Development of a Strategic Knowledge Management Model for Thai Universities

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Introduction. Knowledge management (KM) strategy is an operating framework or plan that describes how an organization will effectively operate KM. Most Thai universities have not been able to successfully implemented KM due to a lack of good KM strategic planning. This study aimed at developing a KM strategic model for Thai university management by using Khon Kaen University (KKU) as a case study. The research approach is based on the components of KM strategic development.

Method. The mixed-research approaches have been used in this study.

Results. KM processes at KKU focused upon sharing knowledge among staff. KKU lacked the ability to storage, organize, capture and codify knowledge. KM was relatively new for most staff, therefore KKU has many initial problems developing a KM program. Most staff members did not understand KM and resistance was obvious in the lack of sharing and resistance to learning. KM processes that should be immediately implemented in order to enhance the effectiveness of KM at KKU are knowledge storage, organization and capture processes. The result proposes that KM strategy for KKU should be a hybrid strategy which focuses on both a personalization strategy and a codification strategy. A personalization strategy should be in the leading role and codification should be in the supporting role. These strategies, however, still need more factors to bring about a successful application; including commitment of the culture, information technology, staff, organization management, leadership, CKO and KM team, KM process, and useful measurements.

1. Background of the research

Knowledge Management (KM) has been defined as the process by which an organization creates, captures, acquires, and uses knowledge to support and improve the performance of the organization (Kinney, 1998). It's a tool that can improve organizational performances, lead to better potential for competitive advantage and enable the organization to embark upon new challenges. Interest in KM continues to grow because of the belief that creation and transfer of knowledge is essential to long-term organizational effectiveness. For-profit organizations have many identifiable reasons to practice the KM process., including stakeholder interests in profit ability as well as return-on-investment which require this behavior. In most circumstances, given a competitive environment, a company that has a poor KM system will be inefficient and ultimately its products will become obsolete and competitors will absorb its market share (Hurley et al., 2005).

Universities, as well as other non-profit organizations committed to educational missions, are facing similar challenges that many other non-profit as well as for-profit organizations face. The

increase of external pressures such as: competition in higher education, university internationalization, university rankings, decreasing student population, demands for high quality graduates etc., have forced universities worldwide to seek better strategies for competitive advantages. Universities in Thailand are likewise facing similar forces. Modern organizational management techniques have been introduced, discussed and implemented in many Thai universities with the aim of improving the university's performances. Recently, several universities across the country have implemented KM practices in their university management structure. This is due to the requirement by the Office of Public Sector Development Commission of Thailand, has listed KM as a key indicator in measuring a university's performance. It states that the successful level of KM practice in a university is a primary factor in measuring the university's performance (The Office…, 2007).

In order to successfully implement the KM practice within an organization, it is essential that the KM organizational strategy is well defined and aligned with the organizational strategies. According to the literature reviews, several studies/authors have commented on how to develop organizational KM strategies. The situation and/or problem of why and how KM can be used in an organization must first be identified and analyzed (Zack, 1999). Understanding organizational behavior and how its operations are related to a KM process and practice are extremely important. For example, knowledge creation, acquisition, storage, sharing, distribution and application of that knowledge need to be analyzed to provide the suitable KM processes (Alavi and Leidner, 2001). The analysis of success factors is also critical for KM management in an organization (Zack, 1999). Those issues are essential for the development of a KM organizational strategic plan. However, those previously mentioned studies were based on organizations in a business context and most are in western countries, and may not be specifically applicable to universities in Thailand. This study aims to develop a KM strategic model that is suitable for Thai universities. The majority of this research, including a case study, will be done at Khon Kaen University.

Khon Kaen University (KKU) is one of the largest and best-known public universities in Thailand, established in 1964 as part of a "decentralized" development plan for higher education in Thailand. The mission of the university is to produce graduates, create new knowledge through research and academic programs, provide academic services, and maintain arts and culture in order to meet international standards, as well as be accepted on the international scale. In response to the requirements of the Office of Public Sector Development Commission of Thailand, KKU (as well as other universities in Thailand) has put KM strategies into its corporate strategic plan for the years 2006-2009. In 2006 KKU, in order to improve its performance in finance and accounting management, introduced the first phases of KM into the organization. At that time, since KM was new to the staff, only a few administrators and staff understood KM. According to the annual report of the university, its performance with that KM trial run, the university lacked a good strategic plan for knowledge management (Khon Kaen University, 2007). The former KM Committee of KKU further emphasized that KM's implementation in the university had no clear objectives or goals. In addition, the support staff had little skills or correct understanding of how to effectively implement KM processes, a problem that continues to exist in many other Thai universities.

