Digital Library Development in Vietnam

By Dr. Ta Ba Hung
Director of NACESTID

Digital library development has been actually considered as a major trend of library and information services development in Vietnam.This is an approach strongly supported by both high-ranking policy-makers and library communities. It has been highlighted in official and legal documents.

A number of digital library projects has been approved and realized, for instance, the Digital Library Project of the National Library, Learning Resource Centres and Digital Libraries in universities and STENET Project. All these projects have been started. This paper briefly describes digital library development in the NACESTID, heading the National system of scientific and technological Information that has pioneered in digital content development and STENET project which is the most important digital library initiative in the country.

I. Digital Library development in NACESTID

National Centre for Scientific and Technological Information and Documentation (NACESTID) has got two-fold missions: State management of S & T information activity and being the national information centre for science and technology for whole country. It has played a leading role in Vietnam in collecting and distributing the scientific and technological information.

NACESTID has involved in digital library development since late 1990's years. At present, its digital resources are largely available for public online access as well as on CD-ROMs.

As Internet Content Provider (ICP), NACESTID undertakes digitisation of information resources and its distributing over Internet and on CD-ROMs.

NACESTID is the most important databases creator in Vietnam in science and technology areas. Its major databases are as follows:

Bibliographic databases:

- BOOK – NACESTID's Central Library for Science & Technology Catalogue – multi-disciplinary database that reflects the richest in Vietnam collection of monographs on science and technology. It is accessible both over Internet and on CD-ROMs.

- SCITEC - Foreign scientific and technological documents database – multi-disciplinary database that covers journal articles, conference proceedings collected by NACESTID. It is accessible over Internet and on CD-ROMs.

- KQNC - Domestic R & D projects reports database that reflects completed R & D projects financed by the government budget. It is available for online access over Internet and on CD-ROMs.

- STD – Comprehensive multi-disciplinary database on science and technology that covers domestic periodicals' articles, conference proceedings. It is accessible over Internet and on CD-ROMs.

- VNDOC – Vietnam Science and Technology Abstracts (in English). It is accessible over Internet and on CD-ROMs

- Foreign Periodicals Union Catalogue Database - Union Catalogue that covers holding information on about 6,000 foreign periodicals titles available in about 40 leading information centres and libraries in the country.

- Table of contents database - This database makes tables of contents of overseas periodicals currently acquired by NACESTID accessible over Internet.

Factual Databases:

- Industrial Catalogues Database – Database on products and services
- CGCN – Database on Technology Transfer Experts, Consulting Institutions
- VTM – Database on Vietnam Technology Market that covers technology requests and offers.
- Science and Technology Institutions in Vietnam Database – Who's who in science and technology in Vietnam.

Full text Databases:

- VBPQCN – Database on Legal and Regulatory Documents on Transfer of Technology
- R & D Projects Databases
- Science & Technology Digital Library for rural development.

On its Website, NACESTID