CHAPTER 2
PROFILE OF THAILAND
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Figure 2.1  Map of Thailand

2.1 Thailand

The Kingdom of Thailand is known as Siam, which was the country's name until May 11, 1949. The word Thai means "free" in the local language. To governments of the world, the country is known as "The Kingdom of Thailand." Today most Thais call their land "Thai Prathet" or "Pradet Thai" (both meaning Thailand) The people often refer to their country by its nickname "Muang Thai" (Land of the Free). It is the only country in the Southeast Asia that was never colonized. Bangkok is the capital of Thailand and it is the largest city in the country.

2.1.1 Geography and Climate

Thailand is a Southeast Asian country comprising 76 provinces in the Indo-Chinese Peninsula. It is bounded by Burma and Lao in the north, Burma in the west, Malaysia in the south and Cambodia and Vietnam lie to the east of the country. The country covers an area of about 518,000 square Kilometers. That is about the size of France. Its general outline is popularly visualized as an ancient axe. It is provided with excellent access to the seas, having a coastline along the Gulf of Thailand and Andaman Sea.

The climate is generally tropical with a high degree of humidity. There are three season: summer (March-May), Monsoon (June – October) and winter (November-February). The mean temperature is around 30 degree celcius. Thailand has four major geographical regions: The Continental Highland or Northern Thailand; the Central Plain, or Central Thailand; The Korat Plateau, or the Northeast; and Peninsular, or Southern Thailand.

2.1.2 People, Culture and Language

The present generation of people descended from diverse locations of the Country. The early dweller was perhaps Negritos, who were later driven out by successive waves of Mongoloid people descended from Mons, Cambodians and Annameses. These people made their way down the river valleys from the north and west. Later, before the Christian era, another wave of Tibeto-Burman people moved south along the Irrawaddy and entered Thailand. People from India and their culture came to Thailand around 6th century, both directly and via Sumatra and Java. Another
alphabet. Stone inscriptions of that period tell of moral, intellectual and cultural education.

Education in Thailand had its roots in religious instruction at the Buddhist temples during the ancient times. Prior to the existence of a formal schooling system, learning took place in the temple and at the palace. Buddhist monks gave basic education to boys in classes set within the compounds of monasteries, while children of the royal household and of the nobility were educated in order to serve in the court, and govern in the provinces. The reign of King Mongkut (1851 - 1865) saw the turning point of modernization in Thailand and the growth of Western influence. The first printing press was set up and the education patterns of Thai children were restructured to suit the new needs of the nation. The knowledge of English became a necessary tool and English teachers were hired to teach the royal children.

The modernization policy was further pursued by King Chulalongkorn (1868 - 1910) who, realizing the need for better trained personnel for royal and government services, opened a school in the Palace. An 'English School' was also established in the Palace to teach princes and send the children of the nobility for further studies abroad. In 1971, formal school education was officially announced open, first in the palace and subsequently outside the palace grounds.8

The Department of Education was established in 1887 with the full responsibility of education and religious affairs of the entire country. When it became a full-fledged Ministry in 1982, new approaches were employed, placing more emphasis on 'popular education'. Thus, government primary schools were established throughout the kingdom so that literacy, good citizenship and a better standard of living for the people could be achieved.

2.2.2 Higher Education

Higher Education is regarded as Thailand’s highest level of education. It is also the centre for scholars and various fields of knowledge. Therefore, higher education institutions are high expected to take leadership in molding the country’s future leaders, develop high-level technology for the acceleration of economic growth, deliver academic service to society, preserve and maintain the nation’s art and culture. Moreover, they are expected to lead and show the right direction for the development of the country, give warning of crisis and solve problems for society.
However, like many other countries that began to reform their higher education to cope with the drastic and rapid changes brought along by the twenty-first century, higher education in Thailand has also come to the critical situation that a comprehensive reform has a need for not only its own survival but also its readiness to assume more significant roles and responsibilities that lie ahead.  

The ratio of higher education students in Thailand compared to the age group of 18-21 years population in 2002 was only 27.4, which was relatively low, when compared to other Asian nations. The enrollment ratio at lower than degree level was 43.6% and at degree level 39.5%. Most higher education institutions (44%) concentrated around Bangkok metropolitan areas, providing access to higher education for students in Bangkok twice time per day more than other provinces. In addition, 70% of higher education students are from families of high income.

In the past, higher education institutions in Thailand were under the jurisdiction of several organizations. In 2000, there was a total number of 645 institutions: 74 of them were under the Ministry of University Affairs, 489 under the Ministry of Education, and 82 other specialized institutions, under their ministries. The diversification of policies led to the differentiation of standards in various aspects among higher education institutions. In addition, there was mismatching of graduate profiles and market requirements, which implies that there is no unified national goal and that human resource development is not in line with the needs of the country.

On July 7, 2003 after the enforcement of Ministry of Education Act, the former Ministry of Education and the former Ministry of University Affairs were immediately consolidated under the new Ministry of Education. Accordingly, those higher education institutions under both ministries are automatically unified under the same policy making organization. The consolidation has paved the way for the unity in the development and implementation of policy concerning higher education. Former teachers of colleges or Rajabhat Institutes and Rajamonkol Institutes of Technology have been transformed into universities and are ready to join other higher education institutions on the road toward to autonomous universities. There is also a positive sign of cooperation among higher education institutions under the jurisdiction of two former ministries, especially in terms of the admission system, where many of them will offer more seats to local graduates within the extent of distance that each institution can offer.
2.2.3 History of Higher Education

The development of the country's higher education can be divided into three periods, characterized by the following major events and activities, namely, the Early Modernization (1889-1931), the Post-Revolution of 1932 period (1932-1949), and the Development Planning period (1950-present).  

(1) The Early Modernization Period (1889-1931)

The first medical school was founded in 1889. Siriraj Hospital marked the beginning of higher education in Thailand. As with the majority of modern developments in Thai education, the idea of establishing a university originated in Chulalongkorn's reign. In 1917, the first university in Thailand was instituted by Royal Decree, elevating the Civil Service College to university status and renaming it Chulalongkorn University. It incorporated the existing schools of medicine and engineering with the newly created faculties of Arts and Sciences, Law and Political Science.

(2) The Post Revolution Period (1932-1949)

Following the Revolution of 1932, the nation adopted a parliamentary democracy which necessitated a change to constitutional monarchy. There was a growing need for political leaders and civil servants to be educated on the principles of democracy, and for the general public to have increased opportunities to higher education. Accordingly, the University of Moral and Political Science, now known as Thammasat University, was founded in 1933. Other universities in or near Bangkok were created in 1943. These universities were Mahidol University, Kasetsart University and Silpakorn University.

(3) The Development Planning Period (1950-Present)

In 1950, with the establishment of the forerunner to what is now the National Economic and Social Development Board (NESDB), Thailand was set to embark on its modern course of planned development through a series of six and five-year economic plans. The very first was a six-year plan, launched in 1961, whereas successive plans covered a period of five years. This era saw tremendous expansion and change in Thailand's higher education system.

It was not until the late 1950’s and the early 1960’s that plans for university coordination and the expansion of higher education to the provincial area were carried out. As part of the decentralization programme, three regional universities were established.
established successively from 1964 to 1967, within the decade of the first national economic plan. These universities were Chiangmai, Khon Kaen, and Prince of Songkla. Subsequently, the National Institute of Development Administration (NIDA) was established as a graduate institute, specializing in administrative and national development. In 1967, Asian Institute of Technology (AIT) opened as an autonomous international graduate school, offering sciences and engineering degrees to students from all over Asia and beyond.\(^17\)

Apart from the establishments of the public university, the private universities and institutions also play a role in the provision of higher education. The Sixth National Higher Education Development Plan (1981-1991) showed the great encouragement from the government, particularly in terms of financial support for private tertiary institutions to further improve the standard of education and provide increased educational programmes.\(^18\) The private universities allow more of the Kingdom’s young to gain tertiary qualifications. To accommodate the social demand for higher education and the need to strengthen education development of the country, the private universities were expanded both in Bangkok and the provinces.

In the 1990s, six more regional universities were established: Burapha University, Naresuan University, Mahasarakham University, Thaksin University, Ubon Ratchathani University, and Suranaree University of Technology.\(^19\) During the Development Planning Period, there was a significant innovation, displayed by the initiation of two open universities: Ramkhamhaeng and Sukhoothaithammathirat Universities were opened in 1971 and 1979, respectively. The idea of setting up an open university arose from the desire to democratize higher education as well as to promote the concept of life-long education.\(^20\)

In 1990, the first public university in the country to operate independently from the government bureaucracy with its own autonomous administration system, and with government financial support in the form of block grants, was founded. It is the Suranaree University of Technology. It was the hope that Suranaree will become a model for other public universities seeking to become autonomous in the future. Walailak University, the second of its kind, is set up in Nakhon Sri Thammarat and opened its doors to students in 1998. In addition, Maefaluang University, another autonomous university is being established in Chiang Rai, the northern part of
country, with the first enrolment in 1999. There are 23 government universities in Thailand.  

2.2.4 Education Reform  

Despite greater efforts to improve the provision of educational services in terms of both quantitative and qualitative aspects, there remain weaknesses in the education system, hindering significant human resource development in Thailand. Fortunately, the 1997 Constitution introduced challenging guidelines for educational development, particularly the enactment of the national education law. The first National Education Act was promulgated in August 1999 to serve as the fundamental law for the administration and provision of education and training in accordance and with the provisions of the constitution. New initiatives and reforms outlined in the National Education Act 1999 are presented below:

- Ensuring access to basic education for all.
- Reform of curriculum and learning process.
- Encouraging participation and partnership in education.
- Restructuring of educational administrative structure.
- Enhancing educational standards and quality assurance.
- Reform of teachers, faculty staff, and educational personnel.
- Mobilization of resources and investment for education.
- Utilization of technologies for education.  

2.2.5 Administration and Management  

The 1999 National Education Act scheduled the establishment of the Ministry of Education (MOE) by August 20, 2002. The reorganization of the administrative structure expected that public educational administration and management be decentralized to local organizations and education institutes. Prior to the establishment of MOE, the responsibility for education and management in the country was under the control of four main ministries: Office of the Prime Minister, Ministry of Education (MOE), Ministry of University Affairs (MUA) and Ministry of Interior (MOI).
2.2.6 Educational System

Learning is a continuous/lifelong process, that consist of three types of education: formal, non-formal and informal. Credits accumulated by learners are transferable within the same types of education, regardless of whether the credits have been accumulated from the same or different educational institutions, including learning from non-formal or informal education, vocational training, or from work experience.23

(1) Formal Education

Formal education specifies the aims, methods, curriculum, duration, assessment, and evaluation conditional to its completion. It can be classify by level and type of education as follows:

(1.1) Level of Education

(1.1.1) Basic Education

Basic education is provided for 12 years before higher education. It covers six years of primary education; three years of lower secondary education, and three years of upper secondary education. It also includes early childhood or pre-primary education.