This study will develop and propose a KM strategic model for Thai university management by using KKU as case study. This important area of study has yet to be researched and fully analyzed. For that reason, this project will focus on creating a KM strategy suitable for use as a model in Thai universities. Moreover, all universities in Thailand, particularly public universities, need to have good KM strategic plans in order to enhance the university's high performance in response to requirements of the Office of Public Sector Development Commission of Thailand. It is anticipated that the results of this study will be useful in the development of KM strategies for universities in Thailand.

2. Research objectives

The purpose of the study is threefold: first to study the current situation and/or problems of knowledge management at KKU; second, to identify and analyze the development of knowledge management processes including critical success factors for knowledge management at KKU; and third,

to develop and propose an appropriate knowledge management strategic model for KKU that can also be applied in other universities in Thailand.

3. Related literature reviews

A knowledge management strategy is an essential element for successfully implementing, deploying, and benefiting from KM initiatives (Zack, 1999). It is, in simple terms, an operating framework or plan that describes how an organization will manage its knowledge better for the benefit of that organization and its stakeholders (Skyrme, 2002). Zack (1999) described KM strategies as resource-based strategies, which allowed firms to position themselves strategically based on their unique and valuable organizational resources and capabilities. And a good knowledge management strategy is closely aligned with the organization's overall strategy and objectives (Skyrme, 2002). In addition, a KM strategy outlines the process, the tools, and infrastructure required for knowledge to flow effectively. The concept of KM strategy components is shown in Figure 1
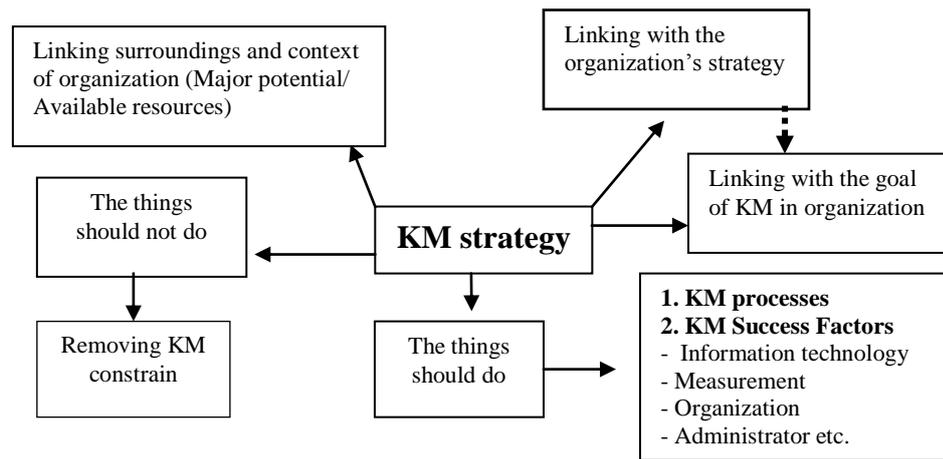

Figure 1 The concept of KM strategy components

3.1 Types of knowledge management strategies

Maier and Remus (2003) suggest a process-oriented knowledge management approach to bridge the gap between human-oriented and technology-oriented KM. Moreover, the study of Hansen et al. (1999) divides KM strategies into two types: the codification strategy and the personalization strategy. The codification strategy (or people-to-document) approach develops a strategy centered on the computer. Organizations use information technology to capture, store, disseminate, and allow for the reuse of knowledge. This approach allows many people to search for and retrieve codified knowledge without having to contact the person who originally development it. Knowledge can be accessed and used easily by anyone in the organizations. In contrast, the personalization strategy (or people-to-people) approach is centered on dialogue between individuals, not those knowledge objects in a database. With this strategy, knowledge is closely tied to the person who developed it and is mutually shared, mainly through direct person-to-person contacts. The main purpose of computers, in this approach, is to help people communicate knowledge, not necessarily to store it. However, this study found that companies used both the codification and the personalization approaches. They maintain that effective firms excelled by focusing on one of the strategies and using the other in a supporting role. However, they did not use both approaches to an equal degree.

