An insight into knowledge management practices at Bangkok University

Aurilla Aurelie Bechina Arntzen, Lugkana Worasinchai and Vincent M. Ribière



Aurilla Aurelie Bechina Arntzen is a Professor based at the College University I Buskerud, Kongsberg, Norway. Lugkana Worasinchai is Dean of Graduate School, based at Bangkok University, Bangkok, Thailand. Vincent M. Ribière is Assistant Professor, based at Bangkok University, Bangkok, Thailand and the New York Institute of Technology (NYIT), New York, USA.

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Abstract

Purpose – *This paper aims to present how Bangkok University (BU) embarked on its knowledge management journey by examining how knowledge management processes could contribute to improve the educational environment by providing new styles of teaching and by increasing the relationships between faculty, students and staff.*

Design/methodology/approach – *The paper presents the reasons why Bangkok University started its KM initiative. It presents the adopted KM approach, the tools developed as well at the KM action plan.*

Findings – *The initial overall benefits emerging from the early stage of KM at Bangkok University are encouraging. The educational community has improved not only through the communication and cooperation between students and staff, but also through creating an environment that supports efficiently the cross-organizational learning and knowledge-sharing processes.*

Practical implications – *The KM experience of Bangkok University could be used by other universities or educational institutions as one approach/strategy/guidelines to launch a KM initiative.*

Originality/value – *Few cases of KM implementations in the university environment have so far been published.*

Keywords *Knowledge management, Education, Thailand, Communication technologies, Learning, E-learning*

Paper type *Case study*

Introduction

Over the last decade, the educational landscape has evolved from a traditional teaching environment to a highly open and dynamic knowledge-based environment. This is mainly due to the large adoption of computers, internet, intranet and instructional software applications on campus.

Therefore, the traditional teaching styles and methods might need to evolve too. Lately, this issue has raised debates on how higher education could cope with the new changes and thus introduce a certain level of innovative approach in the way teaching and learning processes are performed. Numerous requirements and challenges need to be overcome such as providing lecture anytime, anywhere or to increase and to improve the communication between the faculty, staff and students. The use of information and communication technologies (ICT) provides a mean to fulfill these issues.

Obviously the use of ICT is contributing to shape the way of how and where teaching and learning is taking place (Breiter, 2004). Following the trend, most universities and colleges have initiated development and adaptation of information system applications for educational purposes. Faculty have been encouraged to digitize their instructional materials and to use the provided information systems for interacting either with the administration or with the students (Seufert, 2002).

Additionally, the explosion of digital content and of online resources has contributed to the rise of new challenges that higher educational institutions need to face (Abdullah *et al.*,

2005). Many Academic institutions have been involved in the development and in the use of computer-supported cooperative work systems or e-learning systems (Ainslie, 2005; Thorn, 2001).

However, the sudden increase of available online teaching and learning material on campus has raised other types of challenges and requirements (van Merriënboer and Brand-Gruwel, 2005). These issues are related to the identification of methods or technologies supporting the processes of acquiring, storing, organizing, disseminating, searching, indexing and retrieving efficiently and successfully the available knowledge.

Furthermore, studies suggest that there is no obvious evidence that faculty and staff will use in an effective way the information communication technologies to perform their daily tasks. In fact, it is recognized that there is rather a latent or open hostility from some teachers or administrative staffs to exploit fully the functionality of information systems (McDermott and O'Dell, 2001).

Therefore, there is a need for more research in analyzing how information communication technologies (ICT) are used by higher education and how they can support the ambition of universities to move toward an e-campus (Thorn, 2001). However, the first analysis of current situations shows that even though ICT offers large possibilities, it also has some limitations in making academic institutions more competitive organizations. Therefore, it is important to consider that managing knowledge for academic organizations might be the right strategy to move toward a knowledge-based economy.

Until recently, surprisingly, ''knowledge management'' (KM) has not been a high priority for higher education. However, today there is a growing recognition that knowledge management can enable higher education to evolve more smoothly to a highly interactive and dynamic educational environment (Robson *et al.*, 2003).

Lately, following the new wave of using knowledge management concepts in the academic institution, the top management of Bangkok University (BU) has encouraged new research initiatives based on analyzing and encouraging KM practices within the whole organization. One goal of our research study aims to delineate a generic knowledge management framework that could be used by other higher education institutions in Thailand.

The following part introduces Bangkok University's context and environment as well as the necessary requirements to move toward an e-learning organization. The second part of this paper outlines the required relative background with a subjective interpretation of the phenomenon of knowledge management outputs for the academic world. The potential outcomes of knowledge management in academic context are as well discussed. The last part presents some of the knowledge and learning systems, developed internally at BU, and which are dedicated to the faculty, staff and students.

1. Knowledge management in an academic context

1.1 Knowledge and knowledge management (KM)

Until the end of the 1980s, academic institutions did not consider changing their traditional teaching and learning environments. The internet era and the rapid technological changes have opened up new horizons and new challenges in the educational world. Additionally to the technical context, fierce competitions amongst universities have led to redefine knowledge as their strategic asset and source of growth for both private and public institutions (Petrides and Guiney, 2002). Accordingly, more and more colleges and universities are turning into what is so-called a knowledge-based economy defined by Tso and Wu (1999) such as an economy moving toward greater dependence on knowledge, information, and high skill levels. The importance of knowledge-based organization is well recognized as a key element towards a competitive edge in the leading organizations (Alvesson, 2002; Edvinsson and Sullivan, 1996).