(1.1.2) Higher Education

Higher Education is provided in universities, institutes, colleges or other types of institutions. It is divided into two levels: lower-than-degree level and degree level

a) Lower-Than-Degree or Diploma Level

Higher Education at lower-than-degree or diploma level is mainly offered by Rajabhat Universities, Rajamangala Universities, public and private vocational colleges, as well as colleges of physical education, dramatic arts and fine arts. The majority of courses offered are related to vocational and teacher education which requires two years of study.

b) Degree Level

The MOE provides the majority of teaching and learning at degree level. The study programmes require two years of study for students who have completed diploma courses, and four to six years of study for those finishing upper secondary education or equivalent courses. The first professional qualification is a bachelor’s degree obtained after four years of study. In the fields of architecture, painting, sculpture, graphic arts, and pharmacy, five years of study are required for a bachelor’s
degree. The fields of medicine, dentistry, and veterinary science require six years of study. In some of these professions, additional study is required before professional qualifications allow the candidate to practice in his or her field as awarded.

Advanced study of at least one but generally two years, combined with a thesis, leads to the award of a master’s degree. A doctorate is awarded in some fields/subjects and requires an additional three years of study following a master’s degree. An Advance diploma or certificate may be obtained after one or two years of course work. It is designed for students who already possess a degree or professional qualification.

(1.2) Types of Education

Formal education at both the basic and higher levels can be of various types depending on the characteristics and needs of target groups, the community and the nation.

(1.2.1) Special and Welfare Education

Special education is provided for children who are hearing-impaired, mentally retarded, visually-impaired, physically-impaired and health-impaired. Other groups of children who need special education services are specific learning-disabled, autistic, emotionally/behaviourally disordered, as well as gifted and talented children.

Welfare education is provided for those who are socially and culturally at a disadvantage. Students are not only provided with free education, but also accommodation, food, clothing, equipment, textbooks and other necessities. They are given special vocational training relevant to the locality of a particular school for future employment.

(1.2.2) Vocational Education

In the vocational stream, vocational education is taught at three levels: Upper secondary leading to the lower certificate of vocational education; post-secondary leading to a diploma or higher certificate of vocational education; and at university level leading to a degree. It is provided in educational institutions belonging to the public, the private sectors and enterprises; or those organized through co-operation of educational institutions and enterprises.
(1.2.3) Special Vocational Education

a) Sports Schools

There are ten sports schools offering special training for students who are intelligent to learn body movements, games and athletics. Admission is provided to students with a particular talent in sports from all over the country who are given full financial support by the government until they finish school.

b) Dramatic Arts and Fine Arts Colleges

They offer secondary education courses at two levels, each of which requires three years of study: 1) Lower Dramatic Arts Certificate, which is equivalent to lower secondary education, and 2) Intermediate Dramatic Arts Certificate and Intermediate Fine Arts Certificate, which is equivalent to upper secondary education.

(1.2.4) Educational for Ecclesiastics

General education is also provided to novices and monks in General Ecclesiastics Schools in various Buddhist temples. They are offered lower and upper secondary education curricular, equivalent to those provided by the DGE. Apart from the general subjects, the courses include learning units related to religious practice, the Buddha’s doctrine, and the Pali language. There are also two Buddhist universities in Bangkok with various campuses in the region offering courses at under graduate and graduate levels.

(1.2.5) Special Education

Specialized education, both at basic and higher education levels, is provided by ministries, bureaus, departments, state enterprises, and other public agencies in accordance with their needs and expertise, taking into consideration national education policy and standards.

(2) Non formal education

Non-formal education has flexibility in determining the aims, modalities, management procedures, duration, assessment and evaluation conditional to its completion. The contents and curricular for non-formal education is appropriate, it responds to the requirements, and meet the needs of individual groups of learners.

(2.1) Provision of Non-Formal Education for Pre-School Children:

- Provision of educational services for two to six year-old children or from birth to six years.
• Early childhood development in centres established by local communities aged three to six years.
• Child development of the private sector organized by the Council of Early Childhood and Youth Development Organizations consisting of 50 member organizations.

(2.2) Provision of Fundamental Education for Literacy
This educational service is provided to promote literacy for illiterate adults aged 14 years above. Non-formal activities to eradicate illiteracy are currently organized by the DNFE as follows:
• The Literacy campaign, with volunteer teachers continues to promote the eradication of illiteracy among the adult population.
• Functional Literacy Programme emphasizes an integration of literacy and problem solving skills for the improvement of quality of life.
• The promotion of Thai Language Usage for Thai Muslims in five southern border provinces.
• Hill Areas Education, aims at providing educational services to promote literacy among the hill-tribes.

(2.3) Provision of General Non-Formal Education
This education service provides continuing education programmes for those having no chance to study informal education from primary school or official premises, factories or other organizations. Learners are awarded the same qualifications as those in the formal school system. The learning process is organized in three ways: classroom learning, distance education and self-learning.29

(2.4) Vocational Non-Formal Education
• Training Course for Vocational Certificate is designed for primary school graduates who have no chance to study at a higher level. It provides educational opportunities to target the population in rural areas through training in vocational skills and quality of life promotion leads to a certificate equivalent to general lower secondary school.
• Short-Courses Vocational Training is provided in many areas such as Industrial Technology, Business and Commerce, Agriculture, and Arts and Crafts for 200-300 hours. Pre-employment training for the unemployed and upgrading training
for skilled workers, who need additional knowledge and skills are provided by various agencies.

- Interest Group Programme provides, teaching and learning activities according to individual needs and interests of the general public. Those having the same interests can form a group of five to fifteen persons who may receive training for more than 30 hours.

- Non-Formal Programme for Certificate in Vocational Education is provided through distance learning for lower secondary school graduates. This programme requires at least three years of study, except when there is a transfer of academic performance or experience.

(2.5) Quality of Life Improvement Activities

Training activities concerning quality of life improvement are provided to the general public and agencies responsible for education services, welfare and public services.  

(3) Informal Education

Informal education enable learners to learn by themselves according to their interests, potential, readiness and the opportunities available from individuals, society, environment, media, or other sources of knowledge. They are as follows:

- Informal education programmes are provided by all types of libraries, museums, as well as science and technology centre, etc.

- Informal education programmes of community learning networks i.e. community learning centres, village reading centre, sub-district health offices, as well as natural learning sources in each community.

- Learning from local wisdom, which includes culture and the body of knowledge in each community.

- Learning from local media which plays an important role in passing on knowledge and social values through several kinds of performances.

- Informal education programmes provided by mass media i.e. radio, television, newspapers, magazines, etc.

- Learning from families which are a sources of knowledge from birth of all people.

- Learning from networking through cooperative activities.
It can be said that all ministries are involved in providing informal education to promote lifelong learning. The services provided include educational activities or academic and professional programmes for different target groups relating to the responsibilities of each ministry.\textsuperscript{32}

\subsection*{2.2.7 Library and Information Science Education}

\subsection*{(1) History}

In 1951, Chulalongkorn University, Bangkok, was the first university to initiate Library and Information Science at degree level in Thailand. It offered library management with the cooperation of the Fulbright Foundation and five American professors over the succeeding five years.

In 1955, the university opened the Department of Library Science and offered diplomas. The objectives of the School are to promote librarianship, provide well-educated librarians to work in various types of libraries, and to support educational programmes which depend on extensive library materials.\textsuperscript{33} In 1957, the first course in "library use" to university students began. In 1959, the university opened a full time undergraduate programme for juniors and seniors. In 1964, the Master's programme in Library Science was introduced. Dr. Frances L. Spain, an American professor, who was a consultant to the programme at that time, stated that the graduate level of education for librarianship offered opportunities for librarians to contribute to the progress and direction of library development in Thailand.\textsuperscript{34} In 1965, the Prasarnmit Campus, which late became Srinakarinwiroj University, offered a graduate level course in College of Education. This was a one year programme for schools which include subjects such as: survey of library science, theory and technology progress and practice of library services. Over the next 50 years, such programmes were updated.\textsuperscript{35}

Professional education for librarians is rapidly changing to meet new demands. Today, less emphasis is placed on skills for managing books on shelves, file papers, and references in indexes; rather, students are expected to master in a wide range of new technologies and resources. Library schools are being renamed as Schools of Information Management, or simply Schools of Information.

LIS education programmes in Thailand, as in other countries, have various names: library science; library and information science; information
science; information studies; information management; and, information technology and management. They can be categorised into three groups: undergraduate programmes, graduate programmes and doctoral programme.

(2) Undergraduate Programmes

Most programmes are offered in the faculties of humanities, humanities and social sciences, arts, and liberal arts. The main purpose of undergraduate degrees is to prepare beginning professionals for entry-level positions in library and information work. The programmes are offered full-time, part-time or both. Most undergraduate LIS degrees are four-year programmes, but some departments offer two-year programmes. A survey on manpower needs, conducted by the Department of Library Science, Chulalongkorn University indicated the need for qualified graduates to get positions in all sectors. The titles of bachelor’s degree in library and information science in Thailand are as follows:

(2.1) The bachelor’s degree in Information Studies, is offered at five universities: Chulalongkorn University, Ramkhamhaeng University, Chiangmai University, Suranaree University of Technology and the University of the Thai Chamber of Commerce.

(2.2) Bachelor of Arts in Information Science is offered at Khon Kaen University, Mahasarakham University and Sukhothaithammathirat Open University.

(2.3) The Bachelor’s in Library and Information Science degree is offered at Srinakharinwirot University, Burapha University, Thammasat University and Rajabhat University.

(2.4) Bachelor of Arts in Information and Library Science is offered at Silpakorn University and Dhurakijpundit University.

(2.5) Bachelor of Arts in Information Management degrees is offered at Prince of Songkla University and Walailuk University.

The total number of required credits ranges from 120 to 150 credits, according to standards set by the Ministry of University Affairs. Usually the undergraduate curriculum consists of general education courses, foundation courses, areas of concentration courses, and elective courses. Number of credit required is given in table below.
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<tr>
<th>University</th>
<th>Degree Awarded</th>
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<td>39 18 57</td>
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Note: *vary by the structure of curriculum, not including background / introductory courses, minor subject courses, and other electives.

