Library Management

Blueprint for Thailand: S&T information resource sharing

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Abstract

Purpose – This article aims to define a clear strategy for the future development of S&T services in Thailand.

Design/methodology/approach – The article examines the history of S&T information resource sharing in Thailand and presents the results of research designed to identify current problems in the provision of these services.

Findings – The article finds that S&T researchers in Thailand would benefit from much greater resource sharing, either via consortia or computerised networks, as part of a cohesive national strategy.

Practical implications – The article makes detailed recommendations regarding the future management of S&T services in Thailand.

Originality/value – This paper defines a best practice strategy for the future development of support to S&T researchers in Thailand.

Keywords Resource sharing, Libraries, Academic libraries, Information networks, Thailand

Paper type Case study

Introduction

Scientific research and development (R&D), a key requirement for innovation, is defined as "the process by which new scientific and technological information is discovered, gathered and used involving theoretical conjecture, observation, experiment, measurement and deduction (HM Treasury, 2003, p. 29). R&D is essential as it forms part of the process whereby companies, and ultimately, countries gain a competitive edge. The importance of R&D is recognised internationally. The Member States of the European Union (EU), for instance, have implemented a R&D policy under the Framework Programmes (2002-2006) that focuses on the strengthening of research to increase the economic potential of the regions and the promotion of participation between research centres, universities and firms in the EU and international research programmes and networks. Recognition is given in the Framework to the need for adequate research dissemination and for the development of

cooperative and user-friendly information networks. The role that communication technologies (ICT) have in the process is also acknowledged.

Libraries have an important role in ensuring that the vast amount of printed and electronic S&T information is available to those who need it. Ensuring that target audiences are kept up-to-date with novel discoveries is vital (Schofield, 1999). However, this role is challenging; libraries often face budget cuts while at the same time having to make available an increasing amount of material through an eclectic array of services and gateways. Most developed countries have developed information management strategies based on access rather than provision to meet these demands. The concepts of resource sharing, portals, consortia and collaborative public and private sector networks are well established, for example. In developing countries like Thailand, however, these concepts are largely new and the shift to providing access to resources via electronic networks rather than hard copy is at an early stage. While recognising that developing countries have problems funding electronic resources and the technologies needed to support them, it is essential that they develop strategies, particularly resource sharing, for supporting the information needs of their R&D communities.

This paper focuses on the progress made by Thailand in attempting to meet the needs of its R&D community. The history of some collaborative initiatives in information services in Thailand is described. In-depth research is then presented and discussed which investigated the current degree of effectiveness of this collaboration in relation to current S&T information resources. Drawing on the research results the paper concludes with a draft action plan for the future management of S&T information resource sharing in Thailand.

S&T resource sharing

The S&T research community in Thailand consists of researchers both in the public and private sectors. The public sector includes university academics and researchers in government R&D institutions and the private sector includes researchers in professional institutions, for example, in engineering, industry, and commerce.

Accordingly, S&T information in Thailand is provided by academic libraries and special libraries or S&T information centres in many R&D and professional institutions. Some S&T information centres are under The Referral Centre for Research, some have the Ministry of Science and Technology (MOST) as a coordinator and some are free standing agencies under the government's supervision.

In general, academic libraries in Thailand are more involved in resource sharing activities whilst special libraries mostly operate individually without sharing any standards for library resources or systems.

Siripan (1999) states that Thai university libraries have offered online database services through campus networks since 1985. The sharing of resources among academic libraries began, however, in 1975, when shared activities included acquisitions, cataloguing, serials, information services, media services, and information technology. The collaboration became stronger when the Provincial University Library Network (PULINET) was established in 1986, followed by the Thai Academic Libraries Network (Metropolitan) (THAILINET (M)) in 1992. The establishment of the UNINET, an ICT infrastructure support unit for higher education, in 1997, however, is considered as the beginning of library cooperation in

Thailand for resource sharing via advanced information technologies. In 1998, the two networks (UNINET and THAILINET) were united into the Thai Library Integrated System (THAILIS).

Four main initiatives currently encourage information resource sharing: THAINATIS, THAILIS, Journal Link, and STARNET.