Literature in the field of knowledge management has proliferated in recent years as organizations attempt to address the shift from a production based economy to ''the practice of harnessing and exploiting intellectual capital to gain a competitive advantage''(Allix, 2003; Argote *et al.*, 2003; Barth, 2000).

> **"Several years ago, Bangkok University engaged in the in-house development of various information, knowledge sharing and e-learning systems."**

There is a consensus on agreeing that there is so far no one single definition of knowledge (Boisot, 1998; Dixon, 2002a). One popular definition of Davenport and Prusak (2000) defines knowledge as ''a fluid mix of framed experience, values, contextual information and expert insight that provides a framework for evaluating and incorporating new experiences and information''. Hunter (1999) focuses more on actionable knowledge and suggests rather ''Knowledge is information in the mind, in a context which allows it to be transformed into actions''.

According to Brooking (1999) knowledge is defined ''as information in context with understanding to applying that knowledge''. The wide-based knowledge definitions highlight that there are several forms of knowledge; tacit, explicit, implicit and systemic knowledge at the individual, group and organizational levels (Dixon, 2002b; Inkpen, 1996; Nonaka and Takeuchi, 1995; Polanyi, 1958).

Bassi (1998) defines knowledge management (KM) as the process of creating, capturing and using knowledge to enhance organizational performance, while Parlby (1997) delineates it as the discipline of capturing knowledge based competencies, storing and disseminating them for the benefit of the organization as a whole. In the context of this paper, we will adopt the definition ''knowledge management is an organized and systematic approach encompassing knowledge processes such as creation, usage, storage, sharing, transferring and retrieving knowledge in order to improve business performances''.

Now, if we relate these concepts to the academic context, we realize that one of the most important KM process concerns knowledge sharing mechanisms. In fact, observations of the current situation in campuses have led to conclusions that knowledge sharing processes are not integrated in the daily routines and are far from being an organizational reality (Zhao, 2001). In fact, educational environments are often engaged in huge duplication efforts (Robson *et al.*, 2003). For example, faculty are often involved in constantly re-creating existing teaching materials, instead of spending more time with students or doing research work. Obviously, new ways to work and to interact with all the academic stakeholders need to be re-designed or to take different shapes. Therefore, the implementation of knowledge management concepts provides a holistic approach contributing to the definition of a socio-technical framework for fostering the E-knowledge campus.

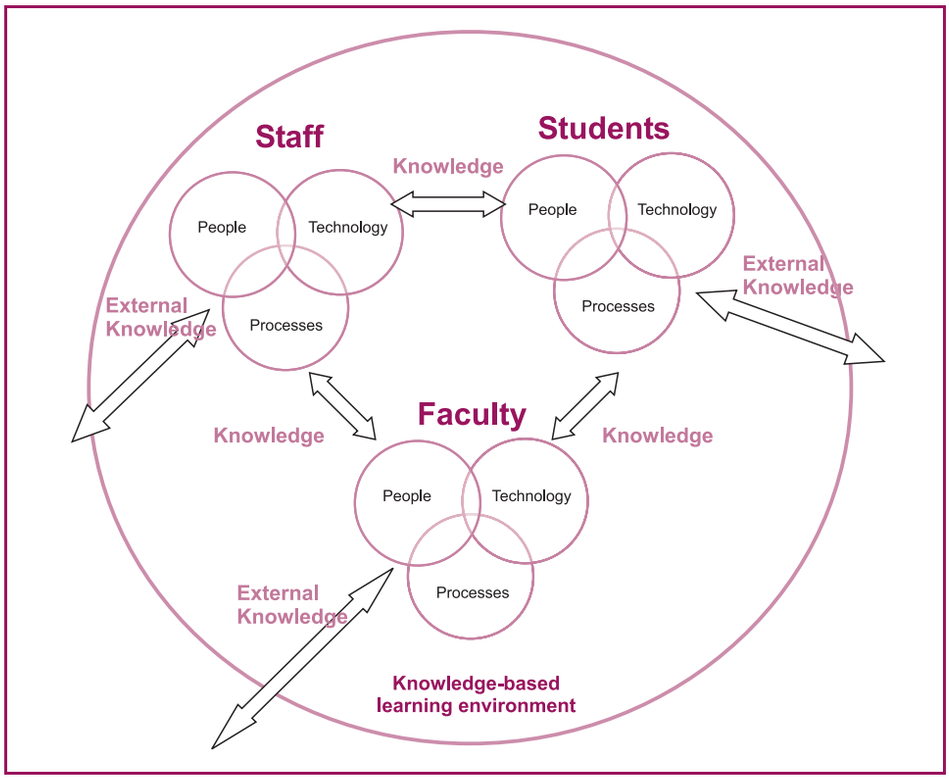
The following figure (Figure 1) highlights the inter-relationships between people, technology and the educational and administrative processes. The internal knowledge created within each node is flowing between each stakeholder such as students, staff and faculty members. Knowledge is also shared and acquired from the university's environment (partners, government, the internet, ...). All these interactions and knowledge flows constitute what we call a knowledge-based learning environment.

1.2 Research methodology

In order to understand the academic processes and the flows of knowledge within Bangkok University, we collected qualitative data via several interviews from different stakeholders. Additional data were collected by performing examination of organizational documents such as notes, reports, brochures, website contents. Participative observations were performed through seminars, informal meetings and discussions with faculty, staff and students.