Required courses offered in the undergraduate programmes including:

- information and society / information in social context
- information sources
- collection development / information resources development
- information services / information service & dissemination
- communication and marketing in information services
- information technology / technology for information work
- management of libraries and information centres / management of information agencies / management of information organizations
- information storage and retrieval
- research
- introduction to information science
- organization of knowledge
- information users behaviour
- information resources analysis / information analysis
- reference resources
- indexing and abstracting
- information system development
- electronic library
- database development / database design and development

(3) Master Programmes

In 1964, the graduate programme in library science of Chulalongkorn University was the first to offer the Master degree, now ten universities offer master’s programme all over the country. All these lead to a Master of Arts in Library and Information Science but Sukhothaithammathirat Open University has added a Master of Arts in Information Science in their curriculum. These programmes require the writing of a thesis but some universities offer both thesis and non-thesis programmes. Thammasat University is currently revising its curriculum to offer both types. The total credits needed for Master of Arts in Library and Information Science at each university is given in table 2.2.

Table 2.2  Titles of Degree Awarded and Credits for Master’s Programme

<table>
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<tr>
<th>University</th>
<th>Degree Awarded</th>
<th>No. of Credits in LIS / IS</th>
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Currently, four universities offer both types thesis (Plan A) and non-thesis (Plan B) of MA programme; Chiangmai, Khon Kaen, Mahasarakham, and Srinakharinwirot University. All programmes understand the need for technological knowledge and skill for information professionals. Therefore, the required subjects include:

- global perspectives in library and information science
- information science
- advanced information media organization
- advanced classification and cataloging
- advanced administrations of libraries and information centres / advanced management of information institutions
- research
- statistics
- technology for library and information science / technology for information and management / information technology
- information retrieval
- records management

M-Phil programme in Library and Information Science is not available in Thailand.

(4) Doctoral Programme

In 2003, Khon Kaen University initiated the first doctoral programme in Thailand with the degree title “Doctor of Philosophy in Information Studies”. It is an integration of management; information, communications and technology (ICT); and
social knowledge. It consists of two study two plans: Plan A, with 48 credits
dissertation and nine credits for audit courses; and Plan B, with 36 credit dissertation;
nine credits for audit plus nine credit required courses; and nine electives. Required
courses for Plan B including: academic writing, research methodology and statistics
for information studies and seminar on information, communication, and technology
(ICA).40

Undergraduate and graduate programmes continue to be updated and
expanded. Currently there are 16 universities offering programmes of library and
information science. Library and information science education is at the departmental
level within faculties (schools) unlike the schools of library and information science
in the United States and Europe.

(5) Library and Information Science Distance Education in Thailand

Distance education has been accepted for providing and promoting lifelong
education which is independent and interactive educational access at all levels. It
extends the classroom to a wider audience by using a wide range of technologies to
deliver educational services and subjects to off-campus sites, workplace, homes and
remote villages. Thus, distance education is recognized throughout the world as a
viable alternative to campus-based education. For developing countries such as
Thailand, distance education, with the possibilities of outreach and economic scale,
appears to be a promising approach in minimizing educational inequality.

The advent of the Internet as a means of information access and distribution,
and the explosive growth of the World Wide Web (Web) have transformed distance
teaching from a broadcast mode to an interactive one.

Due to highly advanced technology of telecommunication and learners’
limitations, distanced education plays a significant role in library and information
science education. Reasons for applying for distance education include, isolation from
geographical or social limitations and social status, such as the under-privileged class.
Social limitations include finance, family, physical and emotional disadvantages. It is
believed that distance education could benefit this group most. For example, such
persons face lack of self-confidence in a face to face situation; henceforth, distance
education would enable them to participate more confidently. In Thailand, library and
information science has also been offered through distance education by three open
universities, namely Ramkhamhaeng University, Sukhothai Thammathirat Open
University and Suranaree University of Thechnology.41

(6) Distance Education in LIS at Ramkhamhaeng University (RU)

The instructional system used is a combination of on-campus instruction and
distance learning through mail, radio, television, and other modern facilities. Students
may choose either or both modes of instruction to fit their learning needs. Textbooks,
learning materials, recorded audio and video lessons are available to students to study
at home. For those fully engaged in their professions or other necessities, they are
required only to come in for the final examinations.42

RU offers both bachelor’s degree programmes and master’s degree
programmes in Library and Information Science; Department of Library Science,
Faculty of Humanities and Graduate School, respectively. They are as follows:
Bachelor of Arts, majoring or minoring in Library Science, initiated in 1974 and
Master of Arts, majoring in Library and Information Science, initiated in 1992. This
study programme has been delivered through conventional classrooms.

To receive a bachelor’s degree in Information Studies, a student must
complete 144 credits: 45 credits of general education, 57-60 credits of major
requirements, 30 credits of minor requirement and 9 – 12 credits of free electives. A
Master of Arts in Library and Information Science requires 42 credits : 21 credits of
core requirements, 9 credits of guided electives and 12 credits of master’s thesis.

(7) Distance Education in Information Science at STOU

In providing information science courses, Sukhothai Thammathirat Open
University invites librarians, professors, academic staff and experts from various
library schools and other related fields, from both government and private sectors; to
join in all stages, especially in the production of instructional media. A more efficient
and economical educational programme could be made possible through such
cooperative efforts.

The School of Liberal Arts, STOU offers information science programmes: at
Bachelor’s level with two majors: General Information Science and Office
Information Science. The Continuation of the same course is also provided through
various short courses and training programmes in Information Science. The objectives
of information science programmes are: 1) to enable students to store, retrieve, and
handle information efficiently; 2) to disseminate knowledge on information storage,
retrieval, and handling to information specialists and other interested persons; and 3) to promote studies and research in the field of information science.43

STOU is the first university in Thailand to offer library and information science education via a distance education system. The programme was set up by the School of Liberal Arts, it offered bachelor's degree and certificate in 1989 and 1991, respectively. At the bachelor's degree level, the students have to take at least 22 courses (132 credits). Those courses include five General Foundation Courses, four Core Courses, eleven Area-Specific Courses, and two Free-Elective Courses. The master's degree programme in Information Science, majoring in Information Science is offered in 2001. It requires 40 credits: 15 credits of core requirements, 10 credits of guided electives and 15 credits of master’s thesis.

(8) Distance Education in Information Science at SUT

Library and Information Science programme at Suranaree University of Technology (SUT) has begun in 1998 by School of Information Technology and Institute of Social Technology. The objectives of the programme are: 1) to educate and train the students to be competent in the field of information technology with both theory and practice, 2) to enable students to register as highly qualified and professional technologists; and 3) to train students to have skill and knowledge in techno-ware, skills in the technology concerned; human-ware, general skills as human being in a modern society; info-ware, skills in efficient technology for information compilation and dissemination; and orga-ware, skills in the setting up of suitable mechanism and systems for sustainable development. The teaching method employed is a traditional face-to-face classroom.

In the age of globalization, the aim of education is to manage life-long learning for all, without limitations of time or space. SUT has developed the Borderless Education system by using information technology in the form of multimedia, combining distance interactive, computer assisted instruction, printed, and other electronic media, so that the learner may gain a broad knowledge, and thus, participate in a virtual university. The system is being implemented by creating various courses in this format. Courses on Library and Information Science are also included in the plan.44 Distance education in library and information science has made a major contribution to Thai librarianship and library/information science education in Thailand and in the Asia-Pacific region. It increasingly plays important roles in
expanding educational opportunities by providing the “second-chance” education and a continuing education for library and information personnel. 45

(9) Faculty and students

Many faculty members in LIS programmes have strong academic backgrounds, at least to master’s level; there is an increasing number of academics with doctorates as well, but not always in library and information science. They have obtained higher degrees from institutions in Thailand as well as overseas. Overall, there is a shortage of qualified academic staff, thus, some institutions employ faculty with degrees in other disciplines, including computer science, information technology, management information systems, statistics, law and communications. Some departments also invite retired academics to teach specialized courses. These practices, whilst necessary in order to staff the course, create a number of problems, including the graying of the faculty, a lack of younger staff comfortable with the latest developments in IT, and heavy teaching loads unmitigated by fair distribution of periods of research leave.

In general student admission to LIS programmes is based on academic merit, and most universities require a general examination and an interview for both undergraduate and postgraduate entry. As a rule 30–40 applicants are admitted to each undergraduate degree programme annually, with 10–20 admitted to each postgraduate programme. Most LIS departments complain about their student intake. The majority of students entering undergraduate programmes are fresh from school, and therefore, young. As a result, they often lack commitment to the information profession, or indeed to any profession, which is understandable for an 18-year-old. In addition, top students generally ignore information work as a career thus, are not attracted to the undergraduate programmes. 46

Conclusion

Library and information science education in Thailand is now approaching its 54th anniversary. The number of institutions that offered the programmes have continued to increase. Many institutions are in the process of curriculum review and revision as well as new programme initiation. However, there are some problem concerning its education, i.e. the graying of faculty members, lack of extensive
expertise in information technology, heavy teaching load, insufficient budget for instructional equipment and educational media development.

2.3 Universities and University Libraries in the North of Thailand

2.3.1 Chiangmai University [Website: www.cmu.ac.th]

Chiangmai University was founded in January 1964, in a royal charter granted by His Majesty King Bhumibol Adulyadej. CMU, or Mor Chor as it is known locally, was the first institute of higher education in the north, and the first provincial university in Thailand. It is a premier university seeking excellence in the advancement and dissemination of knowledge to meet the challenges faced by the nation in a globalizing world.

Since its opening in 1964, the three founding Faculties of Science, Social Sciences, and Humanities, continued to augment structure and organization in terms of premises, the range of disciplines offered, and student enrollment. Today, CMU has seventeen Faculties with 107 individual departments, and a Graduate School. It currently offers a total of 235 programmes, 84 undergraduate programmes, 151 postgraduate and graduate diploma programmes, with over twenty-three thousand students. It also encourages international cooperation and has established numerous contracts with foreign universities and institutions.47

It is a public university, funded largely by the Ministry of Education, Religion and Culture (MERC). The University is governed by the University Council, which comprises of 38 members drawn from all sectors of the community. Academic and administrative matters are the responsibilities of the Academic Committee, chaired by the President, and the Academic Administration and Cooperation committee, respectively. CMU’s seventeen faculties are classified in three academic areas: Faculties of Health Sciences - Medicine, Dentistry, Pharmacy, Associated Medical Sciences, Nursing and Veterinary Medicine; Faculties of Science and Technology - Science, Engineering, Agriculture, Agro-Industry and Architecture; Faculties of Social Sciences - Humanities, Education, Fine Arts, Social Sciences, Business Administration and Economics.48
(1) **Information Technology Service Centre (ITSC)**

Established in 1975, the University's computer facilities provide access to both, the campus intranet (1 Gbps fiber optic access) and the Internet (9 Mbps). The ITSC currently provides more than 800 PCs for students' use in 42 locations within CMU faculties and dormitories, all with access to MS Office software and the university's e-Learning system. All students receive their own user account with e-mail address, and are entitled to get 30 hours per month free remote access to the CMU intranet and the Internet (modem speeds 28.8 to 56 Kbps via 396 phone numbers). For students who need more than 30 hours a month, local, untamed, calls are only 3 Baht per call. A range of special equipment (Data Centre, System Walker, etc.), Information Technology-related training courses, documentation and an internationally recognized computer testing service are also available. Each CMU faculty also maintains its own computer network, linked to the main network.

