CHAPTER IV

RESULT AND DISCUSSION

A. **Result**

1. **Brief Description of The Research Site**

The incorporation of PT Aneka Tambang was legalized on the Statute Book of the Republic of Indonesia No. 36 Year 1968 dated July 5, 1968. On June 14, 1974, based on Government Regulation No. 26 Year 1974, the status of the Company was changed from State Company to State-owned (Persero) and known as "Perusahaan Perseroan (Persero) Aneka Tambang"

Based on the Article 3 of the Company's Articles of Association, the Company's purpose, intention and business activity of the company is to manage business in mining field that processes a number of minerals as well as operating other businesses including industry, trade, transportation, and other services related with the mining sector. In terms of supporting business activities, in accordance with Articles of Association, in optimizing the utilization and protection of the mining area and its resources, the Company may engage in supporting business activities for plantation, agriculture, forestry, property and power plant and energy.

ANTAM's vision and mission are reviewed on a periodic basis with the involvement of the Board of Directors, the Board of Commissioners and senior management to ensure their continuing relevance. Therefore,

Organization purposes implicitly stated at ANTAM's vision towards 2030 as expressed within Annual Report ANTAM:

"To become a leading global corporation through diversification and integrated natural-resource based enterprises"

While mission statement implicitly reflect a direction of organization that lead organization achieve vision, here are ANTAM's mission head to ANTAM's vision toward 2030:

1) To produce quality products by maximizing added values through industry best practices implementations and exceptional operations.
2) To optimize resources by prioritizing sustainability, workplace safety, and environmental preservation.
3) To maximize corporate values for shareholder and stakeholders.
4) To enhance workforce competencies and welfare as well as the economic independency of the community in surrounding operation areas.

ANTAM's main activity includes exploration, exploitation, processing, refining and marketing but the Company's and Subsidiaries' business segment are identified into two major business operations, consisting of nickel operating segment is comprised of ferronickel and ANTAM's gold and refinery segment is comprised of gold, silver, platinum, palladium and precious metals refining and processing services.

2. **Brief Descriptions of Knowledge Management Based Information System**

ANTAM's knowledge management system is essentially a small-scale version of intranet application embedded at Human Capital Information System (HCIS). This system used Transmission Control Protocol/Internet Protocol (TCP/IP) that allows for the creation of internal networks with common internet applications that can allow them to communicate with different operating systems. ANTAM used highly security of firewalls to protect their data.

According to annual report in 2015, ANTAM completed the application development of the HCIS phase 2. As of December 31, 2015 the progress of the project of the project HCIS phase 3 already reached around 86% which was inline with the company's internal commitment such as the following modules:

1. Work load analysis

2. Sub Module transport allowance

3. Personal management

4. Sub module performance management system

5. Sub module individual performance management system

6. Career management

7. Talent Management

These modules and programs are parts of knowledge management system. In term of computerized, KMS is required various type of virtual modules, virtual files, and user interface. Most of programs are addressed to improve human capital performance by using sharing approaches. According to

observation into the field, process of knowledge management face lot limitations includes with management challenges and system development. For further explanation, researchers will break down into few sections regard with process of knowledge management system in part below this.

3. Presenting Analysis Results

Furthermore, *interpreting* is process of conceptualize the data to answer research problem. Fom analysing process, results are obtained that within the implementation of knowledge management found that there are factors that affect employees either as support factor or inhibit factor. Finding are represented in summary format with illustrated quotes below:

a) Learning initiatives

Strategic intent to support an enhancement of employee participation in sharing knowledge. Company had strategies that focus on initiatives that may support for driven individually initiatives for learning and sharing knowledge at work such as award, as expressed by Mr. Dialah:

> Interviewer: "*In term of policy, I wander to know whether company has policy about knowledge management system, if yes, what is the purpose of policy, is it categorized as best practice ?*"
>
> Mr. Dialah : "*Salah satu bentuk kebijakan itu yaitu adanya award yang dilakukan tiap tahunnya. Yang merupakan bentuk apresiasi kepada karyawan untuk partisipasi dan kemauan mereka untuk terus belajar* (**Quotation 15:13, Quotation15:12 Company incentives, reward**)."

Through the analysed, the barriers identified in this phenomenon that suggest the following factors:

1) promoting awareness of the initiatives of learning that includes developing a *strong vision* for knowledge management with accountability measures started from high level managers till bottom line employees

2) positive recognition for learning and sharing knowledge should be coherent with company vision and applied.

If measurable objectives and accountability processes are in place, then progress is both more visible and more likely to be supported. This may seem to state the obvious but participant noted that these factors were not addressed in ways that enable progress on knowledge management integration. The reasons are complex.

b) Learning climate

Process externalization is influencing the successful of implementation knowledge management through developing learning climate as stated by informant statement related with phenomena of learning climate:

> Interviewer: "*In term of employees incentives, I wander to know whether company give incentives to their employee to make employees being participate in implementation knowledge management?*"
>
> Mrs. Selvi: "*Salah satu sharing culture yang dibuat adalah pembuatan "MAKALAH" yang dimana bersifat pemaksaan dimana makalah ini memiliki KPI (key performance indicator) untuk meningkatkan standard dari tiap karyawan yang akan dievaluasi menggunakan KPI juga. Untuk program lainnya masi banyak guna untuk reducing term of reinventing the wheel.*" (**Quotation 14:13, Learning climate, Quotation 14:14, Externalization-SECI odel, Quotation 14:2, KM effectiveness, Quotation 14:16 Knowledge Application**)

In the case referred to above, an successful externalization had began when company give support of learning environment through fostering them to realize the important of knowledge sharing and did an enforcement from company through utilizing *knowledge application*, company can avoid reinventing the wheel.

