CHAPTER 2 LITERATURE REVIEW

Literature review is very important aspect of research. It provides essential materials to be used as based of the research. In detail, research theory subsection focuses on several concepts such as: KM, KM system, Bank X and its KM and KM system. Past research findings subsection gives a general idea about how far research on this particular subject has been done. In addition, research hypothesis subsections is also explained in this section.

2.1 RESEARCH THEORY

Below is explanation about the concepts of KM, KM system, and Bank X's Organisational process..

2.1.1 Knowledge Management

KM concept plays a great role in determining KM system function. The fact that KM system is built based on KM activities, make this subject important to be discussed. Thus, to give a complete analysis on this paper, KM definition, activities, and impact are stated below.

2.1.1.1 Definition and goals

According to a paper by Folkens and Spiliopoulou, knowledge is volatile yet very essential and important asset for organisation (Folkens & Spiliopoulou, 2004).competitive advantage Therefore it needs to be managed intensively. In addition, knowledge is a key factor for organisation to be able to focus, to operate, to create, and to share.

There are two kinds of knowledge that exist in the organisation (Becerra-Fernandez, et al., 2004). First type of knowledge is explicit knowledge. Explicit knowledge refers to knowledge that has been codified or put into written document by the organisation (Becerra-Fernandez, et al., 2004). The second type of knowledge is tacit knowledge. Tacit knowledge refers to type of knowledge

that still resides in the people mind (Becerra-Fernandez, et al., 2004). Usually this knowledge is in the form of skill or expertise owned by people. Both types of knowledge need to be identified, preserved, shared and transferred by the organisation. Many approaches have been developed by organisation which aims to guide the execution of those processes (Maier & Remus, 2001). One of the approaches is known as KM.

KM is a newly emerging issue that closely related to intellectual as organisation asset and focus. It involves the process of capturing and making the use of organisational expertise any where in the business (Awad & Ghaziri, 2004). It uses psychology, economic, information management's principles such as: artificial intelligent, software engineering, business process re-engineering, human resources management, and organisational behaviour as based of its practice (Awad & Ghaziri, 2004; and Wickramasinghe, 2002).

KM perspective is focused on building organisation core competency, understanding its strategic advantages and creating intellectual capital (Alavi & Leidner, 2001). KM initiative increases the competitive advantage of today's organisation. Competitive advantage refers as advantage that the organisation has over its competitor that make that particular organisation hard to match (Beardsley, et al., 2006).

Based on Figure 2.1, the concept of KM as a source of competitive advantage is derived from its support to the organisational competency where knowledge is known as source of strategic resource (internal environment) that differentiate the organisation from its competitor (external environment) (Maier & Remus, 2001). Thus, although KM initiative does not directly provide the essence of competitive advantage for organisation; it supports the organisation competency indeed.

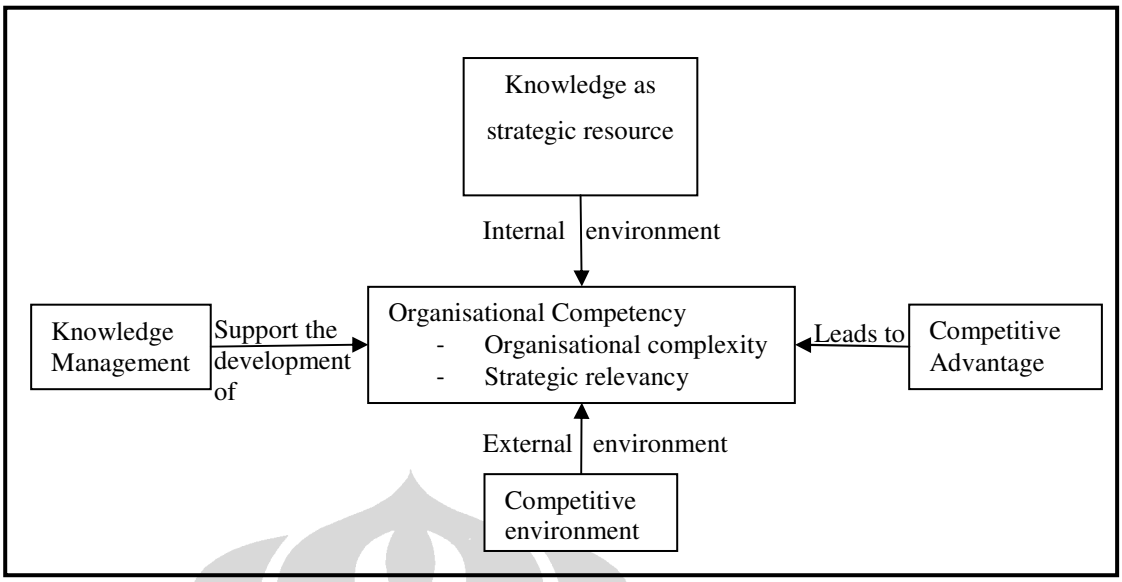

Figure 2.1 Relationship between KM and competitive advantage (Maier & Remus, 2001)

The aim of KM initiative in organisation is concentrated on the generation, representation, storage, transfer, and transformation of knowledge (Wickramasinghe, 2002). Such concept is designed to improve the handling of existing knowledge in organisation. Previous research shows that all types of knowledge are expected to be more transparent, accessible, and maintainable through KM practice (Maier & Remus, 2001).

