ACCULTURATION OF INFORMATION TECHNOLOGY THROUGH LIBRARY SERVICES: THE MALAYSIAN EXPERIENCE *

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ABSTRAK

INTRODUCTION
Malaysia comprises of Peninsular Malaysia, Sabah and Sarawak. It is situated in the heart of Southeast Asia, flanked by Thailand in the north, Singapore island at the southern tip of the Peninsula of Malaysia, Brunei Darussalam in the Southwest, Indonesia in the south, and the Philippines in the north east across the South China Sea. Malaysia has a population of about 20 million. A recent survey on Reading Profile of Malaysian Society indicates that Malaysia's literacy rate is about 93%. Malaysia is expected to achieve 100% literacy rate by the year 2010. The survey also indicated that about 21% of Malaysia’s urban population have access to computers. Malaysia is one of the major exporters of electronic products especially the semi-conductor components such as integrated circuits, computer chips, silicon wafers, etc. Malaysia is now capable of producing its own computer wafers with 100% local contents. The Government of Malaysia has introduced numerous IT policies and projects which will transform Malaysia into a digital nation of Vision 2020 envisions Malaysia to achieve a status of a developed nation by the year 2020. The major thrust of Vision 2020 is to develop an information-rich society, which nurtures science and technology culture. The education systems are changing with emphasis on IT in teaching and learning. The policies on paper-less administration and electronic government encourage public institutions to introduce IT in their daily operations. Government mega project such as the Multimedia Super Corridor (MSC) will become the nerve center for the development of Malaysia as a global digital economy. The MSC will be the nucleus of multimedia R & D centre and the seat of the future electronic government of Malaysia. Cyber cities will be spreading throughout the country as every state takes initiatives to develop its own IT centre. With such developments taking place, libraries in Malaysia have important roles to play in acculturation of IT among its users, as a means of nurturing the science and technology culture amongst the Malaysian society.

DEFINITION OF ACCULTURATION

The World Book Multimedia Encyclopaedia (1995) gives the definition of acculturation as “the process by which cultural traits of one group change through the people’s contact with the culture of another group. The term is sometimes used to describe the process by which individual learn another culture.” Encyclopaedia Britannica (1995) defines acculturation as “…the process of change in artifacts, customs, and beliefs that result from the contact of societies with different cultural traditions...”. Two major types of acculturation may be distinguished based on two classes of conditions under which changes take place. The first condition refers to when a society borrow and modify its cultural elements where people of different culture maintain an interchange of culture without imposing any military or political domination of one group by another. The second type of acculturation takes place when one group establishes dominance over another through military or political control where direct change such as assimilation and cultural fusion occur. In most cases, acculturation is associated with socio-economic variable such as education and income of the society.

In the context of this paper, acculturation of IT refers to the process of change in the values, beliefs and way of life of Malaysian society toward the use of IT as a result of the government intervention with IT-based policies, programmes and projects as well as the results of globalization which had exposed Malaysia into the global digital community. The change of IT values will include: (a) development of an information-rich and technology literate society; (b) nurturing science and technology culture through continuous use of IT; (c) continuous pursuit of lifelong learning through the inculcation of reading habits and the use of IT as a mean of acquiring latest knowledge and information of one’s interest; (d) continuous exposure of information resources in variety of formats - print, multimedia, and on-line services; (e) equal access to information for the “have” and the “have not” in the cities and rural areas as well as those who are handicapped; (f) easy access of information from anywhere at any time through an integrated information network within the nation. Libraries in Malaysia have an important role to play as a catalyst of acculturation IT culture through the provision of IT facilities, IT resources (databases and access to websites) and conducive environment for library users to learn and use IT. Libraries can also extend IT facilities to the rural communities through an integrated network of digital libraries. Introducing IT facilities to the rural libraries will bridge the gap between the urban and the rural communities in the use of IT, thus bringing the rural communities into the mainstream of IT development.

IT SCENARIO IN MALAYSIA

Vision 2020 envisioned Malaysia to achieve the status of a fully developed nation by the year 2020. Recognizing that information has become the cutting edge of global competition, Malaysia has made Information Technology (IT) as one of its main thrusts and has placed it at the forefront of national socio-economic development. The National Information Technology Council (NITC) was established to advise the government on IT developments, to formulate a national IT plan, and to identify key programs which will contribute to the transformation of the Malaysian society into a knowledge-based society. During the Sixth Malaysia Plan (1991-1995), the government invested substantial resources which were directed towards laying the basic IT infrastructure as a first step towards establishing network facilities and services. Consequently, there was an increased usage of IT in both the public and private sectors. IT investments grew rapidly at an average rate of 24% per annum from RM1.3 billion in 1994 to RM3.8 billion in 1995. During the Seventh Malaysia Plan (1995-2000), it is expected that IT will have an significant impact on the development process and lifestyle of the population of Malaysia.