The various knowledge management strategies are identified by Choi and Lee (2003) as: the system-oriented style; the human-oriented style, and the dynamic style. Simply put, the system-oriented style places more emphasis on codifying and reusing knowledge; the human-oriented style is on acquiring and sharing tacit knowledge and interpersonal experience; and the dynamic style emphasizes both explicit and tacit methods.

3.2 The problems of KM implementation

According to Choi (2000), a good knowledge management strategy is enhanced through the removal of organizational constraints. In addition, surveys of barriers to knowledge management success in an organization have found that those barriers include : lack of supportive organizational culture (rewards/recognition), lack of budget, information and communication technology, organizational administration (organizational structure, functional silos, staff turnover, individual vice team emphasis, wrong personnel placed), administrators (lack of top management commitment), staffs (lack of ownership, lack of perceives need, resistance), KM process (lack of linkage between KM activities and organizational performance and standardized processes), measuring (lack of effective measuring KM tool) (Keyser, 2004, Martin, 2004)

3.3 *Knowledge management process and tools*

According to Small and Tatalias (2000), strategies designed to leverage organizational knowledge must address the collection/acquisition, storage, distribution, and utilization of internal organizational knowledge in order for initiatives to succeed. In addition, other theoretical and practical KM processes were surveyed in order to develop a simplified list of KM processes based on the diverse lists found in the literature. It was found that twelve KM processes were recorded in the literature. The processes included knowledge identification, analysis, generation, acquisition, gathering, storage, organizing, codification, refinement, dissemination/transfer/communication, assimilating, and application. For the purpose of this research, the twelve KM processes identified from the literature have been regrouped by reducing the perceived duplication of similarities. Seven KM processes are used in this research. They are: knowledge identification; knowledge creation or acquisition; knowledge capture/codification; knowledge organization; knowledge storage; knowledge distribution; and knowledge application (Demarest, 1997, Nonaka, 1994, Probst et al, 2001). According to Roman-Velazquez (2004) technologies and support tools processes to help generate, organize, and share knowledge are: search engines**,** brainstorming sessions**,** data mining, staff meetings**,** storytelling**,** directory of expertise**,** best practices**,** communities of practice and lessen learned system**,** etc.

3.4 *KM Critical Success Factors*

To construct a knowledge management strategy, organizations need to study critical success factors for helping develop a core area to process knowledge management effectively. A number of research works were examined for KM success factors, including the Alazmi and Zairi (2003) synthesis which describe fourteen research works conducted from 1996 to 2002. Keyser (2004) synthesizes research works that were conducted from 1992 to 2002, and identifies thirty-five KM factor elements. Martin (2004) studied KM key success factors in universities. The seven groups of KM success factors found and used in this research include: organizational culture, information technology, organizational management, leadership, KM processes, KM measurement and KM strategy. (Chait, 2000 ; Alazmi and Zairi, 2003; Roman-Velazquez, 2004, Keyser, 2004; Martin, 2004).

4. Research methodology

Methodologies used for this study are, mixed-research approaches, qualitative and quantitative research systems. The details of research methodology are as follows:

Research processes	Data collection (and research tools)	Target population (using purposive sampling technique)	Data analysis
Step 1 To study the current situation and problems of knowledge management in Khon Kaen University	in-depth interview (structured-interview questions)	1. University top managers (4) (President, Vice President for Administration, Vice President for Human Resource Affairs, Chief Knowledge Officer (CKO)) 2. KM Committee (12) 3. Heads of Administrative/ Supporting Departments (29)	Descriptive analysis
	Survey method (questionnaires)	Heads of Administrative/ Supporting Units (154)	Statistical analysis (frequency, percentage, mean, and standard deviation

Research processes	Data collection (and research tools)	Target population (using purposive sampling technique)	Data analysis
Step 2 To identify and analyze the needs of the KM process development and the critical success factors for KM in KKU	in-depth interview (structured-interview questions)	1. University top managers (4) 2. KM Committee (12) 3. Heads of Administrative/ Supporting Departments (29)	Descriptive analysis
	Survey method (questionnaires)	Heads of Administrative/ Supporting Units (154)	Statistical analysis (frequency, percentage, mean, and standard deviation)
Step 3 To develop and propose the KM strategic model for KKU	Survey method (questionnaires)	Selected representatives of university top managers, KM committee, Heads of Departments/unites (20)	Statistical analysis (IOC (Index of Consistency))
	Experts' evaluation	Experts (2)	Descriptive analysis

5. Results of the study

5.1 Current operation of knowledge management at KKU

KM was started at KKU at the end of year 2004. KKU by applying and operating KM in many ways.