2.1.1.2 Activities

KM strategy, as a part of organisation comprehensive business strategy, includes activities as follow: knowledge identification, knowledge acquisition, knowledge creation, knowledge distribution, knowledge utilisation, and knowledge preservation (Folkens & Spiliopoulou, 2004; Becerra-Fernandez, et al., 2004; and Awad & Ghaziri, 2004). The amount of effort that an organisation has to spend in knowledge management activities depends on organisation objective, culture and infrastructure that lay beneath it.

2.1.1.2.1 Knowledge identification

Knowledge identification, also known as knowledge capture, aims to make any exiting knowledge, both explicit and tactic, which reside in the organisation expose (Folkens & Spiliopoulou, 2004). By making knowledge visible for the entire organisation, existing knowledge can be used and shared (Becerra-Fernandez, et al., 2004). According to a research paper, effective KM practice is started from effective knowledge identification (Folkens & Spiliopoulou, 2004).

2.1.1.2.2 Knowledge acquisition

No organisation has the ability to completely produce its own knowledge. Best practice, lesson learned and expertise some time comes from external resource. Therefore, effective knowledge acquisition is important for an organisation to attract knowledge from outside the organisation.

2.1.1.2.3 Knowledge creation

Knowledge creation, also known as knowledge discovery, refers to generation of new knowledge from prior existing knowledge (Becerra-Fernandez, et al., 2004). The new generated knowledge can be in tacit or explicit knowledge. Based on Nonaka's model of knowledge creation and transformation, there are four categories of knowledge creation: (1) socialisation, (2) externalisation, (3) combination, and (4) internalisation (Awad & Ghaziri, 2004).

Socialisation refers to the creation of new tacit knowledge that is resulted from prior tacit knowledge. This knowledge creation can use team meeting or discussion as facilitator. The creation of new explicit knowledge that originates from prior tacit knowledge is called externalisation. In this process tacit knowledge is articulated through dialogue and reflection. The creation of explicit knowledge that comes from exiting explicit knowledge is called combination. This process involves systemising and applying explicit knowledge and information. At last, internalisation refers to the creation of new tacit knowledge that originates from existing explicit knowledge. This method uses learning as a

transformation media. These processes is also known as The SECI Spiral and shown in Figure 2.2. The development of new knowledge can lead to initialisation of new product development in the organisation. Moreover, it is also able to lead to creation of new idea, more effective process, or new skill within the organisation.

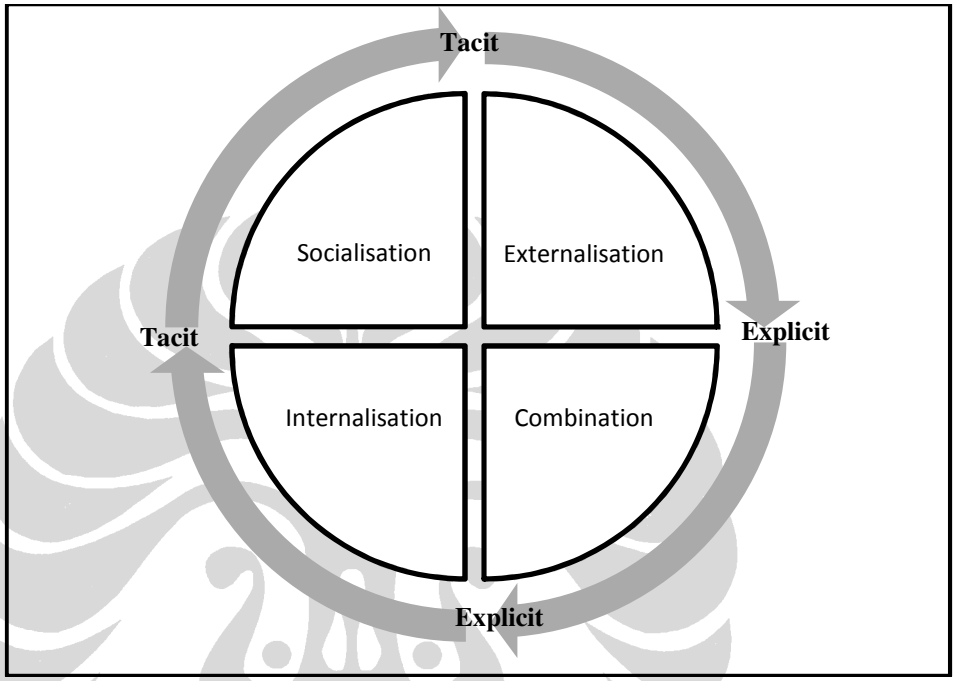

Figure 2.2 SECI Proses of Knowledge Spiral. (Adapted from Nonaka & Takeuchi (1995))

2.1.1.2.4 Knowledge distribution

Knowledge has to be made available for anyone who needs it. As a consequence, the concept of knowledge distribution exists. Knowledge distribution, or also know as knowledge sharing and transfer, promotes knowledge sharing across the organisation (Becerra-Fernandez, et al., 2004). This function requires support from others KM functions such as knowledge identification (Folkens & Spiliopoulou, 2004). The identified knowledge then needs to be shared via knowledge distribution.

Knowledge can be transferred between three organisational elements, which is external structure, individual competence and internal structured (Sveiby, 2001).

These elements are also called three families of intangible resources. These three elements play major role in executing knowledge transfer in organisation.