THAINATIS

The Thai National Information System (THAINATIS) was developed by the United Nations International Scientific Information System (UNISIST) and launched in 1986. Its structure includes a Direction and Coordination Committee that liases with the Office of the Secretary of THAINATIS, represented by the National Library of Thailand (NLT). The office supervises an Information network sub-committee appointed from representatives of six subject network centres: agriculture (Kasetsart University), medical science (Mahidol University), science and technology (Division of Scientific and Technological Information, Ministry of Science and Technology), social sciences (Development and Document Centre under the National Institute of Development Administration), humanities (NLT), and economics (Bank of Thailand Library and Information Centre). The centres are in charge of developing collections and information resources for each of their subject areas. Their main objectives also include the development of a national standard information system and services, as well as boosting resource sharing and cooperation among libraries.

THAILIS

THAILIS, established in 1998 by combining the metropolitan THAILINET (M) academic network with the provincial PULINET (Siripan, 1999) initially, included only 24 state universities, but was recently extended to cover other 52 other higher education institutions largely universities that were former teachers' training or vocational colleges (Chantraraksri, 2005). THAILIS's activities focus on co-acquisition of print journals, electronic journals, and electronic books, and a consortium of reference databases (Raksasuk, 2003). Although promoting information resource sharing among members, each institution is financially independent. Current collaborative projects are the development of a union catalogue for Thai university research, the digital collection of full-text articles and images, a consortium of reference databases and electronic books, and the provision of electronic document delivery services (Wareesa-ard, 2004). The digital collection project of THAILIS concentrates on digitising theses and rare books (Nagapreecha, 2005). Soontaros *et al.* (2003) presents the view that THAILIS could expand its remit by developing national databases and by promoting the cost effective use of resources through further collaboration.

According to Pitipunya (2005), the organisational structure of the THAILIS consortium comprises an executive committee, two sub-committees and a coordinating centre.

Journal Link

Initiated in 1998 by the Thailand Committee of the Deans of Science Faculties, the Journal Link Programme created an online union list of S&T serials in Thailand to facilitate resource sharing. The initiative is currently being coordinated by the Faculty of Science at Chulalongkorn University and, as of August 2006, has 204 libraries

subscribing to the service that enables members to browse, locate resources and make online requests. Journal Link is funded by the Technical Information Access Centre (TIAC) under the National Science and Technology Development Agency (NSTDA). Apart from serials, a couple of databases in medical science and agriculture have been developed to extend services further.

STARNET[1]

The Science and Technology Advanced Research Network (STARNET) was established by the Ministry of Science and Technology (MOST) in 2005 to provide an electronic network for communications and information exchanges between agencies under the Ministry. STARNET also connects MOST with the international R&D community via the THAISARN network. It is anticipated that these networked media will harness Thailand's R&D sector and prepare the country to be a south-east Asia regional S&T hub (National Electronics and Computer Technology Centre, 2006).

Developmental overview

All these developments suggest that resource sharing of S&T information services has been regarded by the Thai government as highly important. Problems in the resource sharing environment in Thailand have, however, been reported both in areas of information and human resources management. Pitipunya (2005) points out that the resource sharing, from his experience of THAILIS, exhibits weaknesses such as the poor management of collaborative activities and a lack of sustainability and effectiveness in cooperation and sharing. Problems have also been documented involving users' attitudes towards electronic resources (Sirichana, 2005), and the changing role of libraries and librarians (Prasitratasin, 2003; Premkamolnetr, 2005).

Research rationale

In view of the high priority given by major developed countries to the funding of information networks which support research and innovation, and given the problems in resource sharing in Thailand noted above, it seemed an appropriate point to investigate further the practical realities of current S&T information resource sharing in Thailand, in order to assess how these crucial services might best be managed and developed.

Key research objectives were therefore defined as follows:

- To investigate the strategic management of S&T information service provision within S&T information centres in the public and private sectors.

- To explore inter-institute collaboration for resource sharing in different dimensions (personnel, users, accessibility, barriers to service development and resource sharing).

- To identify appropriate service models or roadmaps for the optimum development of Thailand's S&T service.