University's Policy. The university's four-year strategic plan (2007-2010) focuses on Knowledge Management by using tools that can enhance and develop KKU into a learning organization.

Needs of Applying KM. The Office of the Public Sector Development Commission of Thailand requires every public organization to apply KM in order to develop into a learning organization. The annual evaluation and follow-up of each public university is inspected by the Office of the Public Sector Development Commission of Thailand. Therefore KKU, as a public organization, adopted a policy that requires every faculty to practice KM (agreement from the dean's meeting).

Plan of Knowledge Management at KKU. In respond to the requirement of the Office of Public Sector Development Commission of Thailand, KKU has developed KM plans for the year 2006-2009. An initial goal of KM focuses on improving the performance of support staff in areas such as finance and accounts management.

Structure of Knowledge Management Administration at KKU. KKU established a KM team that is composed of a Chief Knowledge Officer (CKO) and a KM committee. At present, the CKO is the Vice President for Planning and Policy Affairs (Associate Professor Rangsun Niumsanit). Representatives from each faculty and each faculty within KKU are also appointed members of the committee. They are responsible for assisting and providing advice about the KM process.

The Operation of Knowledge Management at KKU. The operation of KM at KKU is as follows:

- Most units have applied KM in the work of support staff, focusing on work enhancement in finance, accounting and purchasing, personnel, policy and plan, buildings and general affairs.

- KKU joined a consortium of University Knowledge Management (UKM). At present, UKM is made up of eight universities and maintains information exchange activities among members every three months.

- KKU has many operations that enhance understanding of KM process for KKU faculty and staff. For example, conferences and training to create KM leaders, Blog writing training sessions, observation of agencies successful in implementing KM, and sending staff to join seminars, such as a KM exhibition.

- KKU had a system of providing rewards to whomever joins KM activities. The rewards were a KM-KKU shirt and public acknowledgement of those who joined the activities.

- At present, KKU attempts to develop activities that encourage the KKU community to recognize the importance of KM by providing new and interesting activities such as a KM forum, show and share fairs of best practices, and storytelling of retirees' achievement.

Tools and Knowledge Management Process at KKU.

Despite all of the afore mentioned initial incentives, the KM processes at KKU have not yet been effectively implemented. Therefore, in order to implement KM, KKU has now applied the method of KM process, based on the tool from the Knowledge Management Institute's (KMI) "Platoo Model".

This tool focuses on sharing knowledge among staff. Thus KKU now encourages staff to create and acquire knowledge by knowledge sharing among individuals and groups through the use of various KM tools. Examples include: storytelling, working groups/communities of practice, staff meetings/group meetings, brainstorming, one-on-one conversations, mentoring/tutoring, best practice, and online discussion via Web blog.

However, KKU has not been able to integrate staff knowledge into its organization. This is because KKU doesn't have the mechanisms in place for storage, organization, capturing and codifying the working knowledge of staff. However, KKU does have the potential for an information technology infrastructure to support the storage and dissemination of knowledge in the organization.

