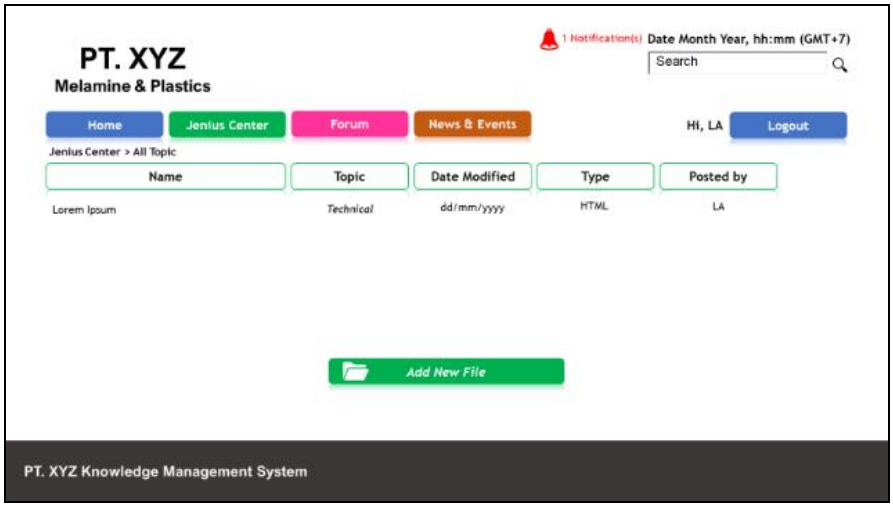

Figure 9. User Interface Jenius Center

- Discussion Forum

Discussion forums is a module where users can discuss each other openly by opening new topics if there are things that want to be consulted and discussed with other users.

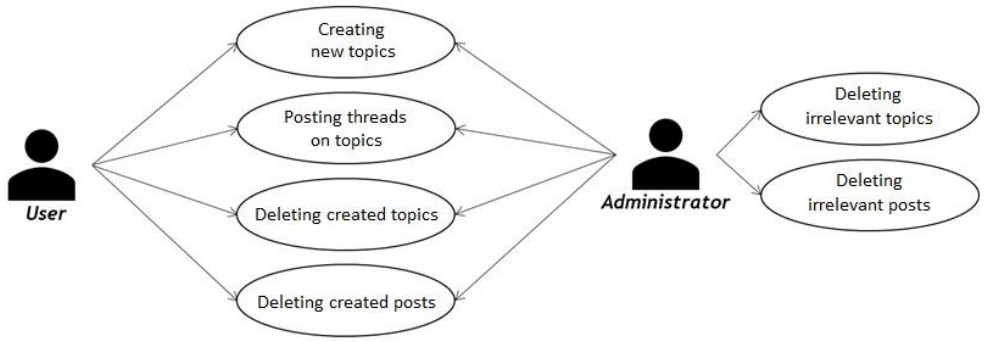

Figure 10. Use Case Diagram Discussion Forum

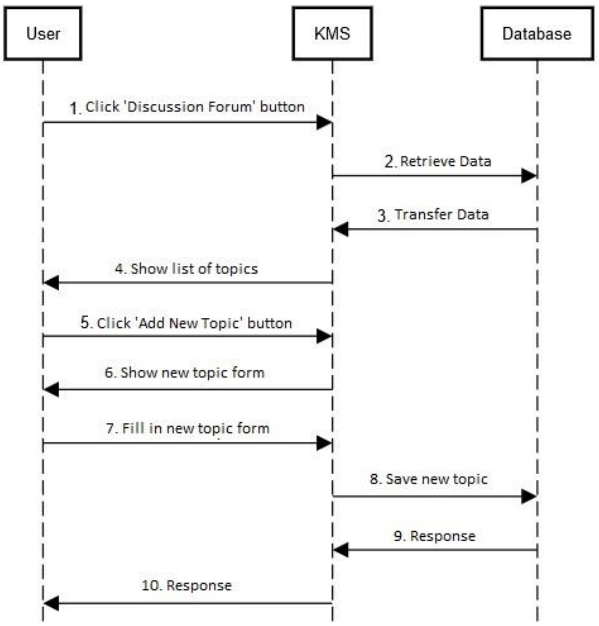

Figure 11. Sequence Diagram Discussion Forum.

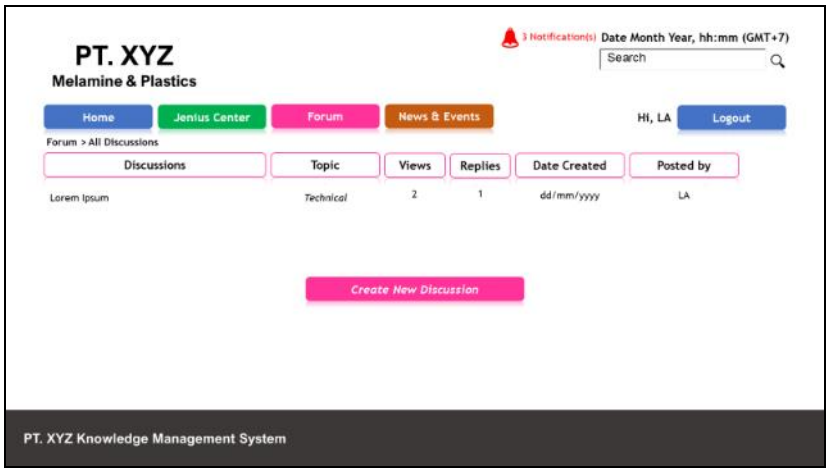

Figure 12. User Interface Discussion Forum.

- News & Events

News & Events is a module that can be used to share news or announcements related to PT. XYZ.