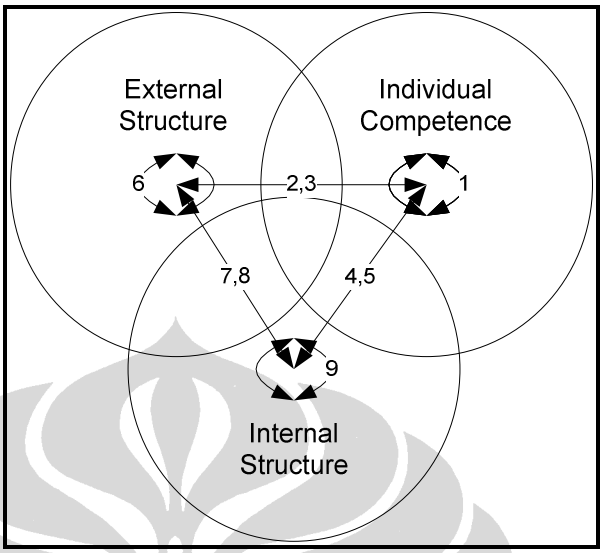

Figure 2.3 Knowledge Transfers in Organisation. (Adopted from Sveiby (2001))

According to the figure above, there are nine types of knowledge transfer that are able to create value for the organisation. Those types are:

(1) Knowledge transfer between individuals, where knowledge is shared between employees of an organisation.
(2) Knowledge transfer from individual to external structure, where employee distributes his/her knowledge beyond the organisation. This can include activity that involves employee to transfer his/her knowledge to the customer.
(3) Knowledge transfer from external structure to individual, where knowledge is distributed from customer, supplier, and community as external structure to the employee.
(4) Knowledge transfer from individual to internal structure, where employee distributes his/her expertise to the organisational knowledge.
(5) Knowledge transfer from internal structure to individual, where knowledge that has been captured by the organisation is distributed to the employee.

(6) Knowledge transfer within the external structure, where customers tell each other about product or service of an organisation. This type of knowledge transfers is able to give huge impact on sales and product distribution strategy of a company.
(7) Knowledge transfer from external to internal structure, where customer, supplier and community share their insight, best practice and procedure with the organisation.
(8) Knowledge transfer from internal to external structure, where organisational knowledge is transferred to the outer world to improve the competency level of organisation's customer, supplier, and other stake holder.
(9) And last knowledge transfers within the internal structure, where knowledge is transferred between organisation elements so they are able to integrate effectively.

2.1.1.2.5 Knowledge utilisation

Knowledge utilisation is also known as knowledge application. In this process, organisation tries to apply the knowledge that has been identified and distributed. The use of knowledge contributes directly to the execution or organisational core business process (Becerra-Fernandez, et al., 2004). Knowledge identification and knowledge distribution are prior KM functions that need to be executed optimally to assure the success of knowledge utilisation (Folkens & Spiliopoulou, 2004).

2.1.1.2.6 Knowledge preservation

Knowledge that has been identified needs to be stored in appropriate manners. By storing knowledge, knowledge is able to be used for further reference. Inappropriate knowledge preservation can lead to a huge lost, both in time and resource (Folkens & Spiliopoulou, 2004).

2.1.1.3 Impact of KM

The implementation of KM is able to influence organisational process. KM is able to reduce the frequency of process interruption due to lack of knowledge support or access. Moreover, KM prevents organisation to re-analyse and re-solve previously examined problem (Wei, et al., 2002). Thus, the organisational process is able to be executed in more effective and efficient manners. KM practice also enables organisation to execute process in a creative and novel fashion. This event is identified as improvement in the degree of process innovation.

KM practice enables organisation to improve the effectiveness and efficiency of process by facilitating them to determine and select the most suitable approach to execute a process (Becerra-Fernandez, et al., 2004). This selection can be made based on knowledge about best practice and standard operating procedure that are identified and documented via KM practice. In contras, poor KM practice can make organisation repeat the same past mistakes, and unprepared to face the up coming issues. Figure 2.4 summarises the knowledge impact on organisation process.