Learning climate also required leader's participation to empower and motivate organization to be organization that has capability to learn. Leaders also should act as *collective learning leadership* where the employees are encouraged to share their knowledge among colleagues, which is helping to do their job, as expressed by Mr. Selvi,

> Interviewer: *"Ms, I wander to know if there is leadership support from top managers to build learning climate, if yes, what are the programs? "*
>
> Mrs. Selvi: *"Direktur juga berpartisipasi dalam pelaksanaan knowledge management. Salah satu program yang telah berjalan adalah **DirWalk** dan **DirTalk.**"*

From the quotation above, it is illustrating that leader fully conscious about the important being a part of knowledge sharing. This can be conclude that knowledge sharing was already adopted by leaders showed from positive attitude and spirit of the leaders to share knowledge to all employees. This findings is also supported by Robbins (2006) stated that leadership is the ability to influence the group toward achievement.

c) Retrospect accentuate learning

In order to avoid reinventing the wheel, promoting knowledge sharing that related relationships among co-worker is best practice. But knowledge

sharing depends on climate of trust to share within the organization. The

following quitation related with phenomena of retrospect accentuate learning:

> Interviewer: "*Ms Selvi can you tell me a little bit your experience while working at ANTAM?. As new employees, do you find advantanges of sharing knowledge?*"
>
> Mrs. Selvi: "*Kami di ANTAM proses yang terjadi sehari-hari melakukan discussion antar rekan kerja jika menemukan kesulitan dalam perkerjaaan. Saya sendiri pun adalah karyawan baru, berdasarkan pengalaman saya , saat ini saya adalah karyawan junior dimana saya merasakan pada saat saya berada di ANTAM, rekan kerja sangat terbuka membantu saya dalam menjalankan perkerjaan saya. Terkait Misi ANTAM 2030. PROGRAM KM ANTAM 2016 saat ini ada yang di katakan dengan project retrospects. untuk penjelasan project retrospects bisa bertanya ke pak FARID.*" (__Quotation 14:8 Retrospect accentuate learning, 14:25 Internalization-SECI Model__)

In the quote above indicates that company has implemented knowledge

management quite well, it can be seen that all programs directed to fostering

retrospect accentuate learning in order to avoid reinventing the wheel. This

quotation implicitly show that internalization in process knowledge sharing

happened in daily interaction between colleagues.

d) Organization Activity

A course-specific suite of knowledge sharing's activities both includes

and complements organization activities through seamless integration. This is

required tangible support from company. This support took the form of

integration system to perform daily work, as expressed by Mrs. Selvi:

> Interviewer: "Ms. Selvi as OE Junior Specialist, what is the impact or benefit of *knowledge management system* for company's activity?"

> Mrs. Selvi: "*Sangat penting, kegiatan bisnis ANTAM proses nya dalam bentuk streaming dari hulu ke hilir, yang di mulai dari headquarters sampai ke downstream dimana proccessing mining sendiri terjadi. Maka di haruskan adanya berbagi informasi ataupun pengetahuan yang nantinya akan digunakan untuk kegiatan bisnis ANTAM.* (**Quotation 14:1 Knowledge sharing, 14:11 Organization Activity**)"

Previous quotation showed that integration system is already covered the process of sharing the knowledge. However, retrieving external information concern with costumer, partnership, public, etc are the important source. Creating awareness of the importance of knowledge management related consumer acquisitioning external capital to improve quailty of products, as reported from ANTAM's annual report 2015:

> "ANTAM adopts the approach of routine correspondence as well as annual meetings." (***Quotation 5:21 Knowledge Acquisition, Organization Activity***)

> "ANTAM conducts regular surveys in order to ascertain consumer satisfaction levels. In 2015, the survey results indicated customer satisfaction level (customer satisfaction index, or CSI) at 87.72% for nickel products, and 82.05% for goldproducts. During the year there were no complaints related to product quality." (***Quotation 5:13 Knowledge Acquisition, Organization activity, Consumer Capital***)

These quotation shows ANTAM showed that management in enhancing customer value and build sustainability marketing strategy can be through process of acquisition.

Organization activity based on knowledge management is activity engaged in focusing on creating value for shareholder, including operating, financial activities, etc using knowledge sharing and knowledge acquisition either as media or indicator of company's performance.
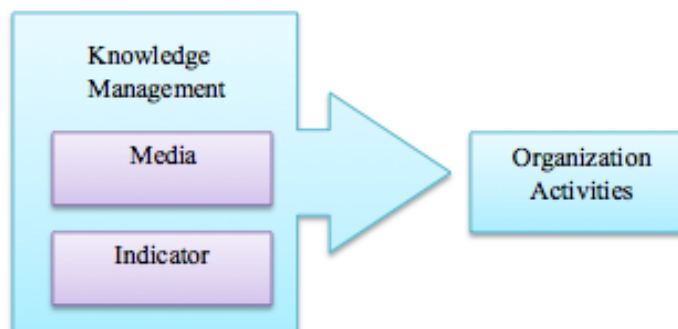
Figure 5. Relationship Knowledge Management with Organization Activities
Source: Processed Data, 2016