Interviews were semi-structured and, according to the respondent profile, questions were opened or closed. Interviews and informal discussions involved different stakeholders such

Figure 1 Knowledge-based learning environment



as top management (vice-presidents), academic staff (deans, teachers, IT managers) and students.

The research question was to investigate the knowledge management practices at BU and based on their experience to delineate, a generic framework that could be applied to other educational institutions. We focused not only on the human strategy adopted by the university but also on how the use of ICT could support some of knowledge processes such as knowledge sharing and capitalization. The latter is very crucial in the academic world considering that knowledge is the most important asset for colleges and universities (Wong and Aspinwall, 2006).

Several years ago, Bangkok University had engaged in the in house development of various information, knowledge sharing, and e-learning systems. These independent and stand-alone systems were intended for various users groups (students, faculty, staff, online visitors). Several features of these systems play an important role in enabling knowledge processes by enhancing collaboration and cooperation between different stakeholders ranging from students to the top management.

The first phase of our project consisted in understanding how features of these systems could possibly support some knowledge processes such as knowledge sharing. Several interviews were conducted with the users. However, in order to provide a more comprehensive mapping of KM processes and ICT functionality, we are planning to collect more quantitative data by sending out extensive web surveys to users of the systems.

1.3 Bangkok University, context of study

Bangkok University is a well-established private university and it has been recognized as a leading education institution in Thailand for more than 40 years. Bangkok University encompasses 13 schools and offers courses both in English and Thai. Programs are offered for both Thai and international students and are leading to bachelor's and master's degrees in Business Administration, Accounting, Economics, Communication Arts, Sciences, Law.

> **"The fact that Bangkok University is a university hosting international programs and having international professors makes the sharing of knowledge more challenging."**

Lectures take place during day and evening times, seven days a week and are offered to part time and full time students.

Every year more than 6,000 students graduate. In order to cope with the increase of students, BU is expanding in terms of building new campus and in hiring new staffs.

More than 1,200 people are working full time or part time at the University. There are as well a consequent number of adjuncts faculty members and a certain number of international visiting professors.

The BU organizational structure is highly hierarchical and there are several levels in the administration with different positions at each school such as Chairpersons, Deans, Vice Presidents, Assistants to Vice-Presidents, etc.

BU is the only university in Thailand being certified ISO 14001. This certification as well as a strong emphasis on quality assurance reforms demonstrates its eagerness to continuously improve its performance as well as the quality of education at all levels.

Obviously, BU is a complex organization facing several challenges such as competition from other institutions in Thailand, an exponential increase of students, strong needs to adapt its curriculum every other year. In addition, it is crucial for BU to provide new lectures, to offer international programs and to strengthen cooperation/collaboration by establishing joint degrees or inviting international guest professors.

Furthermore, BU is becoming a distributed organization where studies and lectures are taking place in several different locations not only in Bangkok (two campus locations) but also in different neighboring countries.

Interviewing several leaders revealed that although having new adjunct faculty member is considered as a positive thing since they bring new impulses and a different vision and perspective, it can also be seen as a consumption of resources. This is mainly due to the fact that quite often lectures have to be recreated. Therefore, the consistency of lectures over years is harder to control.

The fact that BU is a university hosting international programs and having international professors makes the sharing of knowledge more challenging. The knowledge needs to be made available in two languages Thai and English. Roughly 10 percent of the staff/faculty/students do not speak Thai (only English).

Five years ago, the board of higher education of Thailand decided to make quality assurance a priority for all universities in Thailand. It defined many key performance indicators (KPI) to measure the quality of Thai universities. Three years ago it defined a new main KPI associated with the implementation of knowledge management. Most of the Thai Universities were strongly invited to implement a knowledge management plan, even though no clear indication or direction on how to proceed was given.

In order to cope with the stringent dynamics that dominate the BU life, and in order to meet the new governmental requirements, the university decided to initiate some knowledge management initiatives. The main remaining problem was how to get started? The Gantt chart below (Figure 2) summarizes the different phases associated with the implementation of KM at BU.

During the first phase various brainstorming sessions took place to better clarify and understand how KM could benefit the organization and improve the learning/teaching

Figure 2 Main phases of the BU KM action plan

Projects	Quarters				
	June-Aug 2006	Sep-Nov 2006	Dec-Feb 2006-2007	Mar-May 2007	June-Present 2007-2008
1. Brainstorming and creation of BU KM Plan Formal announcement	←	—	—	→	
2. Setting up KM Team & KM Center			←	→	
3. Raise Awareness about KM at BU (Seminars)			←	→	
4. Fieldtrips for KM team to learn about KM success stories from other companies and universities in Thailand			←	→	
5. After May 2007- each department creates its own plans and implements it in its unit					← →

environment. A KM strategic plan was defined including a mission, keys to success, obligations, objectives, policies, tactics (see list below) as well as other planning guidelines.

Mission

- To become an internationally recognized learning organization with high standards of education.

Keys to success

- All the managers (Executives, Heads of Department, Faculty members and staff) and officers should be aware and understand the principles of KM and of Leaning Organization (LO).
- Head of Department and staff need to know how to apply KM in their departments.
- Efficiently use ICT to support KM and LO.
- Executives should develop policies and budgets to support KM.
- A culture and an environment must be present to facilitate knowledge sharing and use of it.
- Positive attitude to share their working experience and knowledge with each other.
- To have an efficient continuing evaluation system.
- To motivate and encourage everybody to learn more about KM.
- To develop a system and managerial mechanism to pursue the LO.