1. Government Initiatives

Mega government project such as the Multimedia Super Corridor (MSC), located in an area of 15km by...
50km, stretching from the Kuala Lumpur International Airport (KLIA) and the new capital center at Putrajaya, is being developed. Megajaya, consisting of twin cities of Putrajaya and Cyberjaya, located at the heart of MSC, will be the seat of electronic government and will be the future intelligent cities of Malaysia. MSC will be the nerve center for the development of Malaysia as a global digital economy anchored by an information-rich and knowledge-intensive society. The MSC will be the headquarters for the design and marketing of multimedia industries. Private sector multimedia companies are being encouraged to locate in the MSC to develop and market high value-added IT industries, particularly in the multimedia technologies, thereby developing Malaysia as a regional IT hub. The government is also encouraging domestic and foreign enterprises to establish joint ventures to conduct Research and Development (R & D) in the MSC in order to enhance local technological capabilities and to provide state-of-the-art IT services. Some of the MSC flagships are: (a) electronic government, which will provide facilities such as multimedia conferencing, single window to government through common databases, multimedia citizen kiosk. In line with this, the government is also promoting a paper-less administration among all ministries, government departments and its agencies; (b) public facilities such as the establishment of smart schools, multimedia university and multimedia digital library; (c) business sector which will provide telemarketing, remote manufacturing multimedia contents and software developments; (d) medicine facilities which will provide Telemedicine services for public to receive medical advice on-line. The development of MSC has prompted other states in Malaysia to set up its own IT or Cybercity centers with multimedia information facilities as an avenue for providing useful information to the general public at state levels. Cyberlaws consisting of 4 laws, namely the Copyright (Amendment) Bill, 1997, the Digital Signature Bill, Computer Crime Bill and the Telemedicine Bill are being debated at the Parliament. The MSC is also drafting provisions for the Multimedia Convergence Act, the Telemedicine Cyberlaw, and the Electronic Government Cyberlaw.

- **Telecommunication Infrastructure**

Telecommunication in Malaysia has undergone transformation to cater the needs of multimedia requirements. The National Telecommunications Policy which was passed in 1994 has, among others, the following objectives: “... to ensure that telecommunication services are extended to the urban and rural population at affordable rates, and to ensure that the telecommunication infrastructure is adequate and effective in supporting the development and industrialization efforts of the country...”. In order to provide the telecommunication infrastructure which is necessary to support multimedia applications through broadband technology that forms the backbone of the Malaysian information superhighway, the Malaysian government has issued licenses to a number of telecommunication operators to provide network infrastructure and value-added services.

JARING (Joint Advanced Research Integrated Networking) project was introduced in 1991, to promote information exchange and database development through access to the Internet at affordable costs through a nation-wide network based on open standards. As an extension to JARING project, a number of networks (Jaringan) were established, namely: Jaringan Pendidikan (Education Network among schools), Jaringan Ilmu (Knowledge Network among libraries), Jaringan Penyelidikan (Research Networks among research institutions), Jaringan Pertanian (Agriculture Network among agriculture related institutions), Jaringan Awam (Public Networks) which provided information of general interest to the public. A number of commercial sectors are beginning to provide on-line services through electronic commercial services to promote their products and services.

In January 1996, Malaysian launched its own satellite - the MEASAT I and in December 1996, MEASAT II. The satellite technologies enable vast resources of multimedia knowledge, information and entertainment to be transmitted even to homes in remote areas. The ASTRO, Malaysian’s own satellite...
television channel, provides home views access to 30 television channels 24-hours a day. Video-on-demand, movie-on-demand and music-on-demand will soon be available to the Malaysian homes. It was recently announced that Internet Television will be made available in Malaysia by the year 1998.

- **Specialized On-line Databases / Services**

A number of specialized public databases have been developed, such as the following: (a) PALMOILIS (Palm Oil Information On-line Service) provides information on the palm oil industries; (b) SIRIMLINK (Standard Industrial and Research Information Link) provides information on standards, patents, and industrial research activities; (c) CSL (Civil Service Link) provides information on various aspects of public administration, including government regulations, custom tariffs, incentives, government policies and economic data; (d) AGROLINK which provides comprehensive data and information on the agriculture sector; (e) SITTDEC (South Investment, Trade and Technology Data Exchange Center) provides information that promotes exchange of investment, trade and technology information among developing countries through a global computer network linking member countries; (f) MASTICLINK (Malaysian Scientific and Technological Information Link) provides R & D information and information analysis on science and technology; (g) MEDICAL INFORLINE, medical information of interest to the general public such as child health, cardiac health, women and mother’s health; (h) NSTP Online provides fulltext daily news of in the New Straits Times paper. Major libraries in Malaysia especially the National Library of Malaysia and university libraries have developed bibliographic databases and their On-line Public Access Catalogues (OPAC) can be accessed through Internet.