As indicator, aimed to increase the employee productivity as well as create a

more objective performance display, as expressed by Mr. Dialah:

> Interviewer: "*Sir, What do you think the benefit of knowledge management for ANTAM?*"
>
> Mr. Dialah: "*Antam adalah perusahaan yang mengalir, bertumbuh dan berusaha mengoptimalkan sumber daya manusia demi untuk menambah nilai tambah (value added). Adanya continous improvement mengaharuskan antam meningkatkan program pembelajaran dengan mengikuti perkembangan zaman dan disesuaikan dengam kebutuhan.* (**Quotation 15:4 Knowledge Management**)"

As media, knowledge management used to develop staf capacity by

disseminating the knowledge, as expressed by Mrs. Selvi:

> Interviewer: "*Ms, According to Mr. Dialah that company has key performance indicator that related with the papers of employees? Do you mind if you explained about it more?*"
>
> Mrs. Selvi: "…makalah ini memiliki KPI (key performance indicator) untuk meningkatkan standard dari tiap karyawan yang akan dievaluasi menggunakan KPI juga (**Quotation 14:15 Key Performance Indicators**)"

From these quotations, explicitly tell that knowledge management aimed

either as media of learning or indicator of key performance of employees to

do organization or business activities.

e) **Knowledge Sharing as A Driver of Change**

Assigning employees who are responsible for sharing and using of knowledge to be learning organizational. One of process of knowledge sharing is externalization or tranform tacit knowledge into explicit in form of "paper" that shared to employees through KMS in SKOWDAY program. The following quotation from informant related with phenomena of knowledge sharing and managing the database:

> Interviewer: "*Sir, can you explain more about sharing knowledge as learning prosess routine?*"
>
> Mr. Dialah: "…*Makalah yang di kirim ke sistem database sebelumnya yang akan di bagikan ke tiap-tiap karyawan untuk keperluan pembelajaran melalui* (**Quotation 15:14 Knowledge sharing, Externalization-SECI Model**)."

In above quotation showed that implementation of knowledge management has been managed well. All papers (knowledges) is converted to virtual file then it stored in electronic repositories, this phenomenon can be called such as a "best-practices" database. This phenomena showed company is able converted each employees tacit knowledge to be explicit form of knowledge that have an impact on the effectiveness of the process of knowledge sharing.

Another knowledge sharing process is socialization that seems more stand out on process knowledge management at ANTAM, as can be seen in one of the quotation on annual report:

> "In order to increase the insight and knowledge of employees, ANTAM also organized the LEDO (Learning & Development) Forum, BEBAS (Bedah Buku Asik) and Meeting Professionals." (***Quotation 5:9 Effective transfer of knowledge, Learning climate, Quotation 5:14 Knowledge sharing, Quotation 5:16, 5:17 Socialization-SECI Model***)

In above quotation showed that implementation of knowledge sharing particularly on socialization proces has been managed properly. There are plenty of knowledge sharing program that indicate of socialization's process such as forums, meetings, seminar, and book review. From explanation above, program of knowledge management cunducted on physically gathering. Instead of physically gathering in a room to share knowledge, today is globalized includes system that capable to show window and browser tabs to communicate in such as brainstorming forum purposes. In the future, the strategy in order to update the report or resume of activities event of knowledge management's project therefore, staff who did not attended on forum also could learn.

f) Employee Engagement

Build an effective team and increasing *employee engangement* through teamwork. In order to make team can work together, indivudual contribution must necessarily dedicated to sharing knowledge as expressed by Mrs. Selvi:

> Interviewer: "*According to your perspective, do you think which one is better individual work or teamwork? Whether your answer is individual work or teamwork, is there any advantages for company?*"
>
> Mrs. Selvi: "*Menurut saya bekerja secara teamwork akan lebih baik guna untuk kepentingan team karena pekerjaan saya pun berdekatan dengan TEAMWORK. Sedangkan ada beberapa hal pekerjaan harus dilakukan untuk secara individual untuk self-development yang nantinya akan di bagi untuk karyawan lain demi untuk kepentingan pembangunan perusahaan (**Quotation 14:7**)*"

In this quotation shows that knowing indivudual strength will help company to build a team that works efficiently.

g) **Knowledge hoarding**

One of the obstacle knowledge sharing adalah knowledge hoarding. According H.Lee, J.W.Kim, and R. Hackney (2008), Cabrera (2002), Knowledge hoarding is reasoning by protecting competence, and unwillingnes to share knowledge. Knowledge hoarding also shows personal power that will be obstacle within sharing knowledge, unfortunately this situation was not found at ANTAM as expressed by Mrs. Selvi:

> Interviewer: "*In term of knowledge hoarding, sometimes other employees keep their knowledge as personal power, what do you think about it?*"
>
> Mrs. Selvi: "*Penimbunan pengetahuan bagi saya sangat tidak baik dan tersebut tidak dilakukan di ANTAM. Akan sangat disayangkan jika salah satu karyawan mempunyai sifat personal power. Budaya pada ANTAM sendiri lebih menekankan untuk sharing dan belajar dari rekan kerja.*" (***Quotation 14:6***)

In the quote above shows that while employees perform work is free from knowledge hoarding. Nowadays, the culture of ANTAM more emphasis on sharing knowledge to be part of learning organization

h) **Computer Based System**

In previous analysis is showed that the role of system in process externalization of knowledge is very important. Combination process also required tools on organizing and integrating the knowledge before disseminating the knowledge such as computerized communication network and large-scale of database as stated by Mr. Dialah:

> Interviewer: "In term of computer based system, is there any technology who already support implementation of knowledge management?"
>
> Mr. Dialah: "Automatic-acces *adalah program* SKOWDAY. *Dimana access makalah yang dikirim ke tiap karyawan sepertinya karyawan merasa nyaman-nyaman saja.*"

From previous quotation shows that computer based system is positively affecting the process of transferring knowledge. The policy should be created to make sure the system is not wasted and is used by users, as expressed by Mr. Farid:

> Interviewer: "*Sir, According to Mr. Dialah, knowledge management is already used system based computer, are employees using the system? How we could know whether employees use it or not?*"
>
> Mr. Farid: "*jadi untuk mengetahui hasil karyawan atau buku yang dibaca paling banyak, saya harus mendownload file excel yang kemudian saya kelola sendiri untuk mnegetahui hasilnya, ya seperti ini* [Mr. Farid show to researcher while explained the data].".

This statement demostrate that company make procedures to make sure users is used the system to share and search knowledge. This policy also can be used to make sustainability system. Unfortunately, the period of this procedure only once of year, as expressed Mr. Farid:

> Interviewer: "*Sir, how often company required to make an evaluation of SKOWDAY?*"
>
> Mr. Farid: "*ya proses ini dilakukan hanya setahun sekali dan saya melakukannya secara manual dengan mengupload file dalam bentuk excel*".

The sustainability report supposed to enables company in understanding usefulnees of system, it would be great if company is providing the update of the process within a day, month, and year. The purposes to make an update of the above process is to emphasize the use KMS on learning activities.

From previous explanation, Sharing Knowledge Everyday (SKOWDAY)'s

system in ANTAM is almost a hundred percent run the system based on

computer. Knowledge Management of ANTAM has varieties of program, as

expressed Mr. Farid:

> Interviewer: *"I heard that knowledge management has plenty of programs, what are those program?"*
>
> Mr. Farid: *"Ditahun 2016, ada beberapa program manajemen pengetahuan, salah satunya SKOWDAY atau sharing knowledge dimana satu makalah karyawan dibagian keseluruh karyawan lainnya, e-library merupakan kumpulan informasi buku-buku yang ada di ANTAM, adapun program lainnya yaitu bedah buku asik, Kampion, dan lain-lain, kamu sendiri dapat melihat program-program yang telah berjalan dimulai tahun 2015 dan tahun 2016 pada power point ini"*.

The statement demostrate that there are various types of program of knowledge

management. Unfortunetaly, after long discussion, it found that only

SKOWDAY and electronic library who run used computer based system. The

other programs of knowledge managements on 2016 is accumulated on figure

6.

Figure 6. Programs of Knowledge Management ANTAM
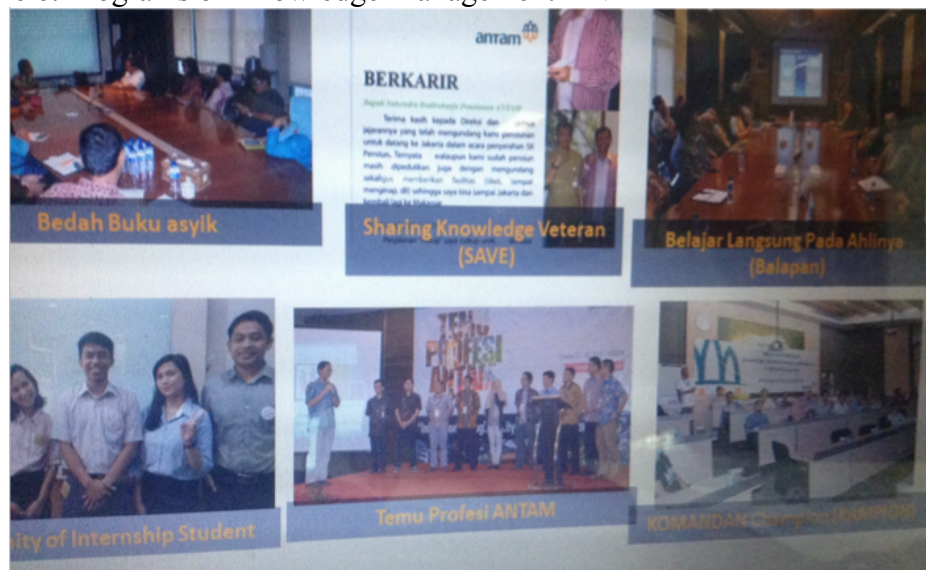
Source: Processed Data, 2016

The result of observation is included with analysis of weakness. The current programs are SKOWDAY, electronic library, CIS (community of internship student), BEBAS (*bedah buku asik*), SAVE (sharing knowledge veteran), BALAPAN (*belajar langsung pada ahlinya*)*, Temu Profesi ANTAM* and Forum LEDO.

a. Understanding SKOWDAY (Sharing Knowledge Everyday) Worked

SKOWDAY is one of the programs of implementation the knowledge management aimed to increase the insight and knowledge of employees. SKOWDAY (sharing knowledge everyday) process is including transfer information or "paper" that has been presented and evaluated before in front of each employee's head department officers. This paper is used as one of personal indicators to valuing the key performance of each ANTAM's employee. SKOWDAY process is consisting process of collecting the paper (manually did by KM junior specialist), process adding papers to portal (Human Capital Information System), process of updating or editing before sharing it to employees, and the last editing the access of link of file. SKOWDAY process is illustrated into info graphics in Figure 7:

1) Process "Collecting"

   In this stage of process, there are four parties who involved particularly board of director, head officers per department, knowledge management senior officer, and employee. Collecting is including process of implementing

performance management system and implementing *knowledge management*

as the main objective that is observed.