(2) **Chiangmai University libraries**

CMUL is an intelligent asset equipped with extensive and inclusive information resources to implement the instructional needs, research activities and keen interests of the university community as well as of the public. CMUL has a mission to explore, pursue, generate, and disseminate, the academic and research-oriented knowledge by organizing and providing competent technical services for the most benefit of the society in general and of Chiangmai University in particular. (See table 2.3 - 2.9 Pgs. No. 35-41)

2.3.2 Maefaluang University [Website: www.mflu.ac.th.]

Maefaluang University (MFLU) is Thailand’s newest university, located in Chiang Rai, the northern most province (approximately 785 kilometers north of Bangkok). It is founded according to the University Act on September 25, 1998 with an autonomous status. It is the wish of the Royal Thai Government and the people to see that the establishment of this university signifies the citizens’ loyalty to the Princess Mother.

The University aims to be the centre of human resource development in the future in the Northern part of Thailand and in the region of economic quadrangle, which comprises of the Northeastern Union of Myanmar, Southern People's Republic of China and Northwestern Lao People's Democratic Republic. Geographically, this
widens opportunities for the university to be a regional centre to higher education. It employs autonomous administration system and is financially supported by the government in the form of block grants.

MFLU is a centre for higher education with international standards. It is committed to initiating, searching and developing a body of knowledge to excel academically for the benefit of the individuals and graduates who are equipped with knowledge and ethics. They may be able to constructively cooperate with people from all walks of life in the society and be able to appropriately employ technologies and knowledge. It also emphasizes art and cultural development to retain the national identity.

There are six faculties that include the School of Liberal Arts, School of Science, School of Management Science, School of Information Technology, School of Agricultural Technology and School of Industrial Technology.⁵²

(1) Computing Centre

The Maesaluang University Computing Centre strives to inform the students about the use of computers as tools for working with large quantities of information in high technology environments. The Centre also has outstanding computer facilities and Internet connections. There are personal and Macintosh Computers for use by students. These are located in various computer laboratories of the University and in other suitable locations outside the classrooms. All personal computers are connected through LAN in the campus. These computers have many applications for student and faculty use, as well as the computerization of administrative functions, such as on-line registration, payroll and personnel.

Students living off campus can dial up the access server and make use of the Network. There are lines that can be used for dial up connectivity that provide speed which reaches 56 kbps. The centre integrates services with the teaching and learning mission of the university in such a way to turn networking into a technology-mediated learning environment. The section works as a team of developers who, in cooperation with instructors, plan, design and create computer-aided instruction models for students and the public.

The main task is to facilitate and assist users in availing themselves productively and efficiently of the Internet and Intranet resources. The services to the undergraduate, graduate, faculty and staff members are as follows: provide Internet
accounts; password correction; Internet solving; provide documents for Internet connection; and provide problem solving.

(2) Maefaluang University Library

The main objective is to build up adequate information resources to support the university faculties, research institutes, and developmental centres. The other objective is to develop a capability to serve the information needs in the field covered by the university's academic and research programmes. (See table 2.3 - 2.9 Pgs. No. 35-41)

2.3.3 Maejo University [Website: www.mju.ac.th.]

Maejo University (MJU), formerly known as Maejo Institute of Agricultural Technology, was established on June 7, 1934. It is one of the oldest and most reputable agricultural institution in the nation. It strives to strengthen its curricula accordingly and provides higher education to the rural sector of the country. The university development has focused on the university as the foremost international institution of academic excellence in the region, and desires to make it a learning centre for all people who are self-reliant and dependent. It was originally established to support national development in Thailand, Maejo University has expanded its aim to encompass regional development in line with responsibilities mandated to all state universities under the MERC.

MJU is divided into the following major units: Office of the President, Faculty of Agricultural Production, Faculty of Agricultural Business, Faculty of Science, Faculty of Agricultural Engineering and Agro-Industry, Office of Agricultural Research and Extension and Graduate School (internal unit). It offers more than 57 programmes of study, 16 programmes at the graduate degree programmes and 41 programmes at the under graduate programme. MJU has provided the society with technological information through extension activity; it has many programmes to disseminate technology from the university to the society in order to affect development and improvement of the way of life, especially in the rural and highland communities.

(1) Maejo Information Technology Centre

Maejo Information Technology Centre began the Internet services for the first time in 1999. It mainly served the Faculty's instructional and research activities with
the acquisition of a central computer system and several micro-computers to cater to teaching, research and administrative functions in the University. With the acquisition of modern apparatus, Maejo Information Technology Centre has been substantially expanded. Various types of services are now extensively available both for students and faculty members specializing in computer studies and those needing data processing and other specialized services. The University is fully aware of the urgent need to equip students with competency in information technology so that they may meet present-day requirements of the public and privates sectors alike. In addition, the Centre has been instrumental in introducing computerized database and other functional systems to the University's management information system (MIS) such as students' registration, human resources, finance and budgeting.

The Centre also organizes training sessions for the university personnel in various user programmes. The purpose is to encourage them to be more efficient to use modern technology in their specific functional responsibilities. Other activities of the Centre include data analyses and staff training for other governmental and private sector agencies. One of the most important tasks in this respect involves the development of computer software for the local community and software on expert systems for use in certain disciplines.

(2) Maejo University Library

The University Library supports the teaching and research activities in the campus. It provides various facilities and services to university staff and students by supplying the necessary printed and non-printed materials. It also extends its resources and services to bona fide scholars and researchers from outside the university. (See table 2.3 - 2.9 Pgs. No. 35-41)

2.3.4 Naresuan University [Website: www.nu.ac.th]

Naresuan University (NU), located in Phitsanulok, Thailand, was named after King Naresuan the Great. Formerly a campus of Srinakharinwirot University, NU was established as a public university in 1990. Naresuan University is a governmental institution developed from the Phitsanulok campus of Srinakarinwirot University on the 29 July 1990. The auspicious occasion represented the 400th anniversary of the King Naresuan the Great is ascension to the throne. Serving as a foundation of higher education in nine provinces of the lower northern region, along with Phayao Province,
Naresuan University has long been recognized for its innovative academic excellence and outstanding achievement in both research and professional services.\textsuperscript{54}

The University has its IT campus network at Chiangmai, Kamphang Phet, Nakhon Sawan, Phetchaboon, Phayao, Phrae, Sukhothai, Tak, and Uttradit. It is a comprehensive university offering more than 58 undergraduate and 55 graduate programmes in the fields of Agriculture Sciences, Natural Resources, Environmental Science, Allied Health Science, Architecture, Dentistry, Education, Engineering, Humanities, Social Sciences, Medicine, Nursing, Pharmaceutical Sciences, Law, Medical Sciences and Science.\textsuperscript{55}

(1) Centre for Information Technology and Communication Services (CITCOM)

CITCOM was established to function as an Information and Technology Service Centre of Naresuan University in order to provide full support for Naresuan University to reach its major duties - graduate production, research project production, Thai cultural conservation, and academic services aiming to conduct research projects in the field of information and technology, information production, training together with other academic services to contribute to Thai society.

CITCOM also provides computer network services to any organization under the control of Naresuan University including Phitsanulok and Phayao Campus, Academic Centres, as well as, other co-operative universities. In order to reach the highest ideal for becoming a Cyber Community of the globalization era, Citcoms aims to continuously support the utilization of computer networking, web technology, and e-mail services through Intranet and Internet network as the first priority by means of communicating effective information through the university in order to exchange and transfer information via multi-media technology, ranging from the level of the administrators to the students.

CITCOM fulfills the university's requirements by continuously providing knowledge content for university personnel and students through the computer media. Citcoms also develops computer literacy to the target groups by using various patterns of help desk services such as telephone, facsimile and e-mail, and the world wide web (www.) base in order to make the best use of technology for developing the university.\textsuperscript{56}
Naresuan University Library

Naresuan University Library is a high quality information resource. It provides efficient academic and research services to faculty members, students, staff of the University and the general public. The Library acquires and collects information on all disciplines. It aims at being a centre for academic excellence of the University. Its efficient staff, use modern technology in administrative management to render various services. (See table 2.3 - 2.9 Pgs. No. 35-41)

2.3.5 Ramkhamhaeng University [Website: www.ru.ac.th]

Before the establishment of Ramkhamhaeng University in 1971, Thailand has long suffered a crisis in the quest for higher education, because the number of high school students seeking seats in the universities outnumbered the admission capacity of all universities combined. The problem finally prompted the parliament to pass a law authorizing the establishment of Ramkhamhaeng University or R.U. The University is committed to the concept of providing quality education both at the undergraduate and graduate levels. Being the first open university in Thailand, Ramkhamhaeng strongly emphasizes the principle of equality, yet strives to achieve this goal without compromising academic excellence. The University has provided four study programmes in 1971 - Faculty of Law, Business Administration, Humanities, and Education. In 1974, three more faculties were operated - Faculty of Science, Political Science, and Economics.

The instructional modes at R.U. have been incorporated, taking into consideration the needs and backgrounds of the student population. The instructional system used is a combination of on-campus instruction and distance learning through mail, radio, television, and other modern facilities. Students may choose either or both modes of instruction to fit themselves. Textbooks, learning materials, recorded audio and video lessons are available to students to study at home.

To provide those individuals residing in the provinces with an equal opportunity in higher education, Ramkhamhaeng University, in cooperation with the private sector and the government agencies in each region of the country, has set up the Regional Campuses in major provinces in order to provide education both at the undergraduate and graduate levels. At the Regional Campuses, the University offers instruction for special programme leading to a Bachelor's and Master's degree in
different fields. At the present, there are such 14 campuses: Phrachinburi, Uthai Thani, Nakhonsithammarat, Amnadcharoen, Nakhonphanom, Phrae, Khonkaen, Srisakhet, Lopburi, Sokhothai, Nakhonratchasima, Trang, Udornthani and Burirum.57

(1) Computing and Internet Facilities

The Computer Institute is equipped with microcomputers and other connected peripherals. It maintains an array of software packages for performing the many computer related administrative functions of the university, assisting staff members with research activities involving complex computations and intricate data processing, and providing tools of instruction for the Computer Science courses. The Computer Institute has provided many internet services and adjusted the speed of the telecommunication systems in order to cope with internal demand in the transmission of data and the external volume of communication through the standard telephone and ISDN.

Intranet Service is a Web service system which is convenient for the student and the staff to check and execute activities related to the student’s study, e.g. checking the results of study, schedules of classes, schedules of examination, registration, etc. All new students must register by themselves in the intranet system through the internet network. Therefore, the student must learn how to use the internet and try using the University’s Internet service in advance so as to avoid problems and blunders in the actual registration process.