- **IT-based Education Systems**

The education systems in Malaysia are changing in order to cope up with the technological era. Computer literacy and computer-assisted teaching learning programmes have been extended to all schools and training institutions. The Ministry of Education has developed a five-pronged strategy in order to ensure that IT becomes an integral part of the education system. The five IT components include: (a) computer literacy; (b) computer studies; (c) use of IT in the technology-learning process; (d) development of IT-based resources; and (e) other IT-based services. Many programmes have already been carried out, e.g. a pilot project on computer literacy involving 60 rural secondary schools has been carried out since 1992. Another project on computer-based-learning involving 15 primary schools was launched in 1994. Computer-in-education laboratory was set up to undertake research and development especially in developing software for teaching. Through the Jaringan Pendidikan project, 50 selected schools will be linked to Internet. The Munshi Network project introduced at 14 schools in each state will provide student access to Internet through its electronic resource centers. Sekolah Bistari (Smart School), which will be implemented in phases, will be set to revolutionize the education system in Malaysia by introducing IT components into the learning environment. In January 1999, 85 Smart Schools will have its first intake. 

Smart schools will be extended to rural schools and eventually incorporate all schools in stages. The emphasis of the smart schools will be an extensive use of multimedia information technology applications among students and teachers, thus emphasizing the development of creative and independent thinking among students. The Smart School will encourage student-teacher interaction through IT. Smart Schools were introduced in order to prepare the future Malaysian youths for the competitive IT-intensive challenges of 21st century. By the year 2020, it is expected that everyone who goes through the school system will be computer literate and be prepared for the technologically inclined job market. A Multimedia University, a high-tech and innovative private institution of higher learning is being established at the new IT city of Putrajaya, at the heart of MSC. The University will have its first intake this year. The University will focus on the study of computer systems and development of multimedia local contents. Two other private universities, namely the Universiti Telekom (UNITEL) and Universiti Tenaga Nasional (UNITEN) will also focus on IT learning and teaching. The expansion of distance learning programme...
and the implementation of nation-wide electronic libraries will further enhance the usage of computers among the students and the public at large.

**Non Government Initiatives**

To popularize IT among the general public, two major IT associations, namely the Malaysian National Computer Confederation (MNCC) and Malaysian Computer Industry Association (PIKOM) are active in promoting the use of IT among the general public. They organize annual computer exhibitions and conferences at national and state levels which attracted many Malaysians. Schools are encouraged to form computer clubs to promote the use of computer among students and to encourage them to share their experiences in the use of IT. Mass media also play their role in promoting IT. Major newspapers have come up with special editions on IT such as the Computimes by the New Straits Times, InTech by the Star, Megabait by Utusan Malaysia, which give a review and up-to-date news on the development of IT available in Malaysia and in the global market. There is also a special local TV programme - Cyberwave - which attempts to reach the general public by providing latest news on the state-of-the-art of IT technology and promote its use. The advent of multimedia technology has brought many younger players into IT business. IT companies are also active in organizing classes and seminars on IT to encourage Malaysian youth to understand and learn IT and Internet. A number of cybercafes have been set up to allow public to have access to Internet, thereby encouraging them to navigate global websites of interest and to communicate with their “virtual” friends across the world.

**Libraries in Malaysia**

There are approximately 8,500 libraries in Malaysia, which include one national library, 10 university libraries and 4 newly established government-sponsored private universities, 120 academic libraries, 300 special libraries of varying sizes, 14 state libraries with its own state-wide networks of branch, regional, village and mobile libraries, and about 8,000 school libraries. The National Library of Malaysia (NLM) and university libraries have started using computers to build up bibliographic databases since 1978 under the MALMARC project. Today, the NLM, all university libraries and some major academic libraries and special libraries, have installed integrated library systems for their in-house operations and building up bibliographic and full text databases. About 150 libraries have access to Internet.