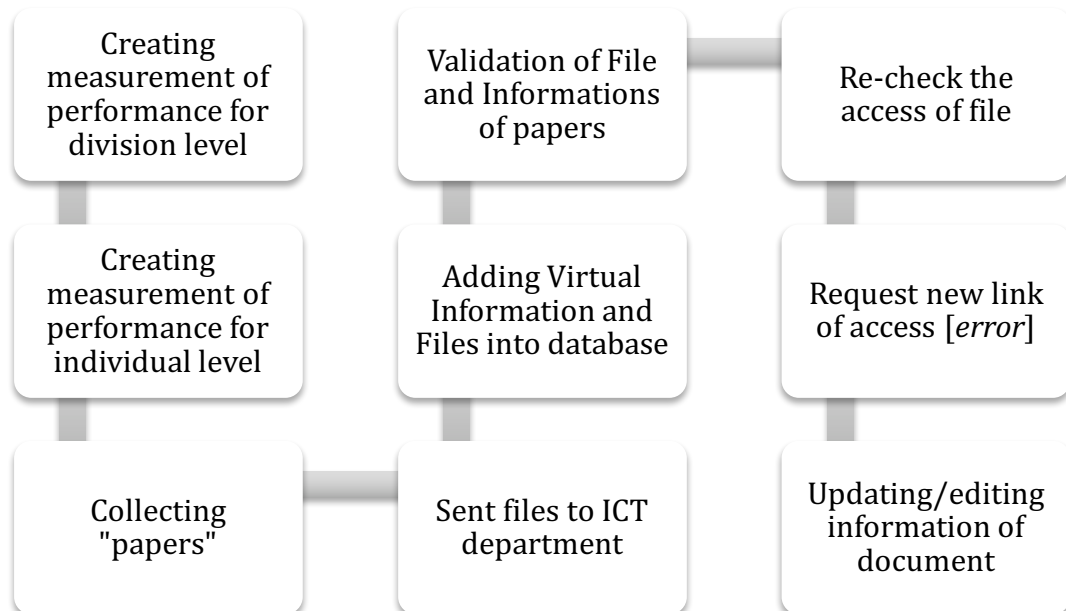| Creating measurement of performance for division level | Validation of File and Informations of papers | Re-check the access of file |
| Creating measurement of performance for individual level | Adding Virtual Information and Files into database | Request new link of access [*error*] |
| Collecting "papers" | Sent files to ICT department | Updating/editing information of document |

Figure 7. Info Graphics of SKOWDAY
Source: Processed Data, 2016

Performance management system is a larger system, which is known by *sistem manajemen kerja (SMK)*. This system is the approach of the management of human resources using the **performance, goals, objectives, measurement, feedback**, and **recognition** to motivate employees to determine its maximum potential. Performance management system involves the preparation of goals and explicit objectives that can be measured by accessing individual performance compared to the standard.

In collecting's process, mostly, done by 80 percent of manual process. The target of this process that KM Junior Specialist capable to collect all

"papers" to full fill company requirements based on "key performance indicators individual work".

There are following previous process before papers are ready to post and share. First, identify and creating each division's *Key Performance Areas* and *Key Performance Measures,* for example realization target for corporate secretary division, evaluation of effectiveness for ICT governance implementation, and *key risk indicator* for performance of risk management division. Afterward, company need to create process of review usually per period in the organization. At the same time, creating Performance Management policy and then these required Managerial approval. Applying Performance Management Policy annually.

Individual performance management system inherited performance management of division level which is already made it before. One out of many of the *Key Performance Measures* is collecting two papers per year.

Before submitted employee's paper, employee's paper required to evaluate by board of head officers of their department, if employee passed, employee required to submit to Knowledge Management Junior Specialist and completed the required additional information and digital form of their papers. KM Junior Specialist required to check if employee fill the requirement. If the answer is *No,* employee is forcing to fulfill it (repeatedly). If the answer is *Yes,* KM Junior Specialist simply collect it.

2) Process "Adding"

In this stage of process, there are two types of parties who involved particularly knowledge management junior specialist and admin. In the field, those job did by one person is Mr. Farid. Adding's activities required time to process to store all files into form of digital form. According to annual report in 2015, total number of employees of ANTAM is 2.724 employees which each employee required to collect 2 papers.

From the figure, it is explained that this process is continued from previous process of collecting files of "paper" from employees. The next flow is KM Junior Specialist required to make a checklist who already complete to perform the papers. The data would automatically added to the database system where KM Junior Specialist could print from *menu button* at back-end screen (only admin can access it). The KM officers could right away ended the process and could continue the next day. KM officers is also on charge as admin. The admin required to adding files and information to the portal *Human Capital Information System* (database) in manual process use keyboard and screen to input the data.

3) Process "Updating and Sharing"

In this stage of process, there are three parties who involved particularly admin, information and communication technology (ICT) officer, and employee. This process is actually the main activity where one papers need to be sharing to employees.