Research methodology

A research framework was designed to investigate all stakeholders concerned with resource sharing including information service providers and end-users. This

framework focused on strategic management of S&T information centres in supporting R&D, particularly the resource sharing strategy.

Theories applied in planning the research included the following: strategic management, scientific communication and science information systems; information-seeking behaviour and information needs of scientific researchers; strategies for research support, and information network models for a research community.

A total of 46 S&T information centres were sampled based on those which were members of the Information Network in Thailand as listed by the National Research Council of Thailand. They included libraries in each region of Thailand, as shown in Table I.

The research methods consisted of questionnaires, semi-structured interviews, and focus groups. A total of 289 questionnaires were sent to executives, managers, and librarians/staff and 703 questionnaires were sent to end-users of the target institutions. The response rates were 72.67 and 65.15 per cent for the library group and the end-users, respectively.

Results and discussion
Current state of S&T information service provision in Thailand
The majority of executives, managers and librarians/staff thought that the development of the S&T information sector in Thailand was slow when compared to developed countries. The top five barriers to development were seen as lack of collaboration between institutions, lack of skilled personnel, lack of clear institutional policy, inadequacy of budget, and the lack of a clear national information policy and information management system.

The current state of S&T information service provision in Thailand appeared to have some weak points, particularly lack of collaboration at national level, lack of resource management and sharing, and inadequacy of the ICT infrastructure. Factors causing barriers to the development could be identified in three main categories: policies, resources, and resource sharing.

Policies
A lack of collaboration between institutions appeared to be caused by the national information policy which was considered to be unclear, particularly in respect of S&T information service provision. As one interviewee commented:

Region	Academic libraries	Special libraries	Total
Central	18	17	35
Northern	3	0	3
North-eastern	4	0	4
Eastern	1	0	1
Southern	3	0	3
Total	29	17	46

Table I.
Regional distribution of S&T information centres in Thailand

The government only sets up a policy to promote the social roles of libraries, to be as a living library as in our neighbouring countries. But it has nothing to do with scientific information.

It was suggested that S&T information providers and government agencies responsible for national decision making should combine forces to set aligned and consistent strategies and policies throughout the S&T sector.

Resources
In terms of ICT resources there appeared to be considerable differences between the academic and special library sectors. Only large academic libraries with sufficient funding seemed able to procure advanced ICT and resources whilst many special libraries responsible for providing information to scientific researchers and industrialists were struggling with old-fashioned services and out-of-date technologies and resources. It was obvious that both executives and library managers were unhappy with the situation and blamed lack of funding for poor provision. It was thought, however, that a lack of skilled staff was also significant. Many found it difficult to recruit competent staff, with skills in English language, ICT usage, and with research proficiency. There was also evidence that some senior staff lacked motivation to update their services and were inept at change management.

Resource sharing
Of the networks in Thailand (STIN, PULINET, THAILIS, and Journal Link), THAILIS and PULINET seemed to be the most satisfactory, providing access to online databases on a sharing basis. Only academic users, however, have the privilege of using these. The Science and Technology Network of THAINATIS (STIN), although long established, was considered ineffective through lack of continuity in organisational management and lack of collaboration among members. Even though satisfied with the Journal Link project, the interviewees thought that the shared resources should be extended from S&T scholarly journals and a couple of databases. In this regard, they stressed that there had never been a strong effort to integrate the information management systems with S&T information resources for the benefits of sharing. On the contrary, they thought that the competitiveness was very high among these libraries. As one manager said:

> Some libraries think that they should be leaders in the service provision so they see others as a competitor and they don't want to share resources or cooperate with them. They just say they agreed to cooperate and to promote sharing but in practice there is "no action". For example, they do not even try to find systems that might facilitate sharing.

This conforms to the results of a questionnaire survey which show that the most practical resource sharing scheme of academic and special libraries is interlibrary lending, as seen in Table II.