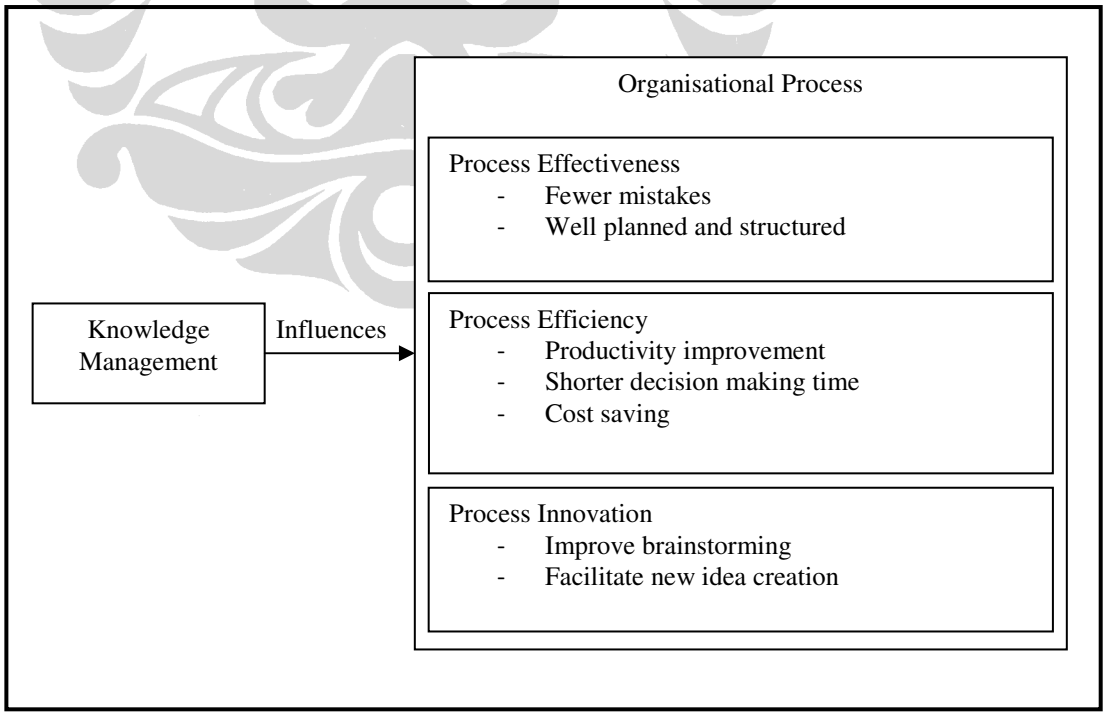

Figure 2.4 KM Impacts Organisational Process. (Simplified from Becerra-Fernandez, et al. (2004))

The performance of KM impact on organisational process can be measured using three dimensions. The dimensions are: efficiency, effectiveness, and innovativeness of process (Becerra-Fernandez, et al., 2004).

Enhancement in efficiency means to reduce task or project cost through the use of IT. Efficiency task or project does not change the objective of the action, but it is rather to achieve the same objective with lower cost and faster execution time and cheaper cost (Brown, et al., 2005). Effectiveness task or project seeks to improve performance by executing it in the most suitable way using the best possible decision (Brown, et al., 2005). Innovative project refers as doing project in different way that is creative and novel (Becerra-Fernandez, et al., 2004). The figure below shows explicitly how those dimensions connect with organisation process performance.

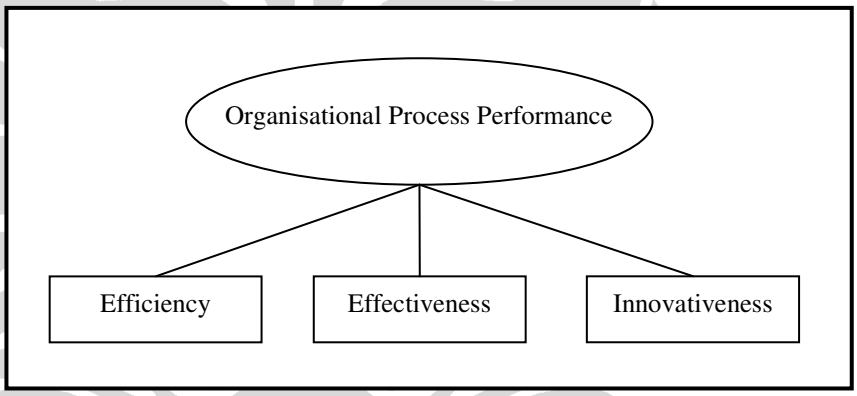

Figure 2.5 Organisational process performance components.
(Taken from Becerra-Fernandez, et al. (2004))

2.1.2 Knowledge Management System

As a tool to implement KM initiative, KM system is needed by the organisation. By adopting KM system, KM initiative can be implemented in a way that is effective and efficient. Detail explanation on KM system is stated on the following section.

2.1.2.1 Definition and goals

Knowledge awareness is important for organisation to sustain its competitive advantage. To be able to compete, to increase productivity, and to promote efficient and effective working habit, organisation need to identify, share and protect its knowledge inventory. For that reason, such an information system is needed by the organisation. KM system helps organisation to manage its knowledge assets optimally (Tseng, 2008) and in a more effective and efficient way (Tsai & Chen, 2007). According to Alavi & Leidner (2001), KM system's objective is to support the creation, transfer and application of knowledge in organisation. It enables users to assign meaning to information and to capture their knowledge in information (Alavi & Leidner, 2001).

The fact that knowledge has become a critical asset for promoting the organisation future performance makes organisation putting so much effort on the KM system implementation. According to Tseng (2008), the implementation of KM system needs to follow certain conceptual model. Figure 2.6 shows KM system deployment conceptual model as stated on his paper.

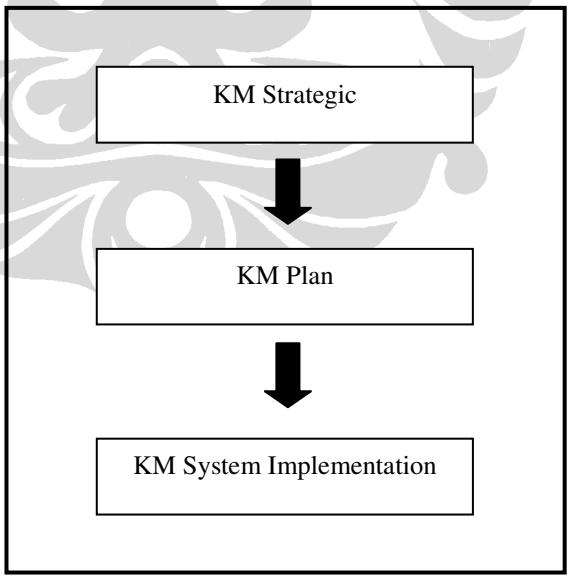

Figure 2.6 KM System Deployment Conceptual Model. (Simplified from Tseng (2008))

The first stage of KM system implementation is KM strategy. KM strategy focuses on knowledge identification which is very necessary for organisation to obtain relevant knowledge to its business process. Source of knowledge can be from inside the organisation (internal environment) or from outside (external environment). It is the role of top managers in the organisations to determine both internal and external environment of the organisation to understand its value, its strength, and its weakness. Thus, the analysis is very important for the organisation to appropriately implement a KM system that is able to contribute to organisation's sustainable competitive advantage.