Obligations

- Encourage and develop everyone to learn and understand KM and LO.
- Support and build the culture of a LO leading to KM and innovation.
- To update the ICT to make it suitable for sharing knowledge inside and outside the organization.
- To build an efficient and high quality learning system and processes that will allow everyone to learn.
- To be the leader in contributing to the knowledge society and to develop various networks to share information nationally or internationally.

Objectives

- For the BU community (executives, professors, officers, students, and alumni) to become an effective learning organization.
- For the university to possess updated knowledge in different areas in order to become the learning source reference nationally and internationally.
- For the university to have information systems facilitating the spread of knowledge outside the organization.
- To become the leader in learning community building and for developing internal and external networks.
- To have an efficient KMS that will enable the integration of knowledge in order to learn and to innovate.
- To become a model of the learning organization.

Later on a KM team was created as well as a KM center. This center is under the direction of the Academic Affairs Office. Each department having different duties and responsibilities, they were asked to develop their own KM action plan following the KM master plan. The mission of the KM center is to support all departments in the endeavor to implement KM in their own environment. KM Seminars are offered, presenting new approaches, tools, techniques, technologies, ... These KM activities are offered both at the department level and also at the organizational level in order to keep an homogenous approach to KM. This is what we could call a ''glocalizational'' approach to KM where a global/general KM strategy is defined and each department can localize/customize their own approach.

One of the first urgent needs was to have the right technology to enable knowledge sharing and capture. In order to fulfill this need a KM ICT architecture and infrastructure were created. Using technology will allow to keep track of the educational resources development and consumptions, to foster information and knowledge flow within the organization, to provide a collaborative environment, to enhance cooperation and communication between faculty, students and administration and finally to facilitate the knowledge use and reuse.

Therefore, undertaken initiatives encompass the building of knowledge repositories, such as online courses, setting up collaborative tools such emails-forum-chat-video, knowledge mapping, coaching/mentoring and best practices.

However, even if an organization decides to launch some KM projects, the underlying question remains ''what can be expected from implementing any knowledge management initiatives at the institutional level?''

Obviously according to the business or academic context and the focus of the organization, we can already outline that there is no generic knowledge management output. The myriad of expected KM results described by either practitioners or researchers illustrates this fact (Anantatmula, 2005; Firestone, 2001).

Our research investigation at BU suggests some important outcomes of KM listed in Table I. The table presents as well a list of corresponding initiatives.

It is worth to mention that actually the knowledge management initiatives are undertaken at both formal and informal levels. The focus is not only at the technological level but also at the organizational one, like through competence building, culture change, setting up appropriate rewards and incentives structure.

"Among the several KM initiatives, the most important is to facilitate knowledge sharing between faculty members."

Table I KM outcomes for higher education

KM outcomes	*Meaning*	*Suggested Initiatives*	*Initiatives undertaken by BU*
Knowledge capitalization	Store, diffuse and reuse knowledge acquired during research or lectures creation	Build knowledge repositories Easy access to knowledge repositories Searching facilities Categorization	LMS and e-learning Databases Web servers Document management systems
Use or reuse knowledge	Make knowledge actionable Integrate knowledge into daily tasks and processes	Manage cultural change System of incitation and rewards Involve mentoring-apprenticeship Use existing lectures or research result	Communication Mentoring Offer training for using the knowledge repositories by the staff Rise awareness
Create knowledge	Generate new knowledge from previous ones (additive knowledge)	Understand the various knowledge conversion mechanisms Training – seminars-network-SECI model	Seminars Hire new staff Visiting professors Guest lecturers
Actualization of knowledge	Update knowledge according to external or internal environment	Benchmarking – internal and competitors Absorption of external knowledge: Seminars – publications – meetings – Training Systematic diffusion of new information	News diffusion via web site or MyBU Update contents Every other year, curriculum is revised Meeting-brochures distribution
Productivity	Increase employee productivity by saving time to solve problems, answer questions . . .	Use of appropriated ICT (web-repositories, communication tools, . . .) Provide socio-environmental framework for employees (satisfaction, motivation, office . . .)	Encourage staff to use the information systems Provide good working environment and facilities
Share knowledge and lessons learned	Diffuse knowledge among all employees to increase its value	Informal and formal networks Culture change management-Trust-motivation-Communications-Rewards system Use of ICT	BU online Knowledge Center, MyBU, URSA and e-learning modules
Identify and localize knowledge	Specify what BU knows and know where to find people and expertise	Relationship and communication map Competences yellow pages/knowledge map Employee expertise database	Competence description employee online but not for all Function and role description of staff on the web server
Knowledge acquisition	Integration of external knowledge	Training – seminars – hire of external visiting professors Communities of practice	Seminars – Training – Education Sending staff abroad for international education Guest lectures Consultants
Use the right infrastructure	Implement the appropriated ICT according knowledge, competencies and needs of employees	User requirements specification Align KM with business goals Set up the KM technological framework (e-mail – intranet – lotus notes, repositories . . .)	MyBU URSA Knowledge Center New systems on development
People's satisfaction and motivation	Obtain employees' memberships to collective objectives	Competences management Create a good working environment and climate Reward- incentives-motivation	Good working environment

Amongst the several initiatives, the most important is to facilitate knowledge sharing between faculty members. One usual strategy is to organize, on a regular basis, meetings and seminars. Another initiative, considered as very important by management and teachers, is network building. Networking is recognized as a very efficient means to share knowledge at intra/extra University levels. This is fostered for example by setting up ''student/teachers exchange agreement'' or ''joint degree'' with others national or international universities.