It is clear that that library personnel in Thailand thought that collaboration between institutions was necessary and that the lack of it had greatly hindered the development of the S&T information sector. With the attempt of providers to develop services through the networks, the findings of both the interviews and the focus groups revealed that resource sharing was deemed the best strategy to support the creation of a knowledge-based society. It was considered as one of the ultimate goals of national

Resource sharing schemes	Frequency		
	Yes	No	To be developed
Interlibrary lending	32	4	0
Exchange of materials	28	6	2
Inter-institute document delivery	27	7	2
Production of union lists, union catalogues, and bibliographic utilities	25	5	6
Resource discovery system	21	12	3
Staff training	21	14	1
Abstracting and indexing services	19	14	3
Cataloguing	18	12	6
User support procedures	17	19	0
License agreements	15	20	0
Conservation and preservation of materials	8	26	2
Microform services	7	28	1
Collaborative collection and storing	6	26	3

Table II.
S&T information resource sharing schemes among academic and special S&T libraries in Thailand

development which could be achieved only by consolidating collaboration among the information service providers and eliminating barriers to S&T resource sharing.

The ranking of the top five barriers to S&T information resource sharing in Thailand indicated that library personnel had slightly differing views on these influencing factors from executives and managers, as shown in Table III (from highest to lowest scores).

The most significant barriers seem to relate to policies and resources, for instance, ICT infrastructure, system compatibility, and finance. Other difficulties are attitudes (fears of unbalanced sharing) and management (laws and regulations, inter- and intra-organisational communications). All groups gave more weight to ICT, human resources, and an institutional policy but librarians and staff stressed that they lacked information about networks.

Other interesting factors added by interviewees related to the following:

- *Lack of powerful coordinating centre.* Experience of weak performance by coordinating centres or hosting providers of STIN was reported. Even though the

Executives	Managers	Librarians/staff
No policy from parent institution	Unavailability of ICT	Unavailability of ICT
Unavailability of ICT	Lack of skilled ICT staff for electronic access	Lack of skilled ICT staff for electronic access
Lack of skilled ICT staff for electronic access	No policy from parent institution	No policy from parent institution
Lack of information about S&T information network	Restrictions on laws and regulations	High investment cost
System incompatibilities	Fears of unbalanced sharing	Lack of information about S&T information network

Table III.
Top five barriers to S&T information resource sharing

authorities had attempted to establish coordinating centres for S&T information services, they seemed not to be strong enough to manage the situation of resource sharing, especially on matters of financial support. Leadership by previous coordinators was criticised as weak. Interviewees suggested that the coordinator or hosting provider should be empowered with full executive authority to develop the S&T information sector of the country.

* *Attitudes and work cultures.* Some attitudes and cultural differences had been a hindrance to the environment of resource sharing. These included: negative attitudes towards coordinators, too strong sense of ownership, unwillingness to pay for information services, perceptions of resource sharing as a voluntary activity, fears of freedom lost or unbalanced sharing, workload increase, resistance to change, a lack of promotion of lower-cost home technologies, and a lack of creative thinking by staff.

User aspects

End-user groups in this research consisted of postgraduate students (33 per cent), academic (26 per cent), undergraduate students (15 per cent), researchers (10 per cent), PhD students (8 per cent), research staff (5 per cent), and private sector staff (3 per cent). Their information needs and information-seeking behaviours were investigated and the results showed that the service most used by the majority of end-users (85.8 per cent) was book/material borrowing, followed by the use of serials (64.8 per cent) and internet searching (58.3 per cent). It was interesting to note that the use of online full-text database searching, online journal index searching, and online catalogue searching was only 27.9, 27.5, and 23.6 per cent, respectively. The use of interlibrary loan services was also low, only 18.8 per cent, the majority appearing to prefer paper-based information sources. However, these user groups generally preferred searching catalogues electronically because of their speed and convenience. A total of 60 per cent of surveyed users had attended induction ICT training courses provided by libraries. Users particularly wanted training courses on online full-text database searching, online database searching, online journal index searching, and Internet searching, thus indicating a major interest in the potential of electronic resources.