5.2 Problems of Operating Knowledge Management at KKU.

In order to implement the KM process, respondents have indicated that KKU has many problems that can cause unsuccessful KM practice. The results showed that the high level problems, ranked from the highest mean, are: KM processes ($\bar{x}$ = 2.92); information technology ($\bar{x}$ = 2.77); organizational culture ($\bar{x}$ = 2.66); staff ($\bar{x}$ = 2.58); and organizational administration ($\bar{x}$ = 2.56). The biggest problem, identified in the survey, is that most staff members did not understand the KM process since it was new to KKU staff. They had little or no training about KM and did not know how to apply KM. There are various reasons, such as the fact that KKU does not have a well-established KM policy and lacks a systematic and standardize KM process to guide staff. In particular, some old staff at KKU find it difficult to change their behavior, indicating a lack of learning and sharing culture. The problems also included KKU's lack of a qualified KM team to advise staff on practicing KM. In addition, the information from the respondents who are heads of administrative units indicated that the most important issue was that supporting staff had heavy workloads. This can lead to ignorance of and resistance to the importance of KM since they think KM does not affect their daily routine so sometimes they ignored the practice. Furthermore, KKU continues to have a problem regarding information technology that lacks a knowledge management system for knowledge storage, including a lack in the operation of KM measures.

5.3 The need of the Knowledge Management Process and tools at KKU

This study of the need for KM processes and tools at KKU found that:

Seven steps are necessary for a KM process to succeed at KKU. Those KM processes, if promptly implemented could preserve the organizational knowledge by capturing and codifying, storing, and organizing knowledge. The details of the need for implementation in each KM processes are as follow:

❶ *Knowledge identification.* Identify and correct the knowledge gaps that are necessary to support staff daily work successful.

❷ *Knowledge creation / acquisition.* KKU should encourage and allow for the exchange of ideas and knowledge among individuals and groups and reward staff for new ideas and knowledge.

❸ *Knowledge capture / codification.* KKU should establish mechanisms to absorb and transfer the knowledge of staff, particularly retirees, to preserve meaningful ideas of staff and document them for further development.

❹*Knowledge storage.* Gather and formalize existing internal enterprise and external knowledge. This primarily refers to policies and procedures, best practices, lesson learned and expertise maps to be preserved for present and future use. Databases, repositories and information technology applications should be implemented to store knowledge for easy access by all staff.

❺ *Knowledge organization.* KKU should have mechanisms for filtering, cross listing and integrating different sources and types of knowledge. Those processes would allow for applying the knowledge learned from experiences and match sources of knowledge to problems and challenges.

❻ *Knowledge distribution.* Establish effective and efficient methodologies for distributing knowledge to staff. KKU should have knowledge in the form that is readily accessible to staff who need it, in the form of intranets and internet. And send out timely reports with appropriate information to staff.

❼ *Knowledge application.* KKU should establish different methods for staff to further develop their knowledge and apply it to new situations. Additionally such knowledge is critical to competitive needs and can quickly link sources of knowledge to problem solving.

Tools for creation/acquisition and transfer of knowledge

There are two types of tools for creation/acquisition and transfer of knowledge.

Information technology tools: Online discussion via Web blog; Data mining (Extracting meaningful information from masses of data); Expert locator / Directory of expertise; Document management / Content management systems; and Lesson learned systems.

Process tools: Benchmarking / Best practices; Working groups / Communities of Practices; KM Forum; Storytelling; Brainstorming sessions; and Peer interaction.

5.4 Critical success factors for encouraging KM at KKU

The results show that KKU needs various critical factors in order to develop a successful KM plan within the university. Three factors, ranked highest to lowest, based on in-depth interview and survey, are: organizational culture, KM measurement, and information technology. The details of each KM critical factors at KKU are as follows:

- *Organizational culture.* The respondents indicated that the most important KM critical factor within KKU is the organizational culture, KKU should encourage a strong knowledge sharing culture and motivate staff to learn and share.

- *Information technology (IT).* KKU should provide effective KM systems (KMS) in order to build a knowledge database and repository in order to provide accessible, accurate, and usable organizational knowledge. Furthermore, having sufficient financial and human resources is essential to support Information systems, software and networks. Improvements in the IT infrastructure can support the Knowledge Management process.

- *Staff.* KKU should develop in staff an understanding KM tools and processes. This includes an able staff who understand KM so that the tool can improve performance.

- *Organizational administration*. KKU should evolve from a rigid hierarchical structure to a process-oriented structure. The management should focus on empowerment. KKU should have mechanisms in place to reward staff who are consistent with learning and knowledge sharing. This process would enable staff to work as teams and includes time available for staff to share information.

- *KM Administration Structure*. KKU should develop a qualified and ideal KM team to lead and develop effective KM operation at the university. The structure of KM administration of KKU should be composed of a CKO (Chief Knowledge Officer), KM members from different faculties, and KM faculty members with expertise in the method of KM processes, thereby enabling a high potential to drive KM successfully.