Before files and information of papers are been shared to employees, there are following process in advance. This process of updating and sharing would be performing in every single day by admin. Admin would pick one topic and did editing or updating the additional information of files. The next following process is check before share to employees. If data was not complete, admin will find others papers and did editing if necessary. If data was complete, admin will data and information in form of emails through company secure intranet to ICT officers. ICT officers will sent the link of files and information in form email to other employees.

Authorized employee can access the file through their screen mail inbox. Once employee tried to open, ID authentication will be required in order to open file. Within verification process sometimes occurs the problem, employees should report to ICT officers usually in form of email but if there is no respond from ICT officers, other employees could make a call then ICT officers would right away give a solution.

4) Process "Editing The Access Link of File"

In this stage of process, there are three parties who involved particularly admin, information and communication technology (ICT) officer, and employee. This process is occasionally did by admin if admin make a mistake by sending wrong link of access.

The troubleshooting of error link of files which begin with Information and Communication Technology officer or employee who trying to access the

link of files. If ICT officer or employee could access the files, files will automatically opened. If ICT officer or employee could not access the files, there is following step they must do. Sending the request to appeal for new link of files. It takes time for admin to do troubleshooting, then admin will send new link in form of email where employees could check through mail screen.

As researcher observed in previous explanation, company challenged with different kind of challenges during their system implementation. The result showed that company does not request for further improvement or simple not scalable but system is only system. It means that there is no perfect system.

Table 3. The Traceability Matrix for SKOWDAY

No	Requirement Description	Functional Description	Future Design Complexity (simple/medium /complex)	Does the system support? (Yes/No)
1	As per the company, the system should have security and no anonymous access allowed	The system will have login and password. Only on successful login, the users will be allowed to access intranet	Medium	Yes
2	Bug in the system required functional bug trail	Improving troubleshooting and fixing recurring crash bug	Complex	Yes
3	As per the company, require design new RDBMS tools for decision making	Retrieving data from database so company would avoid manual process in purpose of reporting by using [select] function.	Medium	Yes
4	As requirement for robust database, company required new technology file system (windows directory)	Company has two places directories to store such as main database on server and windows directory	Simple	Yes

No	Requirement Description	Functional Description	Future Design Complexity (simple/medium /complex)	Does the system support? (Yes/No)
5	As requirement for speed and performance, company required denormalized database and multitier architecture	Provide scalability and can manage complex scenarios effectively	Complex	Yes

Source: Processed Data, 2016

This functional design is obviously a very ideal, conceptual case. For instance, usually there are many iterations of designing, due to changes in specifications of company strategy, to the discovery of flaws during implementation or capability of system to handle a growing amount of work. One of the main challenges faced by researchers, for instance, designing a system that provide better system to handle a growing amount of work (scalability) to produce business logic tier as shown on figure 8.

Currently architecture that ANTAM use and researcher use is two tiers (User Deskop-> Webbrowser [UI]) -> Database. With the multier architecture design, manaing complex scenarios will be managable correctly in the future. At this point, the use of idea of cognitive complexity to design are required to improve troubleshooting, fix recurring crash bug and built system to produce report. In the diagram of figure 11, bug appears. Researcher did not find approach that company used to handle problem efficiently. If there are hundred bugs happened in a day, it is going to be difficult to handle. The solution that researcher offers are functional audit trail and relational database management system to produce automatically report. **Audit trails** can

provide help to accomplish several security-related objectives, including individual accountability, reconstruction of events (actions that happened on computer system), intrusion detection, and problem analysis. While ***RDBMS is powerful tools*** to modify and design database to support automatically retrieving data from database so company would avoid manual process in purpose of reporting. **RDBMS** will facilitate SKOWDAY to print the output in form of system report. In term of internally purpose, report has capability to trigger continuous improvement and sustainability performamce of the system. It is expected by putting *awareness* if the system is not optimally used.
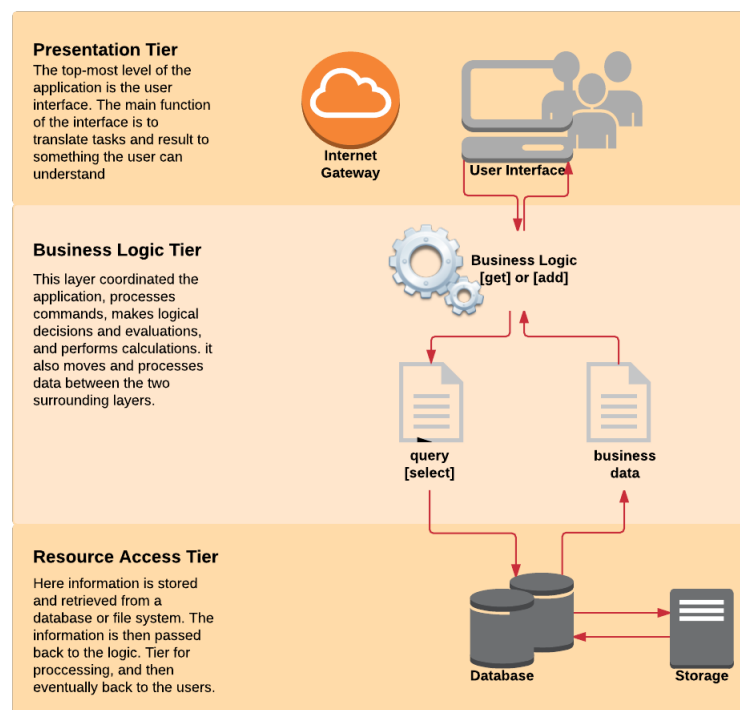
Figure 8. Infographics of Multier Architecture of Database System
Source: Processed Data, 2016