KM plan is the second stage of KM system deployment conceptual model. After designing such strategy, organisation is able to create a suitable plan to guide the process of KM system implementation. The design of KM plan should cover business's workflow and detailed functionality that is expected from KM system (Tseng, 2008). People arrangement, infrastructure design and knowledge content are also essential to be included in KM plan to achieve complete and successful implementation (Tsai & Chen, 2007).

KM plan can be implemented in several methods. Therefore, organisation needs to adjust the KM system implementation with organisation core competency, nature of product, organisational culture and structure, company size and process, existing infrastructure, and availability of resources. The implementation of KM system should be inline with the overall organisation objective (Tseng, 2008). The effective implementation of KM strategy also involves clear definition of knowledge need and pattern to motivate knowledge worker (Tseng, 2008). This is due to the reason that change is hard to be accepted by the organisation, and it takes time for changes to be effective and beneficial. Therefore, organisation needs to realise that KM system implementation not only requires organisation to build such a hard technical infrastructure, but organisation also need to pay attention to soft or social aspect of KM. Afterward, technical and social process may interact in complementary to shape the KM effort (Tsai & Chen, 2007).

In the end, KM system should be able to facilitate all KM activities; which are knowledge identification, knowledge acquisition, knowledge creation, knowledge distribution, knowledge utilisation and knowledge preservation. Moreover, KM system is also required to be able to support organisational decision making and strategic planning.

2.1.2.2 Types of knowledge management system

Types of KM system may vary based on KM activities. It is not necessary for a single KM system to be able to support all KM activities. KM system may utilise multiple KM mechanisms to perform its KM activities. Organisation can choose which KM system that will be implemented based on its core competency, nature of product, organisational culture and structure, company size and process, existing infrastructure, and availability of resource (Folkens & Spiliopoulou, 2004; and Tseng, 2008).

2.1.2.2.1 Knowledge identification

The process of retrieving knowledge, both tacit and explicit, from inside the organisation can be done using certain types of knowledge management system called knowledge identification system. The essence of this system is to help organisation to identify or capture knowledge. Several examples of knowledge identification system are: ontology-based system, knowledge map, search engine, and other information retrieval technology (Folkens & Spiliopoulou, 2004). In addition, rule-based expert system is useful for capturing well specified procedure (Tsai & Chen, 2007). This system is used by organisation managers as the one whom responsibility to make knowledge visible for the entire organisation (Tseng, 2008). The lack of knowledge transparency causes inefficient decision making and redundancy.

2.1.2.2.2 Knowledge acquisition

To be able to facilitate knowledge acquisition, KM system needs to have access to organisation external environment. System that is able to facilitate knowledge

acquisition is database system that contains external sources such as online journal or other online periodic publication that can contribute to organisation knowledge acquisition initiative. In the organisation, manager uses this system to make both internal and external knowledge visible for the organisation, he/she benefits from system

2.1.2.2.3 Knowledge creation

Knowledge creation, or also known as knowledge discovery can be executed automatically through the use of information system. There have been many advance information systems that are used in the process of knowledge creation (Tsai & Chen, 2007). Several types of information systems that responsible for knowledge creation are: repository of information, data mining techniques and several kinds of learning tools that facilitate voice and video conference, brainstorming retreat, collaborative problem solving, joint decision making, and collaborative creation of documents (Tsai & Chen, 2007) (Folkens & Spiliopoulou, 2004; and Becerra-Fernandez, et al., 2004). IBM Intelligent Miner is one example of text mining technologies that can be used for knowledge discovery that is able to represent knowledge source in well defined context based on clustering, classification, and visualisation of document.

Although the creation of knowledge is not limited to one division in organisation, these tools are primarily utilized by research and development division in the respective organisation. This type of knowledge management system helps organisation to combine existing knowledge so that conclusion can be drawn and new tacit and explicit knowledge can be created.

2.1.2.2.4 Knowledge distribution

Knowledge distribution, or also known as knowledge sharing is an important activity in knowledge management. Through knowledge discovery, knowledge that has been obtained through previous activities can be shared across the organisation. In addition, knowledge distribution allows knowledge to be transferred to system user, so that the user is able to understand and implement the

corresponding knowledge. Several tools that support knowledge distribution are: knowledge directory, discussion forum and electronic bulletin board, semantic annotation of documents and other communication technology in general (Folkens & Spiliopoulou, 2004). In addition, Lotus Learning Space and Lotus Raven applications are useful for knowledge distribution in the sense of virtual communities, expert networks, and expert yellow pages (Maier & Remus, 2001). There also exist applications that allow knowledge to be delivered automatically to participants. For instance GrapeVine application called push-oriented KM system (Maier & Remus, 2001).

Knowledge sharing involves individual, group and division in an organisation. Therefore, this tool has to be accessible for any one who requires its service across the organisation.

2.1.2.2.5 Knowledge utilisation

Knowledge contributes in organisational activities as a way to avoid mistake, to accelerate decision making, to prepare for action, to save product development cost, and in general to help organisation to survive in competitive business environment. Organisation needs to transform knowledge to real action and apply it to organisational activities. Knowledge utilisation system, or also known as knowledge application, system supports organisation to apply knowledge effectively. Any expert's knowledge embedded in expert system, decision support system, and troubleshooting system based on the use of case-based reasoning technology are instances of knowledge application system that can be used by organisation (Becerra-Fernandez, et al., 2004).