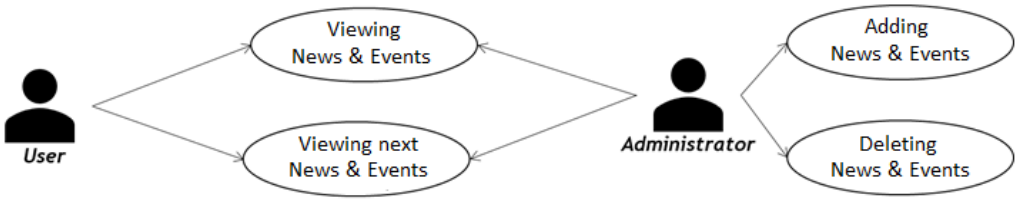

Figure 13. Use Case Diagram News & Events

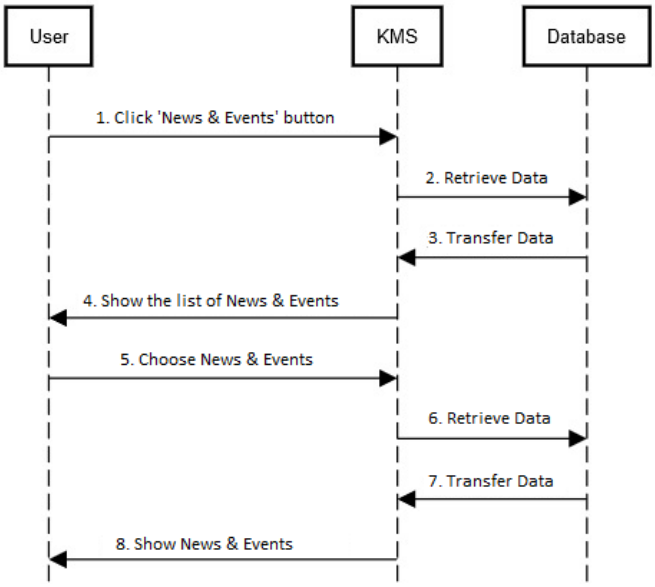

Figure 14. Sequence Diagram News & Events

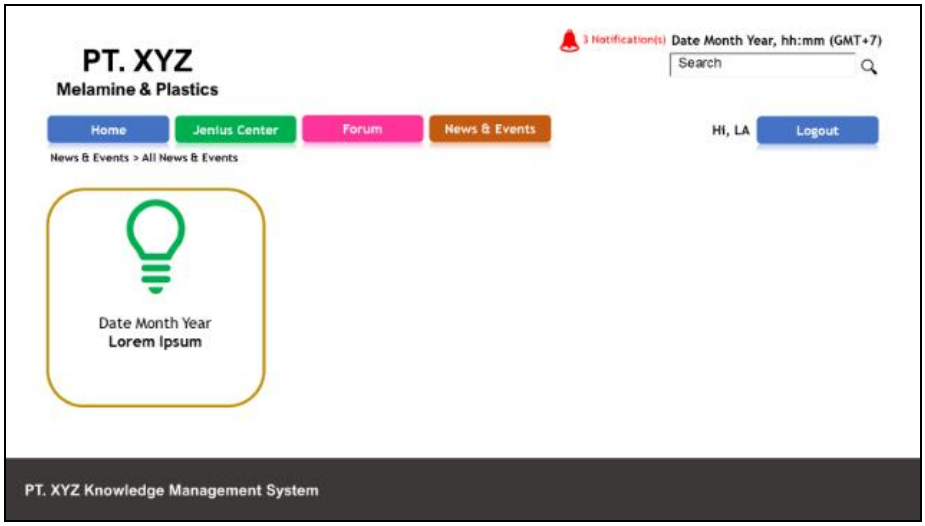

Figure 15. User Interface News & Events

The next step in this study is to evaluate the proposed knowledge retention strategy and knowledge management system design. This evaluation process uses a questionnaire distributed to employees of PT. XYZ with a managerial position. The distribution of questionnaire respondents is as follows.

Table 5. *Survey Respondent*

Department	Sample	Response	Percentage
Finance & Accounting	6	4	67%
IT	5	5	100%
HRD	7	5	71%
Logistic	2	2	100%
R&D	2	2	100%
Production	9	8	89%
Engineering	5	5	100%
Marketing	4	2	50%
Total	40	33	83%

Validity tes with significance level 5%.

Table 6. *Validity Test*

Question	r value	r table	Remark
Q1	0.474	0.3440	Valid
Q2	0.531	0.3440	Valid
Q3	0.889	0.3440	Valid
Q4	0.785	0.3440	Valid
Q5	0.885	0.3440	Valid

Furthermore, the reliability coefficients are measured using Cronbach's alpha for each variable. The Cronbach's alpha is 0.8524 so it can be concluded that the data is reliable because the value of Cronbach's alpha is > 0.7. Based on the evaluation as much as 83.84% of respondents stated Strongly Agree to the proposed knowledge retention strategy and 76.36% of respondents stated Agree to the design model of KMS in dealing with KL problems that occur at PT. XYZ because employees retire or resign.

CONCLUSIONS

From this research, it can be concluded that 1) Knowledge retention strategy implementation at PT. XYZ still needs improvement, 2) Knowledge retention roadmap first priority is IT application to capture, store & share knowledge. Followed by knowledge transfer practices, HR processes & practices and knowledge recovery, 3) Knowledge management system model design are focuses on capture knowledge and applications to accelerate learning with the following modules: Jenius Center; Discussion Forum; and News & Events, 4) The proposed knowledge retention strategy and knowledge management system design can overcome the problem of losing knowledge that occurs because employees retire or resign.

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