In relation to information literacy, although the results from the questionnaire survey showed that users possessed sufficient information skills, participants from interviews and focus groups thought users' information skills were still inadequate. Researchers and academic staff were judged the most skilful in searching and locating electronic resources, postgraduate and research students had a tendency to search more electronic databases, and undergraduate students preferred searching through an OPAC in order to find print materials. According to librarians, student users were not familiar with advanced searching technology. Even though most of them were skilled in using computers, electronic searching required understanding of the subject areas. As one interviewee commented:

> Undergraduate and post graduate student users lack information seeking skills. They prefer easy and instant information. This depends on the education system which never motivates students to develop the researching information behaviour. Most lecturers still feed students too much.

It appeared that students used electronic resources only when assigned by lecturers. Language was also found to be a significant barrier when accessing online databases. This caused difficulties in the development of information culture in aspects of needs and behaviours.

Users of special libraries who are industrialists and small-enterprise entrepreneurs were said to possess low information literacy skills. Librarians reported that those users lacked information seeking and processing skills, thus preferring an instant information package. Librarians argued that this type of service needed information specialists or "documentalists" knowledgeable in multi-disciplinary research areas. The low information literacy of users was not thought, however, to be a significant barrier to S&T information services and resource sharing, if suitable training were offered and electronic sources were promoted.

Users of special libraries, while not being particularly IT literate, did support the concept of resource sharing and did expect special libraries to collaborate and form consortiums. They thought that special libraries needed to put more effort into developing and managing reciprocal agreements among member libraries. It was evident that, while users wanted more electronic access to resources, special libraries could not currently meet users' demand.

The future of resource sharing
The interviewees suggested that a national S&T information centre should be established and should act as a hosting provider. This national information centre could play an essential role in managing national information resources and in steering S&T information service development.

There was general agreement that an appropriate service model could be a networked library using an integrated library system where members can locate, retrieve and access information resources in an electronic environment.

Implications for strategy
The research results from Thailand have some clear implications for the strategic scope of developing a national S&T information service based on the concept of resource sharing. The following factors should be included.

Organisational positioning
The role of each stakeholder in the S&T information service sector must be identified. Collaboration should be encouraged.

ICT infrastructure
An ICT strategic plan with investment detail should be included in an information strategy or an institutional information policy.

Innovation
S&T information centres need to set policy on library innovation and discuss the trends in software and innovation development. This would lead to standardisation and system compatibility.

Training and awareness
Staff should be motivated to work in a rapidly changing environment and be aware of
the challenges of online technologies. Positive attitudes to its use, sharing and benefits
need to be developed. Meanwhile, executives must be aware of the changing library
technology and provide full support to their staff.

Electronic information resources
Academic and special libraries need to focus on procuring electronic resources in three
ways: acquisition of electronic resources such as electronic databases, journals and
books, digitisation of in-house research papers, and generation of union lists and
bibliographical products.

Networking services
The role of S&T networking services must be defined within the national information
policy in order to ensure active implementation and commensurate funding from the
government. The problems of ICT shortage and low quality ICT need to be redressed
so that using electronic resources will be more cost-effective. Users in special libraries
requested the establishment of an S&T network which embraced all research sectors:
academic, government and private and industrial R&D.

Collaboration
Library collaboration or resource sharing in Thailand can be generally found in four
areas: document delivery service, interlibrary loan, consortia licence agreement, and
bibliographic development. The level of collaboration, however, was regarded as low
and disorganised, resulting from the lack of clear policy from parent institutions, lack
of clear agreements in operating collaborative activities and negative attitudes towards
cooperation. Effective collaboration needs to be emphasised by setting clear
agreements on key activities for resource sharing.

Managerial strategies
The key issues related to managerial strategies were:

- *Laws and regulations.* The areas of finance, budgetary management, and
  purchasing were highlighted as restrictive and prohibiting the development of
  information service provision. Limited budgets and restricted freedom in
  budgetary management were severe problems for all libraries. Accordingly,
  relevant financial laws and regulations, such as fixed budget categories and
  rigorous rules of purchasing that impede cross-institutional collaboration, need
  to be regularly updated.
- *Governance.* In this context, governance refers to the organisational
  administration in the realm of policy making, organisational structures, and
  organisational management. For instance, related policies need to be announced
  or regularly revised; organisational restructuring programmes need to identify
  the scope and authority of each unit concerned in the structure clearly; and
  management must prepare staff in dealing with change.
- *Project management.* Various skills are important in managing projects, such as
  funding management, communication, planning, statistics, stakeholder

management, and review and reporting on project performance. These factors were considered as necessary to bring about effective implementation.