(2) Ramkhamhaeng University Library

In an open-admission environment such as Ramkhamhaeng University where class attendances are non-mandatory, the library plays a vital role as one of the indispensable learning resources. The library’s main objectives are to provide materials and services to support courses and to foster independent study and research. It houses printed and non-printed materials in Thai and foreign languages, which are classified according to the Library of Congress classification system. (See table 2.3 - 2.9 Pgs. No. 35-41)

2.3.6 Thammasat University [Website: www.tu.ac.th]

Thammasat University was established on June 27, 1934: Since that time the university has been outstandingly famous for social science and humanity science, which being involved in the history of Thai politics all along. The affairs of the
university have been developed consecutively. In 1980, the university was given permission to set up a computer centre used for learning and teaching, research as well as, for the management of the university. While the project was in the process of being carried out, the government at that time needed to set up an information processing centre for rural development. Thus, in 1982 TU set up an information processing institute for education and development, which would function as an institute for data processing and data analyzing for rural development.

(1) Lampang Campus

The establishment of the Lampang Campus as a branch of TU was approved to expand the educational opportunities of the residents of the Lampang province and neighboring areas. TU set up the campus on 8 July 1996, with the location of a Faculty of Sociology and Anthropology on the premises.

(2) The Information Processing Institute for Education and Development (IPIED)

The IPIED aimed to provide computer facilities to support the advancement of teaching, learning and research, as well as the administration of Thammasat University. Services provided by the IPIED are open to all members of the university. There are both graduates and under-graduates students using these services. Staff members are also welcome, provided by the IPIED for free to use the facilities like teaching, training, sending e-mails, accessing the Internet and video conference system provided by the IPIED. In addition, it provides a means of computer-related consultation and support for faculties and the centre within the University, as well as similar services to outside organizations and private companies.

The IPIED offers main services as follow: Internet access from inside campus or via modem from outside, speakers and training, and microcomputer use. The objectives of IPIED are as following: Place optical fiber network cables in amongst the university to span every department, faculty, sector, office and infrastructures, establish Internet connectivity to the TU Network, develop a data network that is up-to-date with the information and technology of today's world and to have an informative based system that allows an easy understanding of technology through experiencing the network.
(3) **Thammasat University Libraries**

The main mission of Thammasat University Libraries are to support the University's goal of academic excellence; to acquire, organize and provide information resources to it's community; to promote life long learning for a better quality of life; to give up-to-date information, global access, good service and competent administration; to be the centre of self-learning; to use new information technology to build up the intellectual society and to be one of the leading libraries of Thailand that provides accurate, instant, boundless information; using all possible technology; with heart-felt services. (See table 2.3 - 2.9 Pgs. No. 35-41)

### Table 2.3 Websites of University Libraries in the North of Thailand

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<thead>
<tr>
<th>University Libraries in the North of Thailand</th>
<th>Website</th>
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<tbody>
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### Table 2.4 Resources of University Libraries in the North of Thailand

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<th>University Libraries in the North of Thailand</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CMU</td>
</tr>
<tr>
<td>Area</td>
<td>15,768</td>
</tr>
<tr>
<td>Seat</td>
<td>1,906</td>
</tr>
<tr>
<td>Books</td>
<td>342,822</td>
</tr>
<tr>
<td>Periodicals</td>
<td>2286</td>
</tr>
<tr>
<td>Newspapers</td>
<td>22</td>
</tr>
<tr>
<td>Non-Printed</td>
<td>21,591</td>
</tr>
</tbody>
</table>

83
Table 2.5 Library Automation System of University Libraries in the North of Thailand

<table>
<thead>
<tr>
<th>Library Automation System</th>
<th>University Libraries</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CMU</td>
</tr>
<tr>
<td>Horison</td>
<td>✓</td>
</tr>
<tr>
<td>Innopac</td>
<td></td>
</tr>
<tr>
<td>VTLS</td>
<td></td>
</tr>
</tbody>
</table>

Table 2.6 Information Resource Classification of University Libraries in the North of Thailand

<table>
<thead>
<tr>
<th>Classification System</th>
<th>University Libraries</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CMU</td>
</tr>
<tr>
<td>Dewey Decimal Classification</td>
<td>✓</td>
</tr>
<tr>
<td>Library of Congress Classification</td>
<td>✓</td>
</tr>
</tbody>
</table>

Table 2.7 Departments of University Libraries in the North of Thailand

<table>
<thead>
<tr>
<th>Department</th>
<th>University Libraries</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CMU</td>
</tr>
<tr>
<td>Acquisition Department</td>
<td>✓</td>
</tr>
<tr>
<td>Cataloging Department</td>
<td>✓</td>
</tr>
<tr>
<td>Collection Development Department</td>
<td></td>
</tr>
<tr>
<td>Collection Preservation Department</td>
<td>✓</td>
</tr>
<tr>
<td>Health Sciences Library Department</td>
<td>✓</td>
</tr>
<tr>
<td>Library Administrative Office</td>
<td>✓</td>
</tr>
<tr>
<td>Library Automation Department</td>
<td>✓</td>
</tr>
<tr>
<td>Library Information Technology Department</td>
<td>✓</td>
</tr>
<tr>
<td>Library Promotion and Development Department</td>
<td></td>
</tr>
</tbody>
</table>

84
| Non-Printed Materials Department | √ | √ | √ | √ | √ | √ |
| Periodical Department           | √ | √ | √ | √ | √ | √ |
| Reader Services Department      | √ |
| Science and Technology Library  Department | √ |
| Services Department             | √ | √ | √ | √ | √ | √ |
| Social Science and              | √ |
| Humanities Library Department   | |

**Table 2.8 Databases Service in University Libraries in the North of Thailand**

<table>
<thead>
<tr>
<th>Databases</th>
<th>University Libraries</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CMU</td>
</tr>
<tr>
<td>ABI Inform</td>
<td>√</td>
</tr>
<tr>
<td>Academic Search Elite</td>
<td>√</td>
</tr>
<tr>
<td>ACM Digital Library *</td>
<td>√</td>
</tr>
<tr>
<td>ACS Bibliographic Database</td>
<td></td>
</tr>
<tr>
<td>ACS Publications</td>
<td>√</td>
</tr>
<tr>
<td>AGRICOLA</td>
<td>√</td>
</tr>
<tr>
<td>AIP / APS</td>
<td></td>
</tr>
<tr>
<td>Annual Reviews</td>
<td></td>
</tr>
<tr>
<td>Arts &amp; Humanities Citation Index (A&amp;HCI)</td>
<td></td>
</tr>
<tr>
<td>ASCE E-Journals (American Society of Civil Engineers)</td>
<td></td>
</tr>
<tr>
<td>ASME E-Journals (American Society of Mechanical Engineers)</td>
<td></td>
</tr>
<tr>
<td>Bentham Science E-Journal</td>
<td></td>
</tr>
<tr>
<td>Biography Index Database</td>
<td></td>
</tr>
<tr>
<td>Blackwell Synergy</td>
<td></td>
</tr>
<tr>
<td>CAB Abstracts</td>
<td></td>
</tr>
<tr>
<td>Cambridge Journals On-line</td>
<td></td>
</tr>
</tbody>
</table>

85
<table>
<thead>
<tr>
<th>Database</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CINAHL</td>
<td>✓</td>
</tr>
<tr>
<td>Classical Music Library</td>
<td>✓</td>
</tr>
<tr>
<td>CogNet</td>
<td>✓</td>
</tr>
<tr>
<td>Collection Index Database</td>
<td>✓</td>
</tr>
<tr>
<td>DAO</td>
<td>✓</td>
</tr>
<tr>
<td>Database of Patents</td>
<td>✓</td>
</tr>
<tr>
<td>Database of Supreme Court Decisions</td>
<td>✓</td>
</tr>
<tr>
<td>Databases on Thai LIS Project</td>
<td>✓</td>
</tr>
<tr>
<td>Ebsco A-to-Z</td>
<td>✓</td>
</tr>
<tr>
<td>EI Compendex</td>
<td>✓</td>
</tr>
<tr>
<td>Emerald Intelligence &amp; Full text</td>
<td>✓</td>
</tr>
<tr>
<td>Emerald</td>
<td>✓</td>
</tr>
<tr>
<td>ERIC : Education Resource</td>
<td>✓</td>
</tr>
<tr>
<td>Information Centre</td>
<td>✓</td>
</tr>
<tr>
<td>Gale Expanded Academic Asap</td>
<td>✓</td>
</tr>
<tr>
<td>Grolier On-line</td>
<td>✓</td>
</tr>
<tr>
<td>H.W. Wilson *</td>
<td>✓</td>
</tr>
<tr>
<td>IEEE Xplore</td>
<td>✓</td>
</tr>
<tr>
<td>IEEE/IEEE Electronic Library (IEL) *</td>
<td>✓</td>
</tr>
<tr>
<td>IFD Clipping (AGRIS &amp; Current contents)</td>
<td>✓</td>
</tr>
<tr>
<td>Ingenta</td>
<td>✓</td>
</tr>
<tr>
<td>ISI WEB Of Science *</td>
<td>✓</td>
</tr>
<tr>
<td>Journal and Newspaper Index</td>
<td>✓</td>
</tr>
<tr>
<td>Database</td>
<td>✓</td>
</tr>
<tr>
<td>Journal Link</td>
<td>✓</td>
</tr>
<tr>
<td>Knovel</td>
<td>✓</td>
</tr>
<tr>
<td>LexisNexis *</td>
<td>✓</td>
</tr>
<tr>
<td>Librarian's Index.</td>
<td>✓</td>
</tr>
<tr>
<td>Matichon e-Library</td>
<td>✓</td>
</tr>
<tr>
<td>MEDLINE</td>
<td>✓</td>
</tr>
<tr>
<td>MIT CogNet</td>
<td>✓</td>
</tr>
</tbody>
</table>