Anyone in the organisation can make use of this system in order to get some direction and to support their daily routine. In addition, knowledge utilisation in term of collaboration through expert modelling, decision making, and insight sharing can be done with aid from Lotus Notes application (Maier & Remus, 2001).

2.1.2.2.6 Knowledge preservation

Knowledge that has been identified, acquired, and created needs to be made available and stored for time to come. Therefore, the concept of knowledge preservation is essential. IT allows organisation to do knowledge preservation through the use of information retrieval technique, organisation data base and memory, data warehouse. Moreover, knowledge preservation, in the sense of document management with additional functionalities to enable classification, knowledge element's structurisation and advance searching methods also can be done through the use several systems such as Hummingbird Fulerum Server and OpenText Livelink (Maier & Remus, 2001).Knowledge management officer is the one in the organisation who is responsible to assure knowledge preservation has been done in correct manner.

2.1.2.3 Knowledge management system performance measurements

Those are three components that need to be taken into account when measuring KM system performance. Those components are relevancy, quality and availability of KM system (Folkens & Spiliopoulou, 2004).Relevancy assesses if KM system contains knowledge that meets the organisation's need and KM system development objective. Quality indicates that the content of KM system is sufficient for the organisation, while availability assesses whether the KM system is accessible by individual who requires its service. Relationship between these three components and KM system performance can be seen on Figure 2.7.

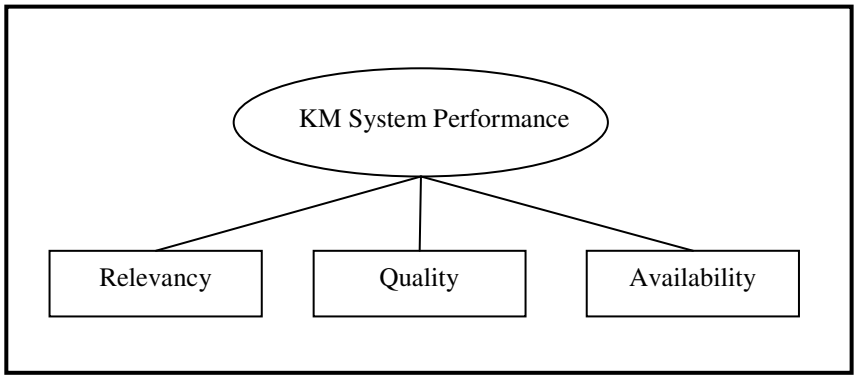

Figure 2.7 KM System Performance Components (Folkens & Spiliopoulou (2004))

2.1.3 Bank X's Organisational Process

Organisation has shown an enormous concern on KM topic. In Indonesia, bank industry is an instance of organisation that shows significant attention on this issue (eBizzAsia, 2002). As this paper discusses the impact of KM system in a Bank X, it is necessary to know the nature of it. Bank X's definition, activity and link to KM and KM system in are explained in the next subsections.

2.1.3.1 Definition

In the era of modern economic, when public realise the importance of a reliable monetary-based public institution, bank gains public trust as an institution that able to safely guard public funds (Usman, 2003). In literature, bank is defined by Bank Indonesia 2007, is an organisation that collects fund from the public in term of saving, and re-distribute it to the public in the form of credit or any other format with aims to increase public's welfare. Other definition explains bank as organisation that primarily works to serve public in monetary section (Bank Indonesia, 2007).

Established in October 1998 from merger of four state-owned banks, Bank X is the largest bank in Indonesia. The judgement is made based on its assets, loans and total deposits. Its assets were Rp 261,9 trillion per March 2002, or around 24% of overall assets in the banking system in Indonesia . With total employees of 21.000 serving 909 branches, Bank X serves more than 6 million corporates, individual customers as well as small and medium size enterprises in Indonesia via comprehensive range of financial solutions (Bank X, 2005). In addition, according to Asiaweek (2001) Bank X is the largest bank in Indonesia, number 4th is ASEAN, and number 73rd in Asia and Australia.

As corporate-customer-base-bank, Bank X represents the core of Indonesia economy and export sector. Bank X's vision is to be the most trusted and preferred bank in Indonesia. There are several missions that were established inline with the organisational vision. Among those missions are: (1) to be market oriented, (2) to enhance professionalism, (3) to maximise returns of stakeholders,

(3) to have an open management approach , and (4) to demonstrate concern for the community and the environment.

Since its establishment, Bank X has successfully turned around its balance sheet, its profitability and its way of doing business to become the preferred bank in Indonesia (Bank X, 2005). One of Bank X's greatest achievements has been the complete renovation of its technology platform. With an investment of US$ 23 million for new equipments, Bank X has a single technology platform that creates a unified interface for customers to increasing the efficiency of back office processing. The Bank is mid-way through its three-year US$ 200 million program to up-grade its technology platform, which will provide significantly improved products and services to its customer.

It is the goal of every bank, as an organisation that is based its business on serving people, to bring the finest service to its customer. In order to successfully perform all banking activities, Bank X takes learning as a part of its organisational process. KM initiative was then settled by the organisation, so that Bank X is able to achieve knowledge excellence and to become a successful learning organisation.

2.1.3.2 Bank X knowledge management

Bank focuses it business on selling product and service. The operation of bank has to follow certain rules that have been stated in Indonesian law. In relation to that, bank sets a high standard in every operation that is conducted within the organisation. Bank is competing to gain public trust as a way to reach satisfy and impress its current and potential customer.