- *Evaluation systems.* An evaluation will ensure that policy and long-term strategies are implemented and driven in the right direction. The tool widely used in Thai libraries is the quality assurance system. In an electronic era, however, measurements for a virtual environment such as the use of e-metrics recommended by White and Kamal (2006) are more appropriate. They defined e-metrics as "data that is captured, collected, and analysed to assess the behaviour of real customers who utilized a system of virtual electronic networked resource and service". In the electronic library context, E-metrics can be used to measure transactions such as log-ins to library web sites or user interfaces, and to measure the cost effective use of online databases.

- *Strategic partnership.* Having strategic partners would result in access to a greater variety of resources and information sources, opportunities to learn new technologies, knowledge sharing, and professional development. Given that the concept of building gateways or S&T portals is demanded, partnership is a crucial factor for healthy collaboration and the potential for success.

- *User support.* Even though users tried to use electronic information resources, they searched more from search engines than licensed databases. Therefore, users need support in information skills training. Some users said that they wanted to participate in the process of resource acquisition, improvement of services, and the consideration of service fee charging.

- *Hosting provider or network coordinator.* The potential of each networking institution or consortium currently providing S&T information services was analysed. It appeared that:

STIN's weaknesses were its lack of development, poor ICT support, and its poor leadership. In this regard, it would only be possible for STIN to host the network if there was increased effort to lead and consolidate the network by creating a participatory environment. The major difficulties needing to be tackled include individualism against resource sharing, poor funding, lack of ICT support, system and standard development, low research funding, and poor consultancy services.

THAILIS and UNINET have already worked collaboratively in providing information services to the academic community. They have clear policies and direction in providing library and information services to support learning, teaching, and research. Continually funded by the Ministry of Education (MOE) and having income obtained from tuition fees, THAILIS and UNINET are financially strong and rich in resources. They therefore have high potential to be developed as a national network undertaking comprehensive resource sharing projects in cooperation with special libraries. UNINET, however, needs to solve technical problems of system failure while THAILIS still has to deal with the attitude problems which cause poor collaboration, negative attitudes towards resource sharing, and poor relationships among members.

Journal Link has its strong points in richness of S&T serials compiled from 204 member libraries for pool use among academic and research communities. Members also thought that Journal Link services were convenient and could meet the needs of

users, particularly scientific researchers. So far, services of Journal Link have been limited to only document delivery of serials and full-text papers from databases of some particular subject areas. It is possible that Journal Link could expand its services and develop collaboration with other networks and information providers in order to provide full-scale services electronically.

In order to gain optimum benefit in creating the national S&T systems of Thailand, the model shown in Figure 1 seems to be the most appropriate. This depicts synergistic hosting providers generated from collaboration of all key stakeholders involved with S&T information service provision for academic and research communities in Thailand.

Draft action plan

In view of all the evidence gathered, and in pursuance of the optimum development of the national S&T information sector in Thailand, a draft action plan might usefully contain the following specifications:

- An integrated national information policy to raise general awareness and aid policy implementation at institutional levels to be established.