b. Understanding e-Library Worked

E-library is one of the programs of implementation the knowledge management. ANTAM still implement conventional library system that store information about catalogs of the book while digital version of printed book is not avaliable. E-library used by two types of users, (1) admin who add, modify, edit, and also could view the content and (2) employees (unauthorized admin) who can search and view the content. ANTAM's e-library for existing following process shown in figure 9. From the figure 9 it is explained that there is two type users in this e-library system, authorized admin and member. The member is employee who only authorized to access front-screen where this type of user can do searching and view the information of the book such as description of books, the writer, and the books that are borrowed. While An authorized admin is knowledge management junior specialist who responsible to add, modify, delete or even capable authorized enter the front screen of the e-library system at company portal.
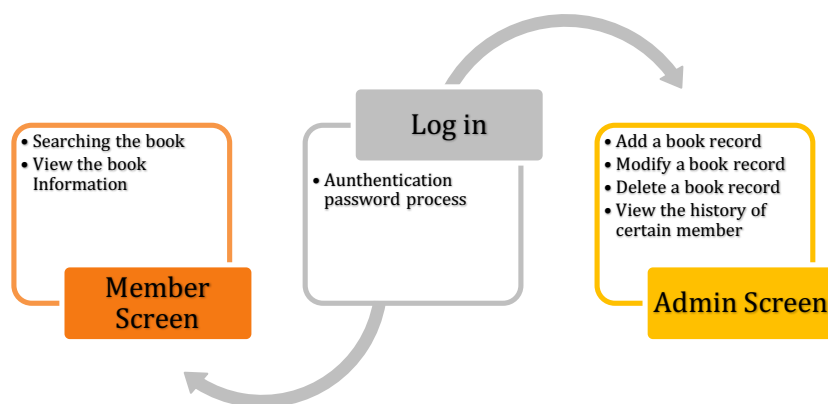
Figure 9. Info Graphics of e-Library
Source: Processed Data, 2016

The detailed of existing system in term of analyzing the weakness, such as unavailable of virtual book which are tends to be expensive and bulky. Due to data requirement and interface requirement, in order to effectively build electronic library, company need to supplement the printed information with more dynamic electronics resource. User can access to full text document easily and quickly. It is very cheap maintenance

Table 4. The Traceability Matrix for e-Library

No	Requirement Description	Functional Description	Future Design Complexity (simple /medium /complex)	Does the system support? (Yes/No)
1	Virtual book in form of pdf	Eliminate expensive cost of printed materials	Simple	Yes

Source: Processed Data, 2016

c. Understanding CIS Worked

CIS is one of the programs of implementation the knowledge management. CIS is stand for community of internship student. ANTAM's CIS is a program seeks to encourage community college students by providing training experiences work at ANTAM. ANTAM still implement conventional system on process of enrollment, approval, and managing intern student data. The enrollment and approval were managed by department learning. Here are overviews some designs for maintaining internship data

Table 5. The Traceability Matrix for CIS

No	Requirement Description	Functional Description	Future Design Complexity (simple/medium /complex)	Does the system support? (Yes/No)
1	CIS system should have database to store data of intern's	Maintaining *intern* information, intern's papers and status of	Simple	Yes

No	Requirement Description	Functional Description	Future Design Complexity (simple/medium /complex)	Does the system support? (Yes/No)
	student	*intern*		
2	CIS system should have enrollment and approval interface	The system will become faster and efficient on screening new intern's recruitment	Complex	Yes

Source: Processed Data, 2016

d. Understanding Forum Programs of KM ANTAM

Forums are part of knowledge management at ANTAM. These are type of live forum of ANTAM, such as COMMUNITY OF BALAPAN (*Belajar Langsung Pada Ahlinya*), BEBAS (*Bedah Buku Asik*), *Temu Profesi* ANTAM, FORUM LEDO (Learning and Development), and SAVE (Sharing Knowledge Veteran).

Forums aimed to share best practices, accelerate progress, discuss either successes and failures story, and experiences. On the other hand, information overload or needing knowledge from people in other parts of the company for decision-making can be an obstacle for company, putting in place knowledge management systems can facilitate better, more informed decisions. In term of capacity of employee's receiver, employee have their own weakness/strength that affect on receiving knowledge. Forums are type of implementation of sharing knowledge in form of socialization (tacit-tacit). If one of employee did not have capability to receive the knowledge (tacit), the knowledge is going to be wasted. Here are overviews some designs for forum programs.

Table 6. The Traceability Matrix for KM's Forum

No	Requirement Description	Functional Description	Future Design Complexity (simple /medium/complex)	Does the system support? (Yes/No)
1	Database is required to store virtual file such as video and post-event wrap up summary of event, seminar, or meeting	The system capable to store and retrieve knowledge in form of virtual file such as video, document, etc	Medium	Yes
2	System required interface site	Announcement (information) about place, data and time of forum being held	Simple	Yes
3	As requirement for speed and performance, company required denormalized database and multitier architecture	Provide scalability and can manage complex scenarios effectively	Complex	Yes

Source: Processed Data, 2016

Because of limitation of conventional system, new proposed system should include capacity of rich in user interface, ease of access, and faster. In term of computerized system, the purpose is making the KM's program facilitated users (employees) to access informations and knowledges to knowledge management system easily. While type of input, it is used as media of knowledge for sharing learning, such as ***post-event wrap up summary* of event, seminar, or meeting**. This wrap up summary will provide informations and store about summary of event in form of video, document, etc to the database.

e. Problem Identification and Proposed Solution

In the step of analysis system, identifying problem is very important to describe system weakness into detail. The purpose of analysis system is to

identify and evaluate problem, needs and solution. The accumulation of problem identifications, strength, and solution is presented on table 7.