Bank uses KM initiative and KM system to know which customer and which product that is beneficial for the organisation, as well as to manage risk and to pursue initiative as learning organisation (D'Silva & Nalbantoglu, 2007; and Ackermann, Au Yeung, & van Bommel, 2007). The increasing complexity of product makes bank competes on the depth of their intellectual skill capital to be able to compete in the market. Thus, through KM system, bank is able to gather

organisational knowledge, facilitates knowledge sharing among employee so that people with deep, specific skill and relationship can be identified.

Bank X's KM initiative is started since year 2003. The aims of KM initiative in Bank X is to create a learning organisation that enables its employee to allocate, share, utilise knowledge across the organisation despite time and geographical gap, as well as to increase its employee's learning motivation. Department that is responsible for all KM initiative in Bank X is Learning Center Group. Learning Center Group is a department that responsibles to conduct human resource development project through learning and training. Exact position of Bank X under the organisation can be seen in Appendix 2.

Bank X launched its KM system: Learning Management System (e-Learning) in late 2003. A total of US$ 7 million were invested by Bank X during the system development and implementation. The e-Learning system is intended to facilitate knowledge storing and learning process through the electronic media, where resources can be accessed through the internet, intranet, extranet and CD Room (Bank X, 2003).

It is realised by the organisation that learning is such an importance process for organisation to be able to keep up with the market development. Therefore to enable learning process, all learning resources, including organisational knowledge, have to be made available. Bank X also realises that knowledge is an essential organisation intangible asset that provides complete learning values. To be able to capture all the existing knowledge in the organisation, Bank X adopts the KM concept. KM concept is essential for Bank X, because it enables the creation of learning environment and unlocks the organisational knowledge assets. At the end, organisation aims to create a learning organisation can be achieved.

The development of KM initiative in Bank X is based on the Knowledge Management and Knowledge Management System concept by Alavi and Leidner (2001), knowledge-based theory of the firm by Sveiby (2001) and Nonaka & Takeuchi (1995) idea on the knowledge-creating company. By adopting Alavi & Leidner (2001) paper, Bank X utilises the most of its KM initiative to: (1) make

knowledge visible to the organisation, (2) develop a knowledge-intensive culture by encouraging knowledge sharing behaviours and proactively seeking and offering knowledge, (3) build a knowledge infrastructure to support previous objectives.

Bank X treats knowledge as state-of-mind, and object. State-of-mind refers to knowledge as the state of understanding. Therefore, Bank X's KM initiative involves enhancement in individual's learning and understanding through the access and creation of knowledge. Whereas treating knowledge as object makes Bank X's KM initiative also involve building and managing knowledge stock.

In Bank X, KM initiative is designed to enable knowledge sharing between employee, organisation, and customers, as shown on Figure 2.8 below. This model is taken from Sveiby (2001), where knowledge is transferred between external structure, individual competence, and internal structure.

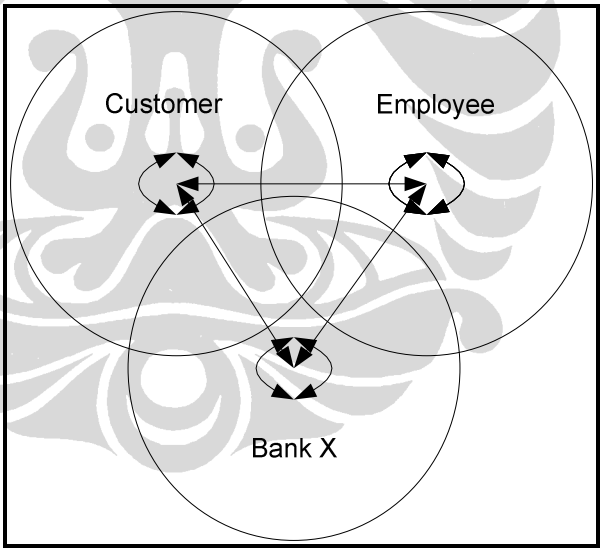

Figure 2.8 Knowledge Transfers in Bank X. Developed from Interview.

As a knowledge-creating company, Bank X looks up to best practice of KM initiative and implementation that are written by Nonaka and Takeuchi (1995) on a book titled The Knowledge Creating Company. Although, Bank X stresses its KM initiative on knowledge preservation, and sharing, it also wants to elaborate knowledge creation concept in order to foster innovation within the organisation.

Therefore, The SECI Spiral model on Nonaka & Takeuchi (1995) is adopted in Bank X's KM initiative.

In practice, there are three main components that elaborate Bank X's KM initiative; which are (1) knowledge architecture, (2) knowledge infrastructure, and (3) knowledge culture. These components are mutually merged in order to pursue knowledge excellence in the implementation of KM concept, as it is shown in Figure II.10.