86
<table>
<thead>
<tr>
<th>Database/Database System</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Official documents system of the United Nations (ODS)</td>
<td>√</td>
</tr>
<tr>
<td>OVID</td>
<td>√</td>
</tr>
<tr>
<td>PEP E-Journals (Professional Engineering Publishing)</td>
<td>√</td>
</tr>
<tr>
<td>Physics Reference Data</td>
<td>√</td>
</tr>
<tr>
<td>Project MUSE</td>
<td>√</td>
</tr>
<tr>
<td>ProQuest Digital Dissertations *</td>
<td>√</td>
</tr>
<tr>
<td>PubMed</td>
<td>√</td>
</tr>
<tr>
<td>Science Citation Index Expanded</td>
<td>√</td>
</tr>
<tr>
<td>ScienceDirect *</td>
<td>√</td>
</tr>
<tr>
<td>SciFinder Scholar</td>
<td>√</td>
</tr>
<tr>
<td>Scirus</td>
<td>√</td>
</tr>
<tr>
<td>Scopus (Trial to December 2005)</td>
<td>√</td>
</tr>
<tr>
<td>Social Sciences Citation Index (SSCI)</td>
<td>√</td>
</tr>
<tr>
<td>Springer Link</td>
<td>√</td>
</tr>
<tr>
<td>SwetsWise</td>
<td>√</td>
</tr>
<tr>
<td>Taylor &amp; Francis</td>
<td>√</td>
</tr>
<tr>
<td>Thai Royal Gazette Database</td>
<td>√</td>
</tr>
<tr>
<td>Thai Theses Database</td>
<td>√</td>
</tr>
<tr>
<td>The AMICO Library</td>
<td>√</td>
</tr>
<tr>
<td>University Catalogue Database</td>
<td>√</td>
</tr>
<tr>
<td>Untreaty</td>
<td>√</td>
</tr>
<tr>
<td>Vertical Files Index Databases</td>
<td>√</td>
</tr>
<tr>
<td>Web of Science</td>
<td>√</td>
</tr>
<tr>
<td>Web of Science (ThaiLIS)</td>
<td>√</td>
</tr>
<tr>
<td>Westlaw</td>
<td>√</td>
</tr>
</tbody>
</table>

**Note**: Department of University’s Affairs and Thai Library Integrated System Project (ThaiLIS) has leased academic databases for public universities in shared information retrieving. Under this project, public universities can provide online database searching service.
**Table 2.9** Library Services in University Libraries in the North of Thailand

<table>
<thead>
<tr>
<th>Library Services</th>
<th>University Libraries</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CMU</td>
</tr>
<tr>
<td>Audiovisual resources service</td>
<td>✓</td>
</tr>
<tr>
<td>Bibliography Service/Instruction</td>
<td>✓</td>
</tr>
<tr>
<td>Circulation service</td>
<td>✓</td>
</tr>
<tr>
<td>Clipping</td>
<td>✓</td>
</tr>
<tr>
<td>Community Services</td>
<td></td>
</tr>
<tr>
<td>Current Awareness Services</td>
<td>✓</td>
</tr>
<tr>
<td>Digital Collection</td>
<td>✓</td>
</tr>
<tr>
<td>Digital Media Learning</td>
<td>✓</td>
</tr>
<tr>
<td>Document Delivery</td>
<td>✓</td>
</tr>
<tr>
<td>Education Aid Produce</td>
<td></td>
</tr>
<tr>
<td>Electronic Books</td>
<td>✓</td>
</tr>
<tr>
<td>Electronic Journal</td>
<td>✓</td>
</tr>
<tr>
<td>Electronic Research</td>
<td>✓</td>
</tr>
<tr>
<td>Electronic Theses</td>
<td>✓</td>
</tr>
<tr>
<td>Inter – Library Loan</td>
<td>✓</td>
</tr>
<tr>
<td>Internet Service</td>
<td>✓</td>
</tr>
<tr>
<td>Journals and Current Contents</td>
<td>✓</td>
</tr>
<tr>
<td>Library training</td>
<td>✓</td>
</tr>
<tr>
<td>Library use instruction</td>
<td>✓</td>
</tr>
<tr>
<td>New Books List</td>
<td></td>
</tr>
<tr>
<td>New books list Service</td>
<td>✓</td>
</tr>
<tr>
<td>New Periodicals Contents</td>
<td></td>
</tr>
<tr>
<td>Northern Publication</td>
<td>✓</td>
</tr>
<tr>
<td>On-line Databases Service</td>
<td>✓</td>
</tr>
<tr>
<td>On-line Public Access Catalogue</td>
<td>✓</td>
</tr>
<tr>
<td>On-line Searching</td>
<td>✓</td>
</tr>
<tr>
<td>Pamphlet</td>
<td>✓</td>
</tr>
<tr>
<td>Periodical &amp; Newspaper</td>
<td>✓</td>
</tr>
</tbody>
</table>
2.4 Information Technology (IT) Reform in Thailand

2.4.1 Structure of Internet Service

Structure of Internet Service in Thailand consists of:

1. The Communication Authority of Thailand (CAT) which issues ISP licenses and has a monopoly as a wholesaler of Internet international connections.

2. International mega-carriers such as Teleglobe, Global One, Concert, AT&T, and Thailand’s own ThaiCom satellite link between local ISPs and global Internet networks.58

3. Internet user, there are both individual users and corporate users. Individual users are always connected to the Internet by dialing the given telephone number using the modem attached to the computer. Corporate users are often connected to the Internet by leased line to ISPs.59
(4) Internet Service Providers (ISPs), there are nineteen providing Internet access and services to individuals and corporate customers. They are as follows:

Table 2.9 Internet Service Provider in Thailand

<table>
<thead>
<tr>
<th>No.</th>
<th>Company</th>
<th>Website</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Internet Thailand</td>
<td><a href="http://www.inet.co.th">www.inet.co.th</a></td>
<td>March 1995</td>
</tr>
<tr>
<td>2</td>
<td>KSC Commercial Internet Co., Ltd.</td>
<td><a href="http://www.ksc.net.th">www.ksc.net.th</a></td>
<td>June 1995</td>
</tr>
<tr>
<td>4</td>
<td>Jasmine Internet Co., Ltd.</td>
<td><a href="http://www.ji-net.com">www.ji-net.com</a></td>
<td>March 1996</td>
</tr>
<tr>
<td>5</td>
<td>Loxley Information Service Co., Ltd.</td>
<td><a href="http://www.loxinfo.co.th">www.loxinfo.co.th</a></td>
<td>March 1996</td>
</tr>
<tr>
<td>7</td>
<td>Asia Access Internet Service</td>
<td><a href="http://www.asiaaccess.net.th">www.asiaaccess.net.th</a></td>
<td>April 1996</td>
</tr>
<tr>
<td>8</td>
<td>WorldNET &amp; Services Co., Ltd.</td>
<td><a href="http://www.wnet.net.th">www.wnet.net.th</a></td>
<td>July 1996</td>
</tr>
<tr>
<td>9</td>
<td>Data Line Thai Co., Ltd.</td>
<td><a href="http://www.linethai.net.th">www.linethai.net.th</a></td>
<td>October 1996</td>
</tr>
<tr>
<td>10</td>
<td>Asia Infonet Co., Ltd.</td>
<td><a href="http://www.asianet.co.th">www.asianet.co.th</a></td>
<td>November 1996</td>
</tr>
<tr>
<td>11</td>
<td>The Idea Net</td>
<td><a href="http://www.idn.co.th">www.idn.co.th</a></td>
<td>November 1996</td>
</tr>
<tr>
<td>12</td>
<td>Siam Global Access Co., Ltd.</td>
<td><a href="http://www.sga.net.th">www.sga.net.th</a></td>
<td>December 1996</td>
</tr>
<tr>
<td>13</td>
<td>C.S. Communications Co., Ltd</td>
<td><a href="http://www.cscoms.com">www.cscoms.com</a></td>
<td>January 1997</td>
</tr>
<tr>
<td>14</td>
<td>Chomanan Worldnet Co., Ltd.</td>
<td><a href="http://www.cwn.net.th">www.cwn.net.th</a></td>
<td>October 1997</td>
</tr>
<tr>
<td>15</td>
<td>Far East Internet Co., Ltd.</td>
<td>member.fareast.net.th</td>
<td>October 1997</td>
</tr>
<tr>
<td>16</td>
<td>Roynet Co., Ltd.</td>
<td><a href="http://www.roynet.co.th">www.roynet.co.th</a></td>
<td>October 1999</td>
</tr>
<tr>
<td>18</td>
<td>Cable &amp; Wireless Network (Thailand)</td>
<td><a href="http://www.cwasia.net.th">www.cwasia.net.th</a></td>
<td>February 2000</td>
</tr>
<tr>
<td>19</td>
<td>Internet Service Provider Co., Ltd.</td>
<td><a href="http://www.isp-thailand.com">www.isp-thailand.com</a></td>
<td>July 2001</td>
</tr>
</tbody>
</table>

From the nineteen operating commercial ISPs in Thailand, we can see that the website www.inet.co.th, that is the Internet Thailand and www.ksc.net.th that is the KSC Commercial Internet Co. Ltd. were the first to operate in 1995. The majority, i.e. ten of them began in 1996. Then more were opened in 1997; one more website www.cwasia.net.th, which is the Cable and Wireless Network (Thailand) began in the year 2000 and the latest that is the website www.isp-thailand.com, began in the year 2001.
2.4.2 Structure of Internet Connections

Figure 2.2 depicts the structure of Internet connections in Thailand by the Internet Information Research Centre of NECTEC. Thailand’s internet connections map is maintained and regularly updated. It is available for viewing at http://ntl.nectec.or.th/internet/map. Internet connections in Thailand consist of: Domestic exchange, Academic and research network, Commercial Internet service provider network and International providers.

(1) Domestic Exchange

There are three domestic exchanges in Thailand, they are as follows:

(1.1) Public Internet Exchange (PIE)

Operations of the PIE are undertaken by National Technology Laboratory (NTL) and are strictly emphasized on fairness of access. Traffic to PUBNET and ThaiSarn is provided free to all PIE Participants (PIEPs) provided that it is strictly abided by ThaiSarn Acceptable Use Policy (ThaiSarn AUP). Inter-ISP traffic may or may not follow ThaiSarn AUP; NTL does not concern or impose any restrictions over commercial traffic as long as it is not destined for or transit via ThaiSarn and/or PUBNET. Violation to ThaiSarn AUP simply means the PIEP is terminated from PIE.