B. Discussion

The above results coming from qualitative analytical methods of data interviews that has been conducted by researcher over seven days to fulfill research administration requirements of an arrangement permit research from Faculty of Business Administration Science, University of Brawijaya till permit approval by Senior Manager of Organization and Effectiveness Department and employees PT ANTAM Tbk, Jakarta, Indonesia as informants. This study is used a qualitative method with descriptive approach about "Implementation of knowledge management system (A study at PT ANTAM Tbk)".

1. **Implementation of knowledge management system at PT ANTAM Tbk, Jakarta, Indonesia**

The informant was interviewed by reserachers. The informants are people who authorized as policy makers and administrators of knowledge management system using open-ended questions. The findings show that: *first*, the implementation of knowledge management received a positive response from employees. *Second,* it shows that the knowledge management system has been computerized to support managing knowledge of company. It is shown by the company's policy to provide *database* or *repository* for storing documents where the document is filled with valuable knowledge of the company. An important factor that expressed by Rasula et al., (2012) study that the elements of technology in knowledge management system is

required to have technological abilities that store knowledge and use of the information system.

The findings indicate that company was trying to provide innovations in organizing knowledge to have a value in order to be a successful organization. Knowledge management process in ANTAM support the company's internal commitments in accordance with the standard process for knowledge- contribution, content management (receiving content, maintain quality, maintain the current content, deleting or archiving old content), retrieving, and membership on communities of practice (Dilip Bhatt, 2000). The implementation of knowledge management is SKOWDAY and varities of forums.

The other results showed that information systems strongly support implementation of knowledge management. Previous researchs are confirming that knowledge management has a special relevance for research information system due to the function of information technology plays an important role in shaping the organization's efforts for the creation of knowledge, acquisitions, integration, assessment, and the usage (Alavi and Leidner, 2001). As expressed by one of the informants that Ms. Selvi Isni Hadi Saputri as OE Junior Specialist that system should be integrated with the whole company's activities and also for a wide range of knowledge in order to improve employee performance.

It turned out positive impact of information system support knowledge management. It makes company require development of technology that

needs to be followed in the future. Even if the researchers found that to strengthen strategies and manage company's knowledge in better way can be realized through various virtual modules. Currently, the trend of knowledge management system has powerful functions while KMS of ANTAM have limited functionality such as system only can be used by limited users. Taking into consideration of the advances of technology nowadays, KMS of ANTAM can be categories as left behind system.

2. **Factors that support or hinder the implementation of knowledge management at PT ANTAM Tbk, Jakrta, Indonesia.**

The leveraging knowledge to gain a competitive advantage could involve either: promoting knowledge sharing or intentionally reglating the sharing tendencies for fear of the possibility of losing benefits associated with knowledge (Husted, Michalova, Minbaeva and Pedersen, 2011). In the other hand, knowledge hoarding could create a culture of mistrust and unhealthy competition that resulting staff that has low morale that can caused employee leaves the company or labor turnover. It is a big risk in modern management (Cong, Li-Hua & Stonehouse, 2007). Therefore, in the process of knowledge sharing It is not founds there is hoarding knowledge.

ANTAM itself was still seeking to pursue a strategy in order to make employees are willing to participate in the sharing knowledge to avoid knowledge hoarding. Nowadays, most companies are to ensure participation by the people or employees in the knowledge sharing, collaboration and re-use to achieve business results. In many organizations, this requires changing traditional mindsets and organizational culture from "knowledge-

hoarding" (to keep hidden or private) to "knowledge-sharing" (share among team members) and creating an atmosphere of trust (M. Iranna Shettar, 2005).

The results of the interview with the informants of Ms. Selvi Isni Hadi Saputra, as OE effectiveness Junior Specialist stress on the culture of ANTAM is more emphasis on the "trust" especially for sharing experience and knowledge. There are other findings that trust and organizational learning atmosphere can be achieved through motivating employees by providing rewards and provides many *forums of brainstorming*. The results are supported by Li and Lin (2013) that there was a significant positive relationship between rewards and intention to withhold knowledge. There two types of rewards that can be used, according to Johnson and Johnson (1989) and Tjosvold (1984) rewards can be divided into two, those that are based on joint performance, are cooperative and can provide an incentive for individuals to work together because it is in their common interest to perform well. Secondly there are those that are tied to how well one performs as compared to another and are referred to competitive rewards.

In the other results, the researchers analyzed the weaknesses of the system. It is the goal of the trend of knowledge management systems and also targets for ANTAM that capable to actualize vision that is dedicated to empower the performance of human resources.

Therefore, there is *traceability matrix* that can be useful that can be used to build a better system in the future. This is a great opportunity to improve

performance for knowledge workers in Indonesia. Instead of hire people and put a lot of cost to train them in the long term. Knowledge management is expected that capable to change the system of human resource departments that exist thesedays.

In order to measure the effectiveness of the system, future study is required to conduct through quantitative methodology for better results. This study can be used as grounded for future research to improve knowledge management-based information systems.