- One institution to be established or identified as a national body steering the development of the national S&T information sector. This body might be managed by a group or committee, and be responsible for bringing information policy issues into the government's agenda and for updating policy when necessary. The role and responsibility of each institution participating in collaboration to be defined.
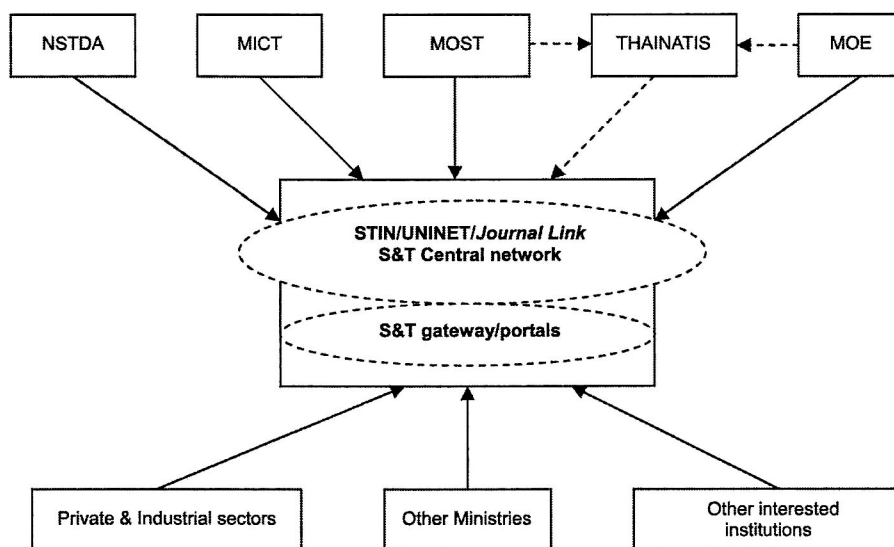
Notes: NSTDA: National Science and Technology Development Agency; MICT: Ministry of ICT; MOST: Ministry of Science and Technology; THAINATIS: The Thai National Information System; MOE: Ministry of Education

Figure 1.
Synergistic hosting
providers

- Collaboration to be emphasised in national information policy and promoted and embraced by all sectors responsible for research and information of all regions, namely, the government and the private R&D institutions, special libraries, and academic libraries.
- High priority to be given to information resource sharing in national information policy.
- Consortia or networked information centres to be promoted and adequately funded in order to further resource sharing.
- Professional organisation(s) to be established with the aim of conducting the information projects and working collaboratively.
- Patterns of funding such as formulaic and non-formulaic budgets to be reviewed in order to support collaborative activities or cross-institution collaboration.
- A national S&T information centre to be established to act as a focal point in providing services. This centre could be both a depository for archiving national S&T information resources and a dissemination centre of S&T research and information. The concept of having a platform or gateway to Thailand S&T information resources should be progressed.
- An organisation to act as a national hosting provider to be established to manage the national networked information services for the education and research community.
- Organisational management to be streamlined to ensure greater continuity in consortial management, improve relationships between metropolitan and provincial libraries, ensure more cost-effective use of electronic resources and adequate maintenance of networks, to promote mutual agreements on interlibrary loan and document delivery services, and to encourage higher levels of user information literacy.
- Change management to be emphasised in policy and strategy, and executives and staff encouraged to adopt positive attitudes towards resource sharing and global trends in information services.
- Commitment to networked resource sharing to be fostered in order to make resource sharing durable and long lasting.
- Funding to be made available to information practitioners for research proposals with the potential to benefit S&T information service provision.

Conclusion

Thailand faces challenges in managing S&T information provision to its users with limited funding. The biggest challenge is to provide a sustainable service based on cooperation and resource sharing amongst all parties concerned. For this to happen academic libraries, special libraries and the S&T research sector need to form collaborative partnerships. A national S&T information centre should be established to encourage and coordinate such partnerships. The centre could also oversee the development of a national repository for S&T information sources and provide uniform, easy-to-use gateways and portals giving access to S&T electronic sources held in the various institutions.

The provision and access to S&T information in Thailand could be improved considerably but only if the stakeholders recognise the need for improvement, agree to resource sharing and invest in ICT infrastructure to enable this to take place. This includes government bodies who need to re-examine the national information strategies and back policies with the necessary funding. Without this commitment the conceptual model described will not have a chance to be turned into a tangible reality.

Note

1. This paper will focus only the earlier three networks as STARNET was recently established after the data collection had been undertaken.

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Library Management

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The Editor

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Library Management aims to publish articles of interest and value to senior managers and academics within the library and information profession.The journal will discuss strategy and innovative developments in the management of libraries and information services. It will also include papers designed to assist in the development of research and the teaching of information and library management as an academic discipline.

General principles

• It is our intention to maintain a sound balance between theory and practice.
• The journal plans to have a future focus enabling practitioners and academics to better position staff, libraries and students.
• Contributors are encouraged to spell out the practical implications of their work.
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