However, it is very central to consider the social and psychological aspects in the knowledge sharing mechanisms. For example, people should feel encouraged or rewarded to share knowledge and to work in teams.

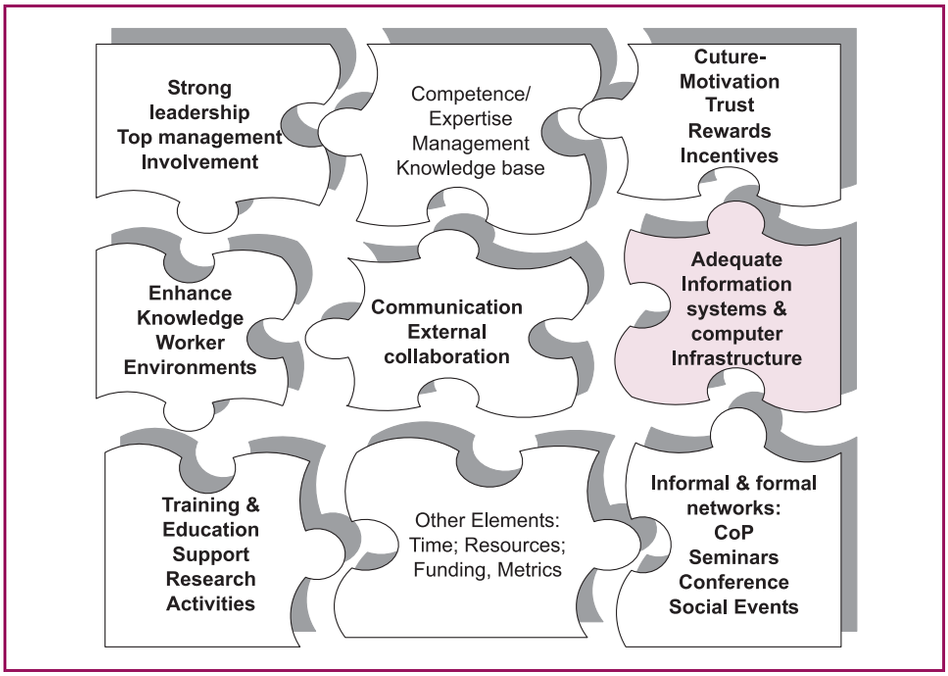
Another activity contributing to facilitate knowledge sharing consists in building knowledge repositories. However, this task means for faculty, potential additional workload by creating lectures or exercises that need to be digitized. Observations show that not everyone is engaged in this process. This is due of several factors such as lack of time, lack of incentives, fear of sharing, complex ICT tools, lack of motivations, etc.

Analysis of the data collected through several interviews has contributed to the delineation of a generic knowledge management Framework that can be applied for other colleges and universities. Figure 3 summarizes our findings.

In the next section of the paper, we focus on describing in details one key component that is ''adequate information system and computer infrastructure''

Over the last few years, Bangkok University has put a strong emphasis on building appropriate infrastructure as a mean to foster knowledge flow amongst faculty members, students and staff. A KM system should offer functionalities and capabilities to support a collaborative and a cooperative environment. Additionally, connectivity and communication anywhere and anytime are crucial in an e-learning environment. For instance, at BU communication between administration and students is improved by the use of mobile services. If in a last minute, a teacher cannot give a lecture, all registered students will get immediately a message on their cell phones. Student grades can as well be accessed just by sending text messages.

Figure 3 Generic KM framework



The next section discusses the socio-technical requirements for building such systems. The various knowledge management and e-learning systems are presented.

2. Concepts and requirements for knowledge systems

In order to understand how information communication technologies can play an important role in education, it is important to investigate how both human and technological requirements interact and contribute to the development of educational information systems. Indeed, consecutively to develop effective instructional processes, one should consider not only the goals, the needs and characteristics of teacher/students, but also content requirements and technical constraints. These different perspectives are captured into an e-learning process reference model represented in Figure 4 (Bechina, 2001).

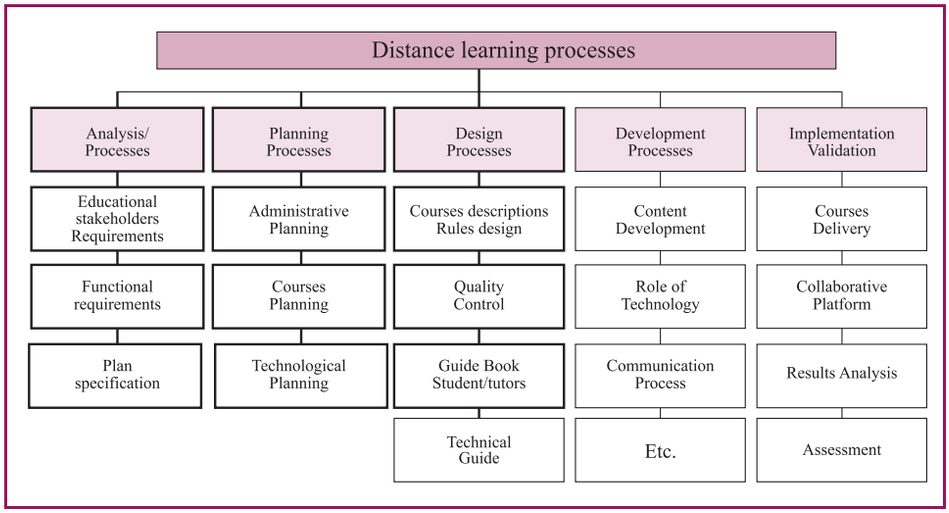
This generic model can serve as a basis for the development of educational information systems.