**Changing Patterns of Information Needs**

As a result of new economic policies and new education systems, a new society with different information needs is emerging in Malaysia. An increasing number of Malaysians now can afford to purchase sophisticated home video/movie and multimedia computers. A computer literate society is emerging as a product of the new education system which is technologically based. There are younger entrepreneurs entering into multimedia industries as players in promoting the use and development of multimedia local contents. This is in line with the government’s policy to encourage software houses to develop local contents, as there is shortage of local contents for education and for general public. There are increasing number of Malaysian workers pursuing higher education while working. The government is encouraging companies to retrain their workforces by introducing the HRD Consolidated
**Fund** for education of workforces, especially in the manufacturing and industrial sectors. Tax exemption is given to companies that send their employees for further studies to upgrade their skills in their related areas of work. Local universities are beginning to offer distance learning programs. Many private educational institutions are developing twinning programs with foreign universities being set up in capital cities of major states. Computer studies and computer classes are sprawling in major towns and cities. Primary and secondary students are encouraged to undertake school projects compiling local information using computers to generate reports. Increasing numbers of the Malaysian companies are introducing IT in their work environment. Soon there will be more network communities and virtual office workers emerging, when more and more people will be working from home. Libraries must cater for these emerging society with new information needs that are oriented toward the use of IT.

**Changing Library Environment Toward IT**

With the fast pace changing environment towards a digital society, librarians in Malaysia have recognized that the use of computer and information technologies in libraries is becoming mandatory. Libraries that traditionally developed as passive service organization focusing on print materials and waiting for their customers to come to use its resources, must now serve their clientele beyond their physical locations. They will have to disseminate information through various networks, thereby providing rapid and efficient information transfer. Specific information can be packed and repackaged and delivered in any form required by information seekers. Therefore, libraries’ customers have multiple options in term of information access and utilization. Faced with increasing cost of print materials, librarians cannot afford to acquire and maintain all information resources in print formats. Librarians must change their paradigm to become knowledge workers and act as network information managers to source out and consolidate information from various websites in order to fulfill specific information needs. Therefore, technological development will increase the demand for dynamic information services in libraries. To extend the benefit of global information resources to the local communities, libraries in Malaysia, especially the state libraries are introducing IT in its services at State Libraries and its branches. Most State Libraries are planning to set up hypermedia centres, a centre which integrates the use of multimedia and computer services. Multimedia digital library services will not be concentrated in the urban centers but will be extended to rural communities. Plans to introduce multimedia such as CD-ROM workstations with ready educational databases as well as Internet services to reach the rural libraries through its village libraries are underway. This will enable the rural communities to leapfrog into IT culture and have equal access to information. Introducing new technologies will bring the rural community into the mainstream of technological development. Through library services such as IT user education, IT camp, exhibition of IT products and services, libraries will be the center for acculturation of IT to the local communities.

**Acculturation of IT through Library Services**

Libraries in Malaysia can play an important role as a catalyst of acculturation IT cultures through the provisions of IT facilities, resources and conducive environment for use and learning IT. Some of the roles are listed below.

**Libraries as Electronic Knowledge Resource Centers**

In the digital era, libraries will fast develop as “knowledge resource centre” where knowledge and ideas of mankind are recorded in variety of medium - print and multimedia - and are systematically stored and displayed for easy access by library users for research and learning. The exponential growth rate of knowledge resources in multi various formats available in the market place as well as in the global websites, has necessitated a paradigm shift for libraries to integrate print and non print materials as their basic collections. Libraries are considered a “reservoir” of knowledge, where new knowledge in varieties of forms are constantly acquired and processed for specific
users requirements. In the traditional print environment, libraries keep stacks of print materials on shelves. Libraries in the multimedia digital environment will maintain servers and stack of jukeboxes of CD-ROMs which contain digital information and have on-line access to global information resources through internet. Scanning and digitization of local information sources will become a daily operation for managing and delivering local information contents. The rich resources in the national, academic and special libraries both nationally and internationally should be made easily accessible to the community through an integrated digital library system. Browsing of electronic resources through Internet is becoming a way of providing innovative library services. Library users have various options to select information sources of their choice. Thus, the knowledge resource center is not confined to printed recorded knowledge located at single location, is now able to source out information and knowledge resources from various websites and databases. Through networks of library and information services, any individual will be able to tap the wealth of library resources located anywhere, from any library, workplace and homes.

- Libraries as IT Cultural Centres

Over the years, libraries, especially public libraries in Malaysia, have introduced various cultural activities mainly to promote reading. Such activities include story telling, forums and talks, handicraft sessions, reading session, poetry reading, etc. With the availability of modern technologies such as multimedia computers, such activities can be done through the use of multimedia computers. The NLM, for example, has set up a Children Hypermedia Centre, where children enjoy learning and acquire knowledge from CD-ROMs. The Centre is equipped with multimedia computer systems, where children can view, listen and interact for story telling session, play computer educational programs, produce creative writings using colorful graphic design, understand and appreciate nature and animals, and enjoy viewing scientific discoveries from various children CD-ROM collections. Children are independently using computer facilities at the Centre either on their own or with the assistance of the library’s staff. Peer group learning are encouraged. To cultivate IT culture among children, the Library has organized a series of “Computer Camps” and “Writing Competitions Using Computer”.