- *Administrators*. Administrators must understand, support, and participate in KM achievements, have strong commitment to KM initiatives, establish clear KM strategies, and vision, as well as a knowledge of process that encourage practice. Those administrators should work to maintain an environment that motivates and enables staff to create and share knowledge.

- *KM process*. KKU should have a standardized KM process that is designed to provide guidelines for staff. The KM process must be easy to use and understand. In addition, KKU should encourage staff to integrate KM into their work.

- *KM measure*. KKU should measure the impact of KM activities for performance, including benefits such as reduced staff work time and increase quality of products and service.

- *KM strategy*. KKU must establish a clear vision and strategic plan for use of a knowledge management approach. This KM strategy should address a KM structure that combines IT, process, measures, and roles and responsibilities.

6. Proposed KM strategic model for KKU

KM strategy for KKU should be a hybrid strategy which focuses on both a personalization strategy (or people-to-people) and a codification strategy (or people-to-document); one as the leading strategy and one as the supporting strategy. This study suggests that a personalization strategy (S1) should be

in the leading role and codification (S2) should be in the supporting role. With this argument, KKU has a large problem since current practices indicate a lack of learning and sharing culture, as well as a misunderstanding of the KM process by KKU staff. In addition, responses to this survey indicate that a conductive organizational culture is the most important and critical factor in leading a successful KM at KKU. Moreover, the results show that the highest rank, - based on in-depth interviews and survey, of "knowledge creation/acquisition needs - is knowledge shared among staff." Furthermore, CKO and top managers of KKU have stated that "culture is more important than technology", and they make a point that the KM policy of KKU should focus on encouraging staff to integrate KM into their daily work through their own will. Critical success factors also enable the personalization strategy (S1) to not only promote a learning and sharing culture (CSF1) but also alter perception and understanding of KM among staff (CSF2). Additionally, it might be argued that organization management (CSF3) should change to a flat structure, empowerment and personal management style supported by offering rewards and encouragement for more time. These factors can enable the flow of knowledge throughout the staff.

However, the results show that at present the practices of KM process at KKU does focus on knowledge sharing through the utilization of many tools, but lacks the operational structure to capture, store, and organize knowledge. These factors reflect the inability of KKU to effectively retain internal knowledge in the organization. This occurs despite the fact that supporting staff of KKU have high skills and knowledge of their jobs. Thus, a codification strategy is needed at KKU to provide effective teamwork, and the utilization of applicable software. The critical factors supporting this codification strategy (S2) are information and communication technology (CSF4), especially a KM system and a willing team (CSF5) who has the potential of operating a KM system, as well as the ability to capture experts knowledge to be stored in a knowledge database.

Moreover, for successful KM processes, the CKO and a KM team (CSF5) should be responsible for establishing a standardized KM process (CSF8) and KM plan/strategy (CSF7) aligned with the university's strategy and charged with putting it into practice. These initiatives can motivate staff to have the uniform guideline for practicing KM. Without question, leadership (CSF6) is more important. The administrations will be challenged to use their leadership positions and powers in encouraging staff to share and use knowledge in the workplace. This is important with new staff recruitment and orientation, and as a continuing education factor among current members. The model of KM strategy for KKU shown in Figure 2.

In conclusion, KM strategy model for KKU should be a hybrid strategy of which a personalization strategy (S1) is in the leading role and codification (S2) is in the supporting role. The critical success factors for personalization strategy are culture, staff and organization management, and for codification strategy are information and communication technology, and KM team. The other factors including leadership, KM strategy, KM processes, and KM measurement are critical success factors for the whole KM strategy.