However, in this paper, we focus mainly on describing generic requirements that are summarized below.

Technical requirements

- Multi-media platform providing a large range of functionality for pedagogical resources such as storage, search, index, retrieve, organization and dissemination of documents and knowledge.
- Tools for buildings content constituted by pedagogical modules that can be gathered to form a course. Examples of modules: lecture-pictures-text-glossary-exercises-simulations tools-video, etc . . .
- Tool-suite for allowing integration of video, sounds, shared application, distributed white board, recording.
- Enable the synchronization of streaming audio, video, graphics, text, presentations, slides and dynamic links.
- Communication and collaboration tools such as chat, forum, email, video conference, shared calendars.
- Connectivity – high speed networks.
- Mobile feature integrated.
- Simple and easy user- interface.
- Authoring tools.

Figure 4 E-learning platform processes



- Security.
- Personalization feature.
- Etc.

Obviously, it is imperative to understand that the technical requirements fulfillment is not the only success factor in using ICT in the academic world. Indeed, it is crucial for the development of such educational systems to take into account other socio-organizational and pedagogical requirements.

One important need is to improve communication between the teacher and the students. Using ICT has proven to be very efficient; for example thanks to discussion forum or videoconference facilities, it is easier to stimulate better real time interaction. However, it is pertinent to question the effectiveness of the learning process (Richards, 2005). Will students learn better by using ICT? Do teachers need to rethink completely the design of their courses? What are the pedagogical impacts?

Furthermore, although almost all teachers are aware that the world wide web (WWW) offers a rich source of potential learning resources, there is still a latent hostility to use ICT (Müller *et al.*, 2007). This is due to several reasons ranging from technology skepticism to simple lack of motivations or time.

Socio-organizational requirements

- Involvement from faculty and staff during the system design phase.
- Communication about the use and the benefit of tools should be promoted.
- Training and seminars.
- Pedagogical impacts should be as well clearly assessed.
- Role of the teacher requires to be redefined as rather instructional designer (Christie *et al.*, 2002). This is due to the fact that a course cannot be delivered following the traditional outline. Thus there is a need to reconsider the learning design. Teachers are as well facing the challenges of keeping up with technical development and to prepare students for significant change in the learning process.
- Cost of both hardware and software need to be evaluated since it will influence the choice for either proprietary or free software. Which in turn means that in case of a choice of open source software, the IT skill of the personnel might need to be further developed.
- Sustainability is as a key factor since it is crucial to make sure that the initial costs last beyond the first investment. Sustainability is achieved for example by institutionalizing the changes or making sure that the investment is connected to a maximum return for the educational environment.
- Regulations, policy and standards have to be included in the strategic implementation plan.
- Organizational culture should not be neglected in the process.
- Motivation and trust should be enhanced by setting appropriate communication between all educational stakeholders such as teachers, students and academic staff.
- Etc.

Based on some of the requirements outlined above, Bangkok University has engaged in an effort to build appropriated educational systems. The next section describes some of their functionality.

2.1 Knowledge sharing and e-learning systems

The university has a large computer center (IT department) composed of more than 50 people. Amongst them, 30 people are software developers working essentially on maintaining and developing new functionality in the different educational systems. The rest

of the staff is assigned to various other tasks such as providing technical support and maintaining systems.

The size and the skill of the IT team have played a major role in the decision to develop all the educational systems in house relying mainly on open source software. The strategic decisions have been motivated in one hand by cutting down on license fees and in the other hand by reducing dependency from commercial vendors. Furthermore, opting for open source software and in house development allow a better control in the maintenance of the systems. Furthermore, it makes it easier to implement any additional requirements. Also, one obvious advantage of this strategic choice, resides in the fact that the IT competences and skills capacity remain at the university. It constitutes long-term investments that definitively influence the sustainability of the ICT use as a means to provide an open and dynamic e-learning and knowledge sharing environments.