The PIE Pilot Project is a part of the National Information Infrastructure action plan to support a strong, unified and most economical means for running the Internet in Thailand. It was planned to be a joint mission between Government, Academic/Research Institutions and the private sector. The PIE Project will ensure that all participants will be given equal opportunities to access the third-generation academic/research network "ThaiSarn-III", the Knowledge Distribution Network of Kanchanapisek Network, and public portion of the Government Information Network (GInet). PIE is partially funded by the Royal Thai Government, and is operated as a non-profit task of NECTEC.\(^6\)
Figure 2.2  Internet Connectivities in Thailand (August 2005)

Figure 2.3  Thai Social/Scientific Academic and Research (ThaiSarn) Network

Source: Thai Social/Scientific Academic and Research (ThaiSarn) Network.
(1.2) **International Internet Exchange (TH-NIX)**

NIX can be considered as the point where national exchange among all ISPs in Thailand takes place. The ISPs can directly exchange their domestic traffics without depending on foreign carriers' connection for the global networks. Internet service providers can ask for technical advice from CAT staffs, twenty-four hours. National Internet Exchange provides facilities for ISP services to use proxy services: domain name service, news feed service, and customer support web.61

(1.3) **International Internet Gateway (IIG)**

IIG serves as the Internet Gateway of Thailand, which easily connects to global networks. Since Internet Service Providers (ISPs) do not need to pay for their own International Private Leased Circuits (IPLCs) which are more expensive.62 All ISPs can reduce large amount of Internet costs. Total International Bandwidth Backbone is 1310 Mbps and Total International Bandwidth Peer to Peer is 218.596 Mbps. (1st August 2004)

(2) **Academic and Research Network**

There are currently four academic and research network, they are as follows:

(2.1) **ThaiSarn (Thai Social/Scientific Academic and Research network)**

ThaiSarn is the name given to the computer network that NECTEC facilitated for Thailand's academic and research communities in 1992. The main emphasis of ThaiSarn is to connect all educational and research institutions in Thailand. This results in a network of several campus networks linked together by the WAN (wide-area network) provided by NECTEC. Private institutions with academic and research activities are also allowed connections (at their own expense for lines and terminal equipment). All ThaiSarn institutions are being granted the use of NECTEC's international leased line with special permission from the Communications Authority of Thailand.63

ThaiSarn is currently in its third generation, denoted as ThaiSarn3, where the main mission is to promote research in network technologies and applications. At present, ThaiSarn3 is currently connected to three major international research networks:

(2.1.1) **SINet (NII)**: In 1995, ThaiSarn was connected via a 2Mbps link with SINET (Scientific Information Network) of Japan under the sponsorship of the
National Institute of Informatics, NII, (formally known as the National Centre for Scientific Information System or NACSIS)

(2.1.2) Asia Pacific Advanced Network (APAN): In 2001, NECTEC became an associate member of APAN. It is an international research network established to support research and development in advanced networking application and services in the Asia-Pacific region. ThaiSarn3 is connected to APAN via SINet with formal approval from NII.

(2.1.3) Internet-2: In 2001, under a resource allocation programme of APAN, ThaiSarn has been allowed to pass/receive its traffic to/from STARTAP and then to Abilene (Internet-2) and other international research networks. In July 2001, NECTEC became officially a member of Internet-2 where it was expected to have more research collaboration with US universities.

(2.2) SchoolNet

NECTEC launched SchoolNet Thailand as a pilot project towards the end of 1995, the government proclaimed it to be Thailand IT (Information Technology) Year. The aim of SchoolNet is to provide Internet access to secondary schools throughout Thailand. By using technology to improve educational system, this project supports the human-resource-development emphasis of the 8th National Economic and Social Development Plan as well as the National IT 2000 Plan.

The Objectives of SchoolNet Project are:

• To help the schools in Thailand to access the Internet network and school network all over the world.
• To be an information centre in exchanging documents, educational aid, inter-library school and a centre for schools and other organizations.
• To help teachers and students in schools to access information in the Internet library.
• To help teachers and students in schools to communicate with teachers and students in other academic institutions both in Thailand and abroad.

The SchoolNet project has encouraged and assisted more schools, especially ones in rural area, to use the Internet as a new educational medium. Despite increasing numbers of schools having access to the Internet nationwide, the influence of Internet on culture, ethics and efficiency has become a concern. In addition to other
influencing factors, SchoolNet Thailand has realized that in the promotion of creative and efficient Internet use among young people in schools, teachers play a key role.\(^6^6\)

Presently, over 4,800 schools around Thailand access the Internet through SchoolNet, and students from these schools have the opportunity to learn new technologies from the Internet. Although it is certainly a step in the right direction to ensure that basic knowledge in technology isn’t limited to the big city, Internet access alone does not create a sufficient pool of IT-qualified workers.

In addition, the project selected 76 most promising schools (one school per province) out of the 420 to become ‘school nodes’ of SchoolNet. These school nodes are linked to SchoolNet via high-speed, and permanent connections (leased circuits in contrast with the dial-up modem access that most schools normally get). However, with this privilege comes greater responsibilities: these selected schools have to become local training centres and provide support to other schools in their respective provinces.\(^6^7\)

The network has been designed to serve the goal of universal access for every school nationwide. More specifically, a school pays only the telephone charge at the local-call rate per connection (at 8 US cents per call) and no Internet access charge, regardless of where they are located. Furthermore, content creation programmes and activities have been initiated to promote the use of Internet in teaching and learning, for example, in a digital library and a digital archive, which contains digitised materials in various forms with proper indexing and search engine for easy use. An easy-to-use tool was also developed for teachers to create their own content or teaching materials to add to the digital library. The SchoolNet Project achieved a “universal access” status since 1997. The project was cited in UNDP’s Human Development Report of 2001.

**2.3 PubNet**

PubNet, Thaisarn Public Access Network, was established in 1992 at NECTEC at a low-cost but it is an effective way of running an on-line information services for Thailand via a cooperative network of computers. In the early days, a small group of volunteers fed the network with dial-up lines linked to the Internet to make sure that there was at least one copy of resourceful information for Thailand to develop itself on networking technology. The information served included, mirrored
FTP sites of world-class freeware/shareware servers; archives of "soc.culture.thai" newsgroup; daily news from Thai News Agency; and many other items.

PubNet has later been supported by Digital Equipment Corporation (DEC) for the main server since late 1993. A few other companies joined the project by adding high-capacity disk drives to the server. PubNet server grew to 14 GB in 1994. Additional servers were placed in the PubNet cluster in 1995 and this made the cluster highly popular servers in Thailand. These servers include: Thailand - The Big Picture, NECTEC FTP server, NECTEC Gopher server, Thai Pavilion, The Golden Jubilee (Kanchanapisek) Network, and NECTEC audio/video server.

As from mid-1996, these servers have been re-networked to improve a high-speed FDDI (100 Mbps) backbone at NECTEC's Network Technology Laboratory (NTL). It permits all Thai academic sites and all commercial Internet Service Providers to access the network free of charge. International access bandwidth of these servers is sponsored by Internet Thailand Company Limited, the first commercial ISP of Thailand. In November 1997, NTL proudly announced the availability of PubNet to all commercial ISPs for direct connection to PubNet via PIE (ThaiSarn Public Internet Exchange). PubNet is connected to PIE at 100 Mbps speed. The participating ISPs will be benefiting from the privilege of high-speed and direct access to the PubNet backbone through PIE. At the same time, NTL also makes PubNet a more public cyber-place where certain type of information providers may place their contents on the backbone for convenient access from the majority of Internet users in Thailand.

Initially the main purpose in running PubNet was to create “economy network”. PubNet-mirrored FTP sites saved Thailand from flooding the expensive international communication lines with repeated downloading of popular software from abroad. PubNet information server was also serving as Thailand's most referenced "Index", which pointed to all known websites registered under the "th" top-level domain. It helped everyone to find out about all information services available in Thailand.

(2.4) UniNet (Inter-University Network)

UniNet (Inter-University Network), started in 1997, is a higher education network administered by Office of Information Technology Administration for Educational Development, Ministry of University Affairs. It provides national and
international education network services to enable research and development technologies supporting to all universities and institutions of higher education in Thailand. In order to promote international collaborations for optimizing educational researches and developments by employing the advantages of information technology, it prepared to expand these collaborative opportunities to pursue high performance network enhancing Thailand’s educational services and developing advanced research and development communities for the members of the universities.

Moreover, it provided high performance network service and also maintained the standard of education in all universities and institutions in Thailand by distributing distance learning services through Video Conferencing System (VCS) and creating lifelong learning materials such as courseware. Furthermore, it enhanced the education by providing reference databases for flourishing researchers. In addition, UniNet is used to connect universities and institutes, develop distance learning between main universities and information campuses, independent learning centres and information management systems. UniNet looks set to provide an integrated co-operative network for all Thai institutions of higher education within the Ministry of University Affairs. The UniNet (Inter-University Network) objectives are:

- To set up the infrastructure of information technology connecting all universities/institutions and campuses over the country.
- To develop self-study centres by providing electronic library databases, Internet, multimedia, video on demand, and other self-study material.
- To develop social-learning and lifelong-learning systems by creating multimedia courseware, and providing knowledge databases and distance learning systems.
- To train teachers and assistants to be able to use IT for educational development.

The Ideal University Network (UniNet) consist of: campus network, inter-university network, regional network and global network. When inter-university network connects to the Internet, it means that it is the second level connection. When all networks are connected to the Internet, it finally brings the network condition to third and fourth level. A present, there are educational development projects, especially in universities and it may be a part of the UniNet in the future, they are as follows:
Figure 2.4 Uninet Network (Inter-University Network)

Figure 2.5 Uninet Network by Region

Source: Inter-University Network: UniNet. Available from:
(2.4.1) National Centre for Scientific Information System or NACSIS

ThaiSarn was connected via a 2Mbps link with SINET (Scientific Information Network) of Japan under the sponsorship of the National Institute of Informatics, NII (www.nii.ac.jp). Since there have been various research activities between Thai and Japanese researchers. As a result, an annual conference, called WAIN (Workshop on Academic Information Networks and Systems), is held every year switching places between the two countries.

The purpose of the workshop is to promote the usage of this network for scientific research, educational activities and the exchange of scientific information. In addition, the workshop will provide a forum to exchange opinions between researchers attending the workshop and share the ideas of future academic information networks and systems in the Asia-Pacific countries. In this workshop, the following research topics are discussed: International Research Network Development, Tele-supervisor Agricultural Information Network, Multilingual-Thesaurus, Remote Sensing and GIS Technology, Very Large Scale Document Management and Digital Library Network.  

(2.4.2) PULINET (Provincial University Library Network)

In 1975, the Sub-committee for University Library Development, under the Ministry of University Affairs was set up. The government university libraries with the support of the Ministry of University Affairs cooperate to share and exchange resources, set standards, and perform other academic activities. The Sub-committee’s working groups work together in joint activities in acquisitions, cataloging, serials, information services, media services, and information technology. Annual conferences are held to report, review, and exchange ideas and experiences on the cooperation activities. Private university libraries also cooperate and conduct various activities for the same purposes.  