7. Conclusion

This KM strategic model can serve as a useful example for developing and operating KM in all higher education institutions that are seeking ways to successfully implement KM within their organizations. This research has developed a KM strategic model for Thai universities by using KKU as a case study. The results show that the KM strategy for KKU is focused on sharing knowledge among staff by using several tools, including electronic discussion via Web blog, best practice identification, forum, CoPs, and conversation. Also it has been supported by the codification strategy otherwise known as using information technology to capture, store, and disseminate in order to allow the reuse of knowledge. These strategies, however, still need more factors to bring about a successful application; including commitment of the culture, information technology, staff, organization management, leadership, CKO and KM team, KM process, and useful measurements. Since KKU and other Thai universities have the same surroundings and context, this model developed at KKU can be viewed as a KM strategic model for other Thai universities in their quest for a working KM model.
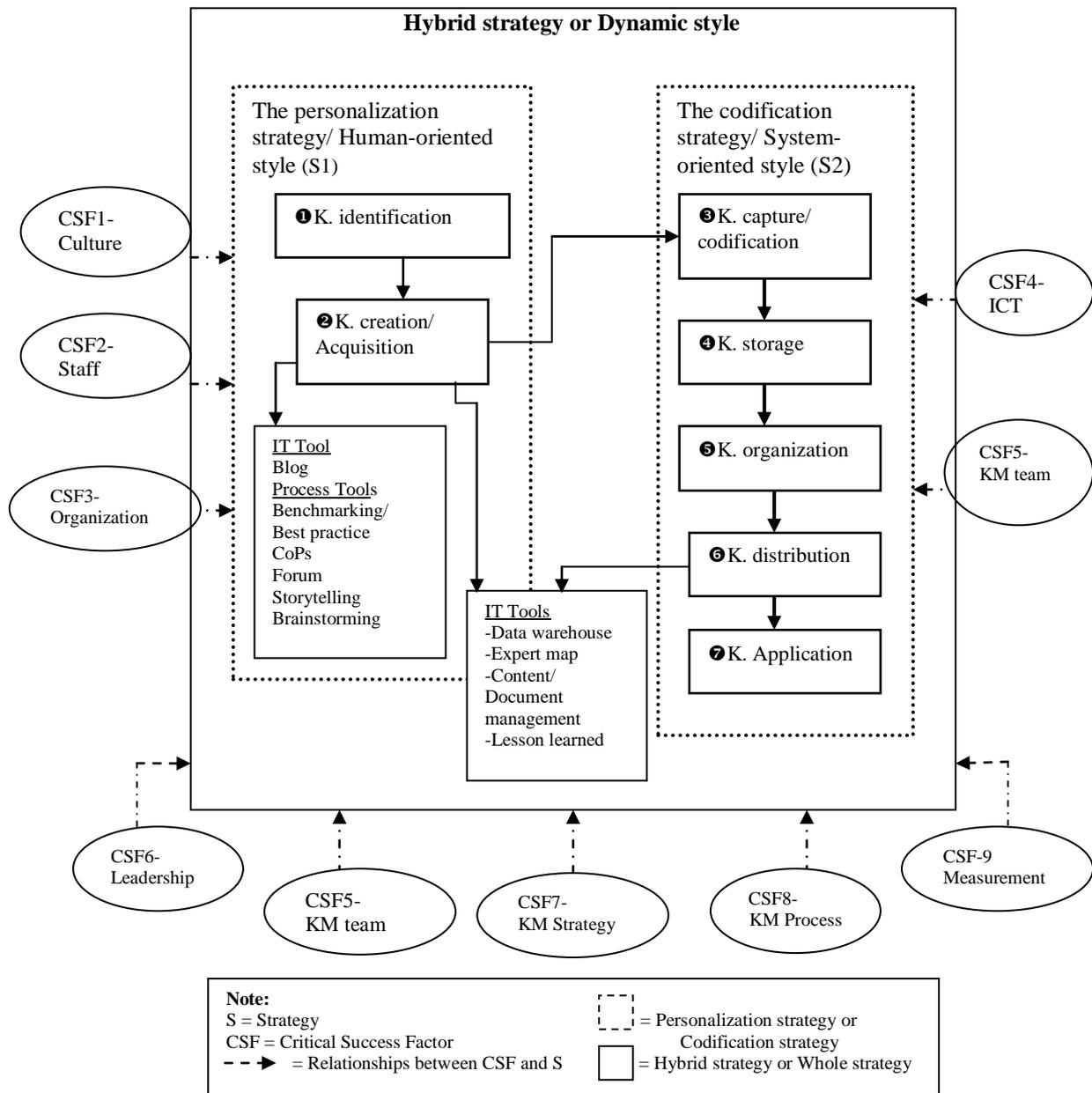
Figure 2 Proposed KM strategic model for KKU

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