Plans to set up hypermedia centres in all the 14 state libraries as well as in branches and village libraries are underway. As a first step, the NLM has installed computer with Internet facilities at all State Public Libraries. Under the Seventh Malaysian Plan, provisions were allocated for the State Libraries and its branches as well as village libraries to set up a Hypermedia Centre. State Library are encouraged to develop Community Information Services in their homepages by providing local community with news such as cultural and tourist centres, and business news, local political and personalities, etc. Libraries can organize IT based programmes for families to enjoy such as family counselling, family health, dietary programs, travels, etc. as a way of getting families to get involved with library extension and outreach programs. For advance acculturation, libraries can encourage the general public to use the Medical Infoline. For foreign information sources, librarians in the local libraries can act as a translator for the local community. Through the Rakan Muda Program (Youth Friendship Program), local youths can be encouraged to gather, compile and document local and cultural heritage, resources, record local history, local dialects, local legends, ethnobotany, flora and fauna, etc. Libraries can develop local databases by working with local communities. With such programs, the local community will be proud of their local history and cultures. This will instill computer appreciation and increase computer literacy amongst them.

- Libraries as Informedia and Edutainment Centres

By providing variety of multimedia services, which include print, non print, such as film, video, audio cassettes and laser discs, CD-ROM collections and access to on-line services through Internet and to ASTRO TV services, libraries can create informedia and edutainment centres. Such centres widen opportunities for access to knowledge whilst making learn-
ing most interesting and entertaining. Libraries can negotiate with TV station to have off air recordings from local TV/radio program which have educational and research values, so that library users can access them at their own leisure time. Direct telecast programs on areas such as Parliamentary and State Legislative debates, speeches by the Honourable Prime Minister on important events such as the National Day celebrations, the launching of MSC, Minister of Finance Budget speeches, etc can be taped and stored for future research. Malaysia will be the host for SUKOM (Commonwealth Games) next year, and such important event will be telecast live. They can be taped and made available at the local libraries. By collaborating with Broadcasting Stations to copy/tape/digitize some historic events libraries can increase educational resources for future research and education purpose. These can be distributed or made it available on-line to rural library services.

Libraries in the district and rural areas have the potential to become catalyst of change by catering to the information needs of rural communities. From the author first hand observation, visiting district and rural libraries as a member of Consultancy Team to the State of Sarawak, it is evident that most libraries are opened at night to allow users to make full use of the library services. In most remote district and rural areas, there are no facilities for entertainment such as cinemas, theaters, shopping arcades, etc. District or rural libraries can act as a one stop community entertainment centre. These centres may be introduce services such as multimedia and CD-ROM workstations equipped with ready educational software, and where possible access to ASTRO education’s stations and Internet. Libraries used to provide bulk loans of books to rural libraries. This can be changed by providing computer workstations, TV sets and selected video education and entertainment programs. This will make the work of library staff more challenging and will create a new image for libraries to become edutainment and informedia centres. Libraries can provide a more conducive learning environment for the rural communities. Introducing new technologies to rural libraries will bring the rural communities to the mainstream of development and thereby making a quantum leap into a new technological era.

- Libraries as Learning Community Centres

Libraries can act as an important learning community centres. Libraries can be the best place where users can experience independent learning where they can explore knowledge of their interest from various CD-ROMs and Internet websites. Teachers, parents and librarians can work together to develop community information resources. Librarian can coach and guides parents and students in the use of various information resources.

The NLM has set up Library Technology Information Centre and Multimedia Resource Centre for its users especially researchers. Such facilities are equipped with computers with CD-ROM facilities, and some can access Internet. Researchers and general public will be able to access local databases such as SIRIMLINK, MASTICLINK, SITITDEC, etc. as well as global websites information resources via Internet and information sources from CD-ROM collections on their own. Regular user education programmes were conducted by staff of the NLM. Such user education programs include search strategy for navigating different types of databases and websites as well as CD-ROM collections. The NLM in corporation with the Library Association of Malaysia, organize series of public talks related on IT. Sometimes computer vendors were invited to give talks on the state-of-the-art of IT in Malaysia. Book exhibitions and computer exhibitions were held at the Exhibition Hall of the Library in conjunction of the IT weeks or IT conferences. Such programs will be simulated to all state libraries.

Local universities are now beginning to introduce distance learning Smart Schools and will soon introduce distance learning for the students to learn at their own pace. Technological advances will make classroom more accessible and effective. With distance learning, any student from anywhere could be telepresent in the class and participate in it. A remote student can electronically copy content of the classroom materials including board display. In telepresent mode, students can revisit the class from any viewpoint. Therefore, students can listen and attend classes at their convenience and at their own pace. The student
can e-mail questions to their teachers or lecturers and teachers and lecturers can respond to the questions by replying to the e-mailing. Student can experience high-quality learning environment independent of a formal environment. Libraries can provide facilities for students to revisit their classroom, to interact with their teachers especially after school hours.