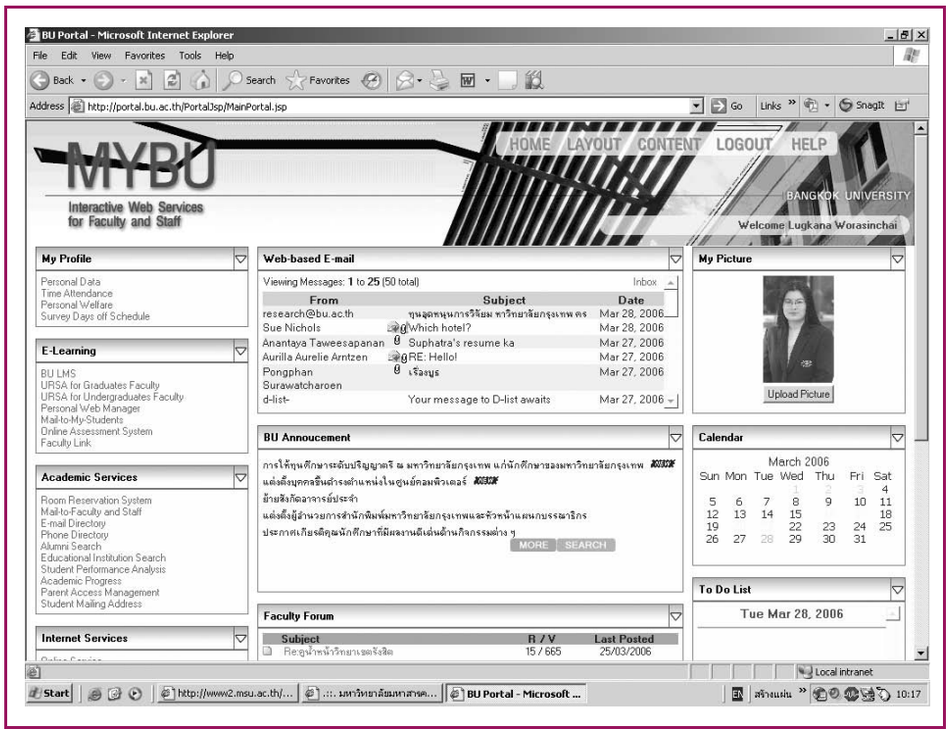
2.2 MyBU system a collaborative platform for academic and teaching staff

MyBU is a knowledge collaborative platform aiming to facilitate communication among teachers and academic staff, allowing them to work together more efficiently. By accessing the same collaborative portal interface, the learning community can access shared applications such as shared calendars. Flexibility and mobility of the users are insured since it is possible to access to the platform from any computer with a Web browser and Internet access.

Figure 5 represents the user interface of the platform and it is easy to see the nature of the services offered by MyBU that we list as follows:

- Web-mail service.
- Personnel information including pictures.
- Shared calendar.
- Discussion forum.
- Tasks to do for personnel use.

Figure 5 MyBU collaborative platform



- Online schedule.
- Direct access to other educational systems.
- Automatic email to students registered to the course if any.
- Access to the online assessment systems.
- Rooms reservation.
- Students performance analysis.
- Parent access management is a special service allowing the parents to follow the learning progress or the attendances of their children.
- Etc.

The collaborative platform MyBu represents an innovative learning environment where all the described services are integrated into a platform with just a single sign-on.

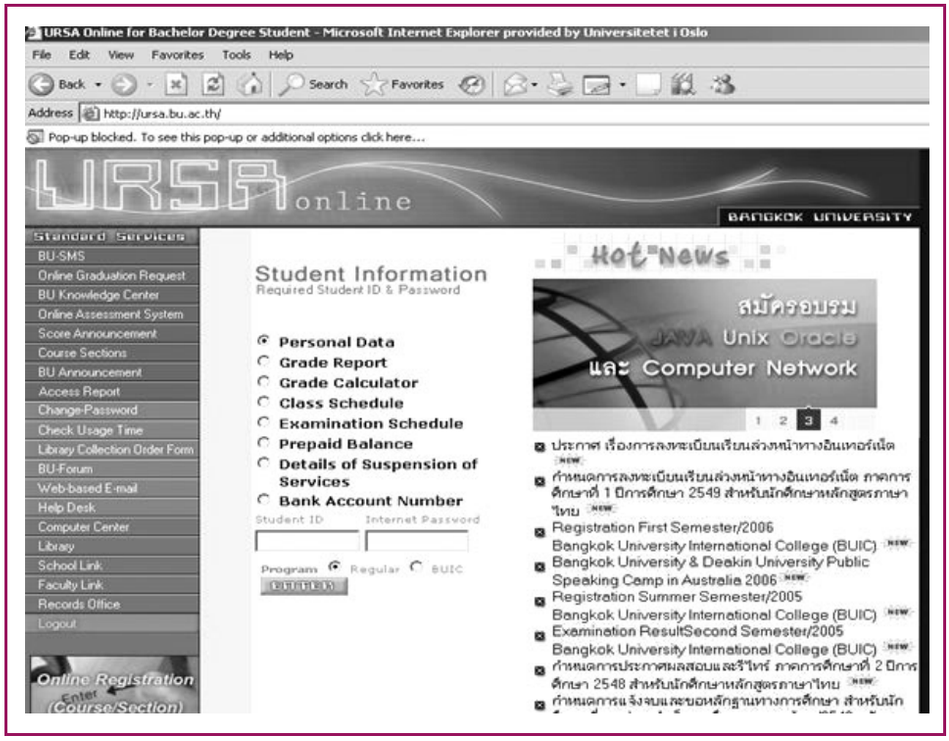
2.3 The URSA system

The computer center of BU has developed two URSA systems for both undergraduate and graduate students. The initial aim was to offer different services according to the specific requirements of both programs. The starting page displays news and information only related to each program. However in order to facilitate the maintenance and to decrease the cost, it is intended on medium-term to integrate the various systems into a single platform. An updated version is currently under development.

Figure 6 depicts the user interface of URSA for undergraduate students. The available services include:

- Online registration of the lectures – class and exam schedule.
- E-mail services.
- Grade report and calculator.

Figure 6 URSA for undergraduate students



- Online payment.
- Online request to be enrolled in graduate program.
- Online Library access.

One major feature that has been implemented lately in URSA for graduate students, concerns the mobile services. Students can get access to the different services via mobile phone, for example information about their grade or about sudden change in the class schedule. Soon students will be able to pay the registration courses fees via mobile phone.