In 1986, the Provincial University Library Network (PULINET), a network of collaboration among 12 provincial university libraries, was established, because the libraries were facing similar problems such as budget limitation, personnel shortage, increase of student strength and staff numbers and expansion of academic activities and programmes leading to demands for new, timely and up-to-date information. In a meeting of the rectors of all provincial universities, it was decided that, in order to reduce expenditure, a collaborative library network should be established with an aim
to efficiently exchange and share information flexibly. The objects of the Network are sharing the information among library members and increasing the use of information and getting more information that the user want.\(^{72}\)

(2.4.3) THAILINET-M

Thailinet-M is the cooperation effort between the libraries of 12 universities in central region and the office of the Permanent Secretary of Ministry of University Affairs with an aim to develop libraries to become the automated library system employing the computerized system and modern information technology. This project was designed to set up network system interconnecting university libraries, ensuing efficient, and rapid information services as well as effective use of resources sharing. Library networks of the state universities both in the central and provincial alike could be linked together, and further connected to other networking system either local or abroad. In addition, the Thailinet project was also directed to enhance the librarians to keep abreast with the advancing information technology, and at the same time develop the library resources to implement appropriately the academic information needs.\(^{73}\)

Completion of the Network:

- Standardized databases of books and academic publications shared by and exchanged among the libraries involved.
- A computer system with library software and communications equipment appropriate to the status and potential of each library so that on-line public access services within a university and between different universities can be provided.
- A system, linking the twelve university libraries for remote information retrieval services and interaction with PULINET and Internet.
- University librarians and information scientists have good knowledge of modern information technology and experience in the management and service provision of academic information.

(2.4.4) THAILIS

Ever since 1998, the two networks (PULINET and THAILINET-M) have been combined into one to form a nationwide network of the university libraries, the Thai Library Integrated System (THAILIS) became a part of the country’s Information Super Highway to provide multi-media and advanced services. Such a network
benefits university staff and students as well as the general public. The objectives of THAILIS are to:

- Improve the efficiency of the operations of the automated libraries.
- Develop the university libraries so that they become centres of learning and information (particularly local information) in support of human resources development and higher-education management.
- Enhance the capability of PULINET and THAILINET-M and links between them as well as links with other domestic and international networks.
- Support distribution of education opportunity and equality in education by means of distant learning.
- Develop a National Bibliographic Centre.
- Develop human resources in terms of both users and service providers, so that they have knowledge and experience in the management and utilization of information.

All the member universities of PULINET and THAILINET-M take part in this project. It is expected that in the end the project will comprise 30 domain-specific databases, a National Bibliographic Centre, full-text databases, digital libraries, and an electronic inter-library loan system.⁷⁴

(3) Commercial Internet Service Provider Network

ISPs are not allowed to provide their own infrastructure directly and must make a contract with licensed infrastructure providers for domestic connections. This means that an ISP cannot provide a leased line to a customer directly but must work through authorized data communication providers that have been granted concession by Communication Authority of Thailand (CAT) or Telephone Organization of Thailand (TOT).⁷⁵

CAT has a monopoly on international Internet connectivity. It operates an international Internet gateway (IIG) to which other ISPs are connected. ISPs have two options for obtaining international bandwidth. They can make a contract with CAT to provide the entire international bandwidth. Or they pay CAT for the Thai portion of the circuit and make their own arrangements with foreign ISPs for the other half of the circuit. Thailand has eighteen operating commercial ISPs.
(4) **International Provider**

As the country awaits full liberalization to take place in 2006, CAT remained in control of Thailand’s international connections and all 18 commercial ISPs are still required to be connected to the global Internet network through CAT’s international Internet gateway (IIG). Although CAT must give up its monopoly, CAT is well placed for potential market dominance, even after its privatization, as a result of its extensive international networks.  

2.4.3 **Internet System Utility among University Students**

Internet system can be used in the following eleven ways:

1. **E – Mail (Electronic Mail) Messages**, usually text, sent from one person to the other via computer. E – mail can also be sent automatically to a large number of addresses.

2. **FTP (File Transfer Protocol)**: A very common method of moving files between two Internet Sites. FTP is a way to login to another site for the purposes of retrieving and/or sending files.

3. **WWW (World Wide Web)**: Frequently used when referring to “The Internet” WWW has two meaning – First, commonly used: the whole constellation of resources that can be accessed using Gopher, FTP, HTTP, telnet, Usenet, WAIS and some other tools; second, the universe of hypertext server (HTTP servers) which are the servers that allow text, graphics sound files, etc. to be mixed together.

4. **Telnet**: The command and programme used to login from one Internet site to another. The telnet command / programme gets you to the login: prompt to another host.

5. **WAIS (Wide Area Information Servers)**: A commercial software package that allows the indexing of huge quantities of information, and then making those indices searchable across networks such as the Internet.

6. **Usenet**: A world – wide system of discussion groups, with comments passed among hundreds of thousands of machines. Not all Usenet machines are on the Internet. Usenet is completely decentralized, with over 10,000 discussion areas, called newsgroups.

7. **Search Engine**: A (usually web-base) system for searching the information available on the Web. Some search engines work automatically by searching the
contents of other systems and creating a database of the results. Other search engines contain only material manually approved for the inclusion in a database, and some combine the two approaches.

(8) Chat: A real-time computer conferencing capability between two or more users of a network (LAN, WAN, Internet) by means of a keyboard rather than voice transmission. Most Internet service providers offer a chat room to their subscribers.

Not only for searching information, there are several advantages for Internet users for instance: E-mail (Electronic mail) for connecting people, E-Commerce (Electronic commerce) for doing business, E-Learning (Electronic Learning) for worldwide education, etc. As the Internet users are varied by sex, age, occupation, education and other backgrounds, the purpose of usage might be different in many aspects: some of them use the Internet as a part of their job; some use for entertainment and so on.

In education, the Internet and Web are changing instruction, research, administration, and public services. Providing services to the students, professionals are rethinking about the information to be provided to students and how, as well as the decision-making tools that add value to that information. Purchasing library services and financial processes are being transformed, as an evolving set of technologies is adapted to the needs of colleges and universities. Now, almost all college students have access to the Internet and most students are familiar with various aspects of Internet usage. Those institutions expect that the Internet usage be increased in the future to support learning. The use of the Internet as an educational tool by college students has become a practical way of life.

Internet network was initiated in American universities and successfully extended throughout the world. All universities pay high attention to build their own Internet networks. They can use Internet systems to connect worldwide sphere for acquiring data, exchanging information and communication. The target of universities is to urge the students to learn and use the system to keep abreast with modern technology.

Therefore, Internet servers as a source of knowledge to universities when students search for data, and exchange them in both domestic and foreign sphere, in variant fields of study. "Thaisarn" is the network monetarily subsidized by National
Scientific and Technological Development Agency (NSTDA). It is also subsidized in annual budget, in which, some parts are contributed to the universities run by the state in campus networks. It is established in order to enhance the education and technology development. While the private universities must do it by their own budgets, this becomes a serious burden for them.

Network systems in universities generally consist of:

- Internet for student enrollment - expedites student’s enrollment by reducing some parts of process such as enrolling through Bank.
- Internet for information searching – available for 365 days; library service.
- Internet for information transmission, news exchange, University manual, research and public relationship information facilitator.
- Internet for student assignment, personal messages sending and group report.
- Internet for the pedagogical assessment.
- Internet for student biography data registration.

The Internet offers students many advantages including the speed of making contact with others and ability to access resources.\(^8\)

### 2.4.4 National IT Policy

For decades, advances in information technology have enhanced lives and economies around the world. Thailand has worked since the late 1980s to develop a nationwide IT infrastructure that could serve government and the private sector. In 2002, dissatisfied with the limited success of earlier efforts, Thailand’s current government established the Ministry of Information and Communication Technology (ICT), charged with developing and supporting completely electronic processes for government, commerce, industry, and education. The new ICT policies aim to bring IT to be a part of every aspect of Thai society and, ultimately, transform the economy.\(^8\)

Nowadays, it is unavoidable that the technology has changed rapidly. The technological changes and the widespread of information technology (IT) applications use have affected the country’s development. Therefore, it is necessary for Thailand to adapt the national policies to accommodate the occurring changes. As the secretariat office of the National Information Technology Committee (NITC),
NECTEC was responsible for the formulation of national IT policies and plan as follows:

(1) **IT 2000**

The first national information technology policy in Thailand, namely IT 2000, was approved by the Cabinet in February 1996. The IT 2000 Policy provided the framework and guidelines for IT development of the country during 1996 - 2000. It identified three key areas necessary for IT development in Thailand, which are:

- National Information Infrastructure: invest in an equitable information infrastructure;
- Human Resource: invest in people, and
- Good Governance: invest in the enhancement of government service.

(2) **IT 2010**

The National IT Policy Framework for the year 2001-2010, namely IT 2010, was developed as a second phase of the national IT policy to move Thailand into the Knowledge-Based Economy (KBE)/Knowledge-Based Society (KBS). IT 2010 was approved by the Cabinet in March 2002. The issues related to these five strategies are:

- **e-Society**: bridging the digital divide, quality of life, culture, health, and public participation.
- **e-Education**: developing human resources, life-long learning, computer literacy, and virtual education.
- **e-Industry**: focusing on e-manufacturing and IT-related industries, plus issues such as standardization.
- **e-Commerce**: specially focusing on e-services including not only finance, tourism and IT services, but also other industries.
- **e-Government**: including public service via electronic service delivery, employment, and legal infrastructure.

2.4.5 **National ICT Master Plan**

The first National Information and Communications Technology (ICT) Master Plan for the year 2002-2006 was approved by the Cabinet on September 25, 2002. The Plan was jointly developed by NECTEC and the Office of the National Economic and Social Development Board (NESDB) in close consultation with representatives of all stakeholders.
The National ICT Master Plan was developed in accordance with the IT 2010 Policy Framework as well as the 9th National Economic and Social Development Plan (2002-2006).\(^3\)

The goals and objectives of the ICT for Education Programmes are:

- Give all teachers, college lecturers and professors, school children and college students opportunities to learn to use ICT. The goal is to employ ICT as an enabling tool to access information and gain knowledge through self-paced learning, or through interactions with teachers and fellow students.

- Link schools, colleges, universities, and libraries electronically to provide students, teachers and lecturers an enriched environment in which distant resources can be made available at finger tips by using a remote.

- Make full use of ICT and distance education to meet the needs and aspirations of all citizens for continuous education and skills upgrading without regards to age, profession, distance, or geography.\(^4\)

The Centre for Educational Technology is also responsible for the production and broadcasting of educational radio and television programmes, educational computer media, media for the disabled, printed materials, as well as video and audio tapes to supplement existing materials in the formal, non-formal and life-long education sectors. Furthermore, PCs are used with networks for distant learning, like the SchoolNet Thailand programme at the primary and secondary education level and the UniNet programme at the university level.\(^5\)

In addition, it is hoped that by 2005 every learner will be able to access ICT to learn at a reasonable cost. Learners may use computers and digital information in many different ways. The scenarios includes links to video vignettes, graphics, samples of student work and web resources. In order to achieve the goals of the Thai Learning Technologies (TLT 2010) Masterplan, it will be necessary for learners, teachers and administrators to have adequate access to computers, software and telecommunication services. Computers need to be available in sufficient numbers to develop the skills and attitudes necessary to become effective users of the technology.\(^6\)
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