Satellite services can be used for receiving distance learning programs conducted at major universities via distance learning programs or open university programs. This will facilitate people living in the rural areas to continue their education. By installing satellite dishes in libraries, major world resources and records of major conferences may be tapped and store for delayed or future reference and researches. Students who are on vacations at their hometowns and want to interact with their lecturers at the universities can do so via Internet. These services can be introduced in libraries, with users being allowed to select good educational and entertainment programs to view for research and for leisure information seeking. Major conferencing taking place in the cities can also be transmitted to distant libraries. Libraries will be the best place where general public can participate in video conferencing via satellites.

- **Libraries as Centres of Excellence of Specialized Information**

In the era of digital age, special libraries and state public libraries should be developing as centers of excellence for specialized information on specific subject areas such as state information, etc. Each special library should maintain their own specialized information according to their parent organization’s core competencies. Each state in Malaysia has its own specialities. Kelantan and Terengganu in the northeast of Peninsular Malaysia are famous for their local handicrafts such as songket and batik designs in addition to their beautiful beaches. Sarawak is famous for its unique textile designs, wood carvings, in addition to its bio-diversity, eco-culture and tourism diversities, and so forth. Each state is promoting its own business, trade and tourism industry. Special libraries and state libraries can play important role by developing specialized databases pertaining to its core competencies. This can be done in collaboration with agencies, expertise and researchers in relevant areas. The Sabah State Library, for instance, has been selected by the Sabah State Government to develop Sabah State Homepage.

Special libraries should provide specialized information services which should cater for specific user needs. This can be done by consolidating information from different sources, global and local databases and websites, repackaging them for specific user needs. Special libraries should be able to scan and analyze information sources for specific user needs. Libraries should develop selected users’ profiles of key researchers, businessmen, industrialist or entrepreneurs, with their information needs, and disseminate “packages” of information according to subject interest. Special metadata on information sources relating to related researchers areas should be made available in the library “bookmark.” Hence, busy researchers, businessmen, entrepreneurs will be continuously exposed to up-to-date information in their own fields. Working with researcher in specialized subject areas will provide libraries with “win win” situation, where libraries can tap their expertise for future reference services.

Libraries can also create an on-line reference enquiries form in their homepages for researchers to make reference enquiries, to request for document delivery and inter-library loan, and to request for extension of loan. Researchers who want to register as members of special group or for special services can also do so on-line.

- **Libraries as a Centre for Promoting and Preserving Cultural Heritage**

Malaysia has a rich cultural heritage which are recorded in various forms such as manuscript, artifacts, sculptures, wood carvings, textile, jewelleries, etc. There are also traditional songs, poetry, music, legends, medicinal herb, foods and oral traditions which are handed down from generation to generation. A large portion of these invaluable heritage are fast deteriorating due to poor maintenance and preservation practices. There are also problems of documentation
and bibliographical controls. Some of these cultural heritage are kept in the libraries and state museum. With the availability of scanning devices and compressed storage technologies, cultural heritage that are captured in photos, videos and sound recordings, can be converted into digital formats. Library can play a vital role by undertaking projects to document the rich local cultural heritage by collecting, documenting converting them into digital formats in a systematic way. This can be done through an involvement of local historical/cultural/heritage societies or local chieftains. A regular exhibition of such rich cultural heritage can be done as part of the library services. In future, libraries can develop "virtual exhibition" of local cultural heritage accessible via Internet, thus enabling the local communities to display to the world their own rich cultural heritage.

- **Libraries as Incubator and Secretarial Centres**

Having the necessary computer hardware and software as well as reprographic services, libraries can provide incubator services. Incubator service will allow publishers and small business entrepreneurs who do not have computer facilities to develop their homepages using libraries’ computer servers, and thus be able to advertise their products and services via Internet. By providing conducive library environment, small business entrepreneurs can also use library computer facilities to produce their business reports, as well as getting business information and market trends from the Internet and library resources. Another service that libraries can introduce is secretarial service, where small scale entrepreneurs, researchers and students who are doing their academic, research, or school projects, will be able to do their project papers at the library computer services. Library can also provide fast binding services for the users. Incubator and secretarial services will provide value-added services to library services. Such services can be a means for generating income for libraries.