The system offers additional services such as possibility to control the checklist for the degree plan or BU forum access, etc.

2.4 LMS (learning management system)

Bangkok University is using a learning management system (Figure 7) that was customized to its needs. Such system allows faculty and students to communicate, interact and exchange documents related to a particular class. Among the main features provided; Course information, Student list, Announcements, Forums, Documents, Exercises, Links . . . . We can notice that both the Thai and English languages are used on the interface of such system. Such system can be used as a knowledge repository where knowledge artifacts related to a course are stored and can be easily searched.

2.5 BUKC (Bangkok University Knowledge Center)

Recently most of the various ICT systems that BU developed were integrated in a single system called BUKC (Bangkok University Knowledge Center). Such system is available from the BU web site (www.bu.ac.th). Since one of BU missions of the BU KM strategy is to become a reference in term of a learning organization and for openly sharing its knowledge

Figure 7 Learning management system (LMS)

with the world community such system is not protected by password, anyone can have access to it. The knowledge system has different modules (Figure 8); an e-learning module, a link to the LMS system (previously described), an online assessment module, a video online module a links module and faculty links module and finally an e-paper module.

The e-learning module provides access to online courses and to some interesting topics to allow students and everyone to learn on their own at their own pace and during their favorite time. The online assessment module is used for course evaluation online. The video online module allows to view online some selected movies and documentaries. The link modules are links to faculty and school resources and finally the e-paper module provides access to the collection of academic papers published in BU Academic Journals. Each module contains sub menus that we will not be described in details in this paper but we encourage each reader to visit the site.

The integration of these various learning tools and systems provide an environment where learning and knowledge sharing can happen. BU is still at an early stage in the development of such systems and the next version of the Bangkok University Knowledge Center will integrate some social-networking tools that will bring knowledge sharing and collaboration to the next level. Since we recently entered the Web 2.0 era as well the KM 2.0 era we expect BU to provide in the coming years the Learning 2.0 platform that will allow our students, faculty, staff and communities to easily, freely, openly and efficiently learn from each other.

3. Temporary results, benefits and problems

Bangkok University is still at an early stage of its KM implementation. During the first phase, a strong emphasis was placed on developing and making available the right technologies that

Figure 8 The Bangkok University Knowledge Center

will enable knowledge sharing among the various stakeholders and among the various campus locations. This phase was critical in order to be able to start the second phase. During the second phase, just starting, each department is responsible to establish and to implement KM in their unit. Each department based on their need, culture and processes might take a different approach. The goal being to codify as much knowledge as possible and to facilitate and to motivate people to share their knowledge internally and externally. This is not an easy task. The main barriers at this stage are:

1. Work overload preventing people from contributing effectively in the creation of digital content, and from using effectively the various systems (even though KM is considered as a priority).
2. Lack of a clear KM roadmap.
3. Make the acquired knowledge available in two languages (Thai and English).
4. Motivate (and maybe initially to reward) people to codify their knowledge and to use these new technological systems. If we take as example the barriers that could prevent faculty to codified their knowledge, we could say that:
   - Faculty do not like to put their material online because they might not be confident with its content (fear of criticism), they might be afraid that someone will copy/still their work and there are often a lack of clear directions towards copyright and intellectual issues.
   - Many faculty and especially old professors do not know how to properly use the various knowledge systems available or they find it too difficult (not user friendly enough) (even though some training programs are offered regularly),
   - Building a course that is intended to be online is not an easy task. It differs completely from the traditional teaching format.
   - The extra work done by using such systems might not be well recognized and neither valued.
   - Lack of awareness of system availability and capability.
   - Etc.

Even though BU is at an early stage of its KM implementation some benefits have already emerged. For example, a better communication and knowledge sharing is happening between the two main campuses. Some learning resources are starting to populate the KM center repository. A better understanding of each department activities, needs and sub-culture has emerged from the initial assessments performed to appraise the extent to which KM could benefit each department. BU is strongly committed to make its KM initiative succeed and to share its experience and lessons learned to the KM and Education community.

4. Conclusion

This paper presented the results of the KM practices investigation at Bangkok University. This empirical investigation aimed at understanding how Knowledge Management was perceived and encouraged by different academic stakeholders. A framework mapping existing initiatives or systems with knowledge management processes was delineated.

A generic framework was presented with specific indicators that Colleges and Universities could focus on if they want to take the path of setting an innovative and adaptive learning environment.

Different systems composing the KM BU ICT systems were presented. The initial overall benefits emerging from the early stage of KM at BU are encouraging. The educational community has improved not only by the communication and cooperation between students and staff, but also by creating an environment that supports efficiently the cross organizational learning and knowledge sharing processes.

The team of the computer center is continuously working on improving the initial features developed in the early version of the KM tools. The continuous qualitative and quantitative

assessments of the systems' usages are necessary to measure its pedagogical impact and users' satisfactions. Therefore, a survey and furthers interviews will soon be conducted. The findings will serve as a basis for improving the systems.

In conclusion, this study shows that the use of appropriate information communication technologies can help universities to move toward a knowledge-based learning organization. The socio-organizational factors remain critical while designing and developing such dynamic learning environment. The use of Web 2.0 technologies (social tools e.g. Blogs, Wikis, Social networks . . .) will certainly bring a second revolution in the way that KM tools will support the next generation of learning tools.

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Corresponding author

Aurilla Aurelie Bechina Arntzen can be contacted at: aurilla.arntzen@hihm.no