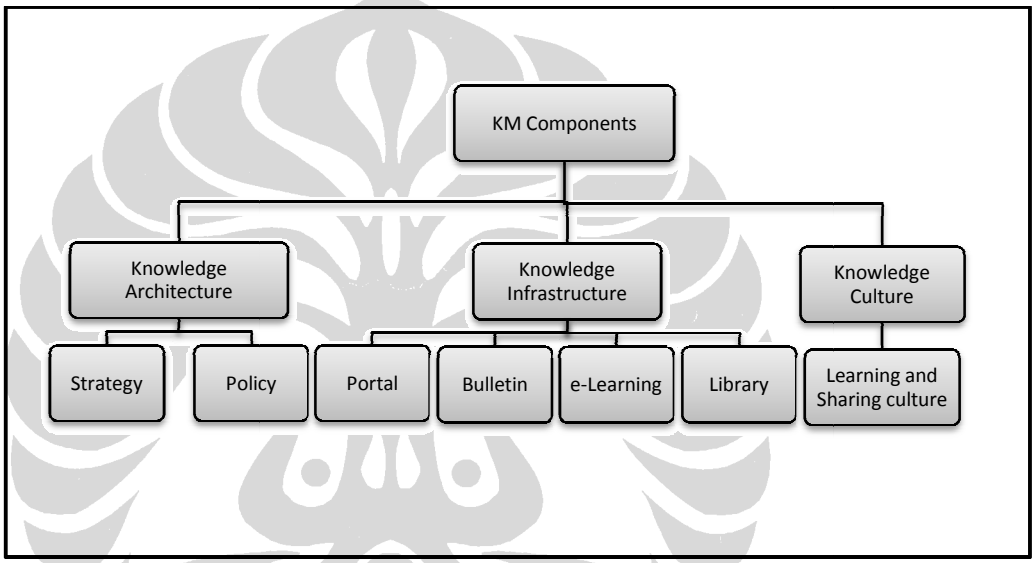

Figure 2.9 Bank X Knowledge Components. (Adopted from Bank X report (2008))

2.1.3.3 Bank X knowledge management system

To be able to create real wealth, Bank X combines organisation value with technology. It adopts instance of KM systems called e-Learning to facilitate knowledge capture, distribution and preservation. To be able to be distributed and preserved, knowledge needs to be captured. The process of knowledge to be captured and preserved before it is ready to be distributed takes at least two and a half months. The processes are shown on the diagram below.

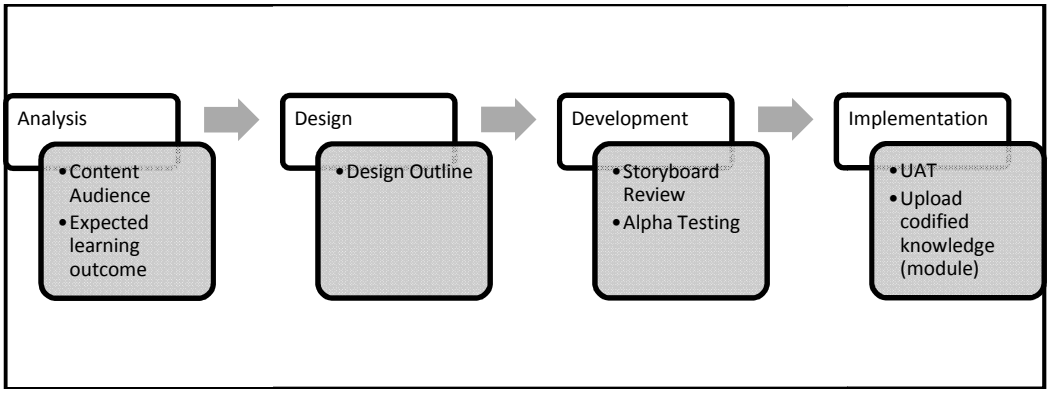

Figure 2.10 Knowledge Capture Processes

At the analysis stage, Bank X identifies any required knowledge to be codified. The initiation can be started by any department in the organisation, or initiated by Bank X's Learning Center Group as department that responsibles for all KM initiative. The expected learning outcome from the knowledge is also noted.

At the design stage, developer decides how the knowledge is supposed to be documented. The sources of knowledge can be from expertise, organisational best practice, and other sources. A story board technique is used during the development stage is used to model the knowledge. At this stage, knowledge is being documented. Any supporting materials (e.g. animation) are also developed to support knowledge transfer and for the ease of learning. Alpha testing is then being conducted by Bank X Learning Center Group. In the implementation, the codified knowledge (module) and its attribute are tested to a group of user. This is to make sure that knowledge has been codified correctly and in proper format. If everything is fine, then module is ready to be uploaded to the e-Learning system. Appendix 3 provides snap shots of the system, and the list of exiting modules.

.

In addition, the system also provides online assessments on user knowledge prior and after reading the learning module. There are three assessment problems that are available via the system. Those are: (1) Assessment of *Perkreditan* Commercial Banking, (2) Assessment of *Perkreditan* Corporate Risk Group, and (3) Assessment of *Perkreditan* Commercial Risk Group.

2.2 PAST RESEARCH

According to Commerce Bank success story that is restated in Turban Aronson, & Liang, (1995), KM initiative and KM system are keys to unlock its most important asset which is knowledge that is stored in either file cabinet or its associate's head. KM system is believed to be able to provide an instant and quick solution to Commerce Bank's knowledge problem that would be beneficial not only to the bank's employee but also to its client. In fact, the implementation of KM initiative in Commerce Bank reduces transaction cycle time, decision making time, and improves bank's capacity as well as minimise labour and process cost.

Other research by Dharmawan (2007) is stated that IT plays a great role in KM initiative. IT is able to automate the KM process. Through the use of KM system as IT application that dedicates for KM activities, KM worker is able to capture, create, disseminate, and store knowledge in improved manners compare to the manual one. Also stated in this paper, the effort to implement KM system in organisation much depends on organisation structure, culture, and infrastructure (Dharmawan, 2007) .

2.3 RESEARCH HYPOTHESIS

In order to conduct this research properly, a hypothesis has been arranged. Hypothesis is needed as a framework of developing research strategy to collect data and sample (Tan, 2002). Based on problem statement, existing theories, and past research, hypothesis for this research can be stated as follow: It is likely that KM system performance positively influences organisational process performance.