**THE NATIONAL LIBRARY OF MALAYSIA INITIATIVES IN DEVELOPING MULTIMEDIA LIBRARIES**

The mission of the National Library of Malaysia is to “ensure that all Malaysians shall have equal access to library services and facilities as well as have the capability to utilize the Malaysian and universal intellectual heritage through the national integrated knowledge infrastructure of digital libraries”. To ensure that all Malaysians have equal access to library and information services, the NLM has taken the following measures:

- **Financial Assistance**

The Federal Government provides budgetary provisions to all 14 state libraries for its annual operational budget and five-year development budget, through the NLM. The development budget is for the renovation or construction of new State Public Library building, branch libraries, setting up village libraries, procurement of mobile libraries, collection building and purchasing library equipment, which include computer systems. The state libraries are responsible for developing its own state-wide library networks. In order to facilitate nation-wide library network, in 1994, *JARINGAN ILMU* (Knowledge Network) project was launched, linking about 50 libraries with internet facilities. Under this project, the NLM installed, free of charge, computer systems with Internet facilities to 14 state libraries and 31 libraries in the Ministries and the Federal Government libraries under the Common User Scheme. Most state libraries are planning to set up state-wide network of multimedia library services right to the rural areas.

New state public library buildings and branch libraries have provision of *hypermedia* facilities for the general public to have access to computer. The NLM has published *Standard Ruang Lantai bagi Perpustakaan Awam* (Standard for Floor Space Requirements for Public Libraries) which include in it provisions for Information Technology facilities for new library buildings.
Developing Databases and Local Information Sources

Since installing its own integrated computer systems in 1989, the NLM has created 5 databases, namely:
(a) BINAR database - consisting of about 230,000 bibliographic records of the NLM’s collection, with an annual increase of approximately 5,000 records;
(b) MENTARI database - consisting of about 58,000 records of index to selected periodicals articles published in Malaysia, with an annual update of 3,800 records;
(c) SURIA database - consisting of about 130,000 records of index to selected newspaper articles, with annual increase of about 5,800 records.
The NLM is reviewing the continuity of this database as local newspaper are beginning to have its fulltext on the net; (d) PANCARAN database - consisting of about 10,000 records of index to working papers presented at conferences and seminars held in Malaysia, with an annual increase of about 1,500 records; (e) MATAHARI database - consisting of about 3,000 records of index to articles on Malaysia published in foreign journals/publications, with an annual update of about 400 records. These databases can be accessed via Internet from the NLM’s homepage. In 1996, the NLM launched its first CD-ROM publications consisting of the BINAR, MENTARI, SURIA and PANCARAN databases. Such databases can be used by researchers and students to search information on Malaysian resources.

The NLM is also developing a number of databases such as: Directory of Libraries in Malaysia; Directory of Publishers in Malaysia; List of titles and publishers with ISBN; Expert Group on Manuscript; List of Manuscript in the National Library of Malaysia and those identified in different countries; Union list of CD-ROM in Malaysian Libraries and Institutions; and List of computer system and databases in Southeast Asian libraries. These databases are based on data collected or survey undertaken by the NLM.

The NLM’s homepage includes information sources as follows: its corporate information - history, organization, services, statistic on libraries, publications, major events of the NLM, its publications, access to its major databases, Union list of CD-ROM in Malaysian libraries and institutions, Titles of Malaysian publications with cataloguing-in-publication. It also includes hyperlinks to other libraries homepages, the Library Association of Malaysia homepage, and other institutions under the JARING projects.

Libraries Facilities for the General Public

The NLM has set up the Library Technology Information Centre which will be equipped with computer systems for the public to access Internet websites and other on-line databases available in the nation such as SIRIMLINK, CSL, MASTICLINK, PALMOLIS, etc. as well as collection of databases in CD-ROM. This Centre is also used for regular User Education programmes on IT conducted by reference staff of the NLM, which include navigating the net, accessing the NLM databases, and other databases. Peer group learning are encouraged once the library users have attended the User Education programs. The NLM also conducted special IT training programmes for special groups such as reporters, parents, students who are going for further studies, cultural group, etc.

The Children Hypermedia Centre as mentioned above, is another facility to nurture children to use and enjoy viewing and producing creative works using IT. This Centre will be simulated in all state public libraries.

In line with the policy towards developing a caring society, the NLM has installed special computer facilities for disabled particularly for the VIPs (Visually Impaired Persons). This include a reading device - the Arkenstone: an Open Book System which can convert any text voice for the VIPs to listen. The system is linked to a Braille printer known as Everest-D Braille Printer which can print in Braille format any selected text of interest to the VIP. These devices enable a VIP to take any book from the Library’s collection, have it scanned and read out in a synthetic computerized voice and when necessary have it printed in Braille. To encourage the VIPs to use computers, the NLM in cooperation with the Japan Braille Library has organized a series of International Computerized Braille Workshops held at the Computer
Training Laboratory of the NLM. To promote the use of computer among the VIPs, the NLM organized an annual affairs called “A day with VIPs”, special programmes for VIPs which include user education on IT, special registration for membership.

- **Digitization Project**

The NLM has started a pilot project to digitize its rare illuminated manuscript. A project to scan collection of Malay Champa manuscripts is being done with the cooperation of Ecole Francaise d’Extreme Orient, France. The NLM is planning to have a collection of its rare collections of photographs on various cultural heritage to be digitized. This year, the NLM is planning to acquire a computer system with scanner which can convert text from microfilm/microfiche of newspapers and rare collections of its intellectual heritage into digital format.

- **Human Resource Development**

The NLM has set up an IT Training Laboratory for its staff as well as staff of other libraries to have hands-on training on computer systems. A series of IT training for all levels of library staff, including workshops on navigating information sources from the Internet as well as designing homepage were done last year. In 1996, the NLM organized a National Conference on Multimedia Digital Libraries: Fulfilling the National Information Needs of the 21st Century. In addition, the Library Association of Malaysia Standing Committee on Information Technology is very active in organizing seminar and workshop on IT to promote the use of computers among its members. Under the Malaysian Technical Cooperation Program, the NLM provides training and accept attachment of library staff from under developing countries sponsored by the Malaysian government. This training also include hands-on on IT. Training of librarians in new technologies is important as librarians are responsible to instill and nurture library users in the use of IT. The NLM also provides consultancy services in setting up or upgrading library services, which also include provisions for setting up IT services.

- **Strategic Alliance With Private Sectors**

In a truly Malaysian Incorporated spirit, the NLM has developed strategic alliances with number of private sectors to set up computer facilities in libraries. Esso Malaysia has set up the Children Hypermedia Center at the NLM as well as at the Negeri Sembilan Public Library. Esso Malaysia is also working with the NLM to produce local children poetries in CD-ROM.

The NLM with the cooperation of the McDonald Malaysia (Golden Arches) and Dewan Bahasa dan Pustaka (Language and Literary Bureau) has produced talking book of 10 award winning/best selected titles of Malaysian children novels published by the Dewan Bahasa dan Pustaka. The NLM is working with the International Expert Committee on Daisy/Plexstalk World Field Testing of Japan to convert these talking books into digital talking books.

The NLM is planning to produce more multimedia digital publications by working with various agencies that have common objectives, i.e. to enrich Malaysian intellectual heritage by producing multimedia publications. The NLM gives input and ideas for any group that are interested to produce multimedia digital publications of local contents as R & D project. Enriching local content to a certain extend will encourage general masses to appreciate and enjoy using computers as part of their daily life.
Policies And Strategic Formulation

As a result of the National Conference of Multimedia Digital Libraries held last year, the NLM has taken various steps to ensure the development of an integrated network of multimedia digital library, to be implemented in phases. Some of the initiatives are: (a) to develop a master plan for nationwide multimedia digital libraries which will include formulation of policies and guidelines on minimum standards for establishing digital libraries in different sectors and locations, resource sharing, developing standards on creation of local contents and Malaysian metadata, collaboration in digitization programs, cooperative acquisition programs of expensive CD-ROM titles, standardizing scheme of payment on fee-based information products and services, resolving copyright issues, etc.; (b) develop a nation-wide network of multimedia libraries in order to promote greater efficiency and accessibility of resources within the nation. This will include developing communities digital libraries at rural areas, thus bridging the gaps between the urban and rural communities in the provision of information technologies; (c) promote the development of public domain local contents databases and digitization programmes of local cultural and intellectual heritage, thereby enriching the Malaysian information resources; (d) development of Centers of Excellent on Specialized Information Resources that will become focal points for specialized information network in the nation; and (e) streamlining rules, regulations and procedures that will hinder the development of IT and sharing of resources among libraries. This will include the use of smart cards among libraries.

CONCLUSION

Malaysia is set to move forward towards an information-rich and digital nation. In the digital era, where there is an exponential growth rate of databases and information resources available through the Internet, libraries can act as a catalyst of change by making this wealth of information and knowledge easily available to its users. By installing computer facilities in libraries, and extended such IT services to the rural areas, libraries will be able to bridge the gaps between the urban and rural communities in IT literacies and competencies. Libraries’ services and activities such as User Education on IT, talks and forums on IT, promoting the use of library IT facilities, supporting computer IT clubs or association at local levels, exhibition of IT products and services, involving the local communities in documenting and creating databases on local cultural heritage are some of the means of acculturation IT among library users. Extending IT facilities to the rural communities will push the rural communities into the mainstream of IT development.
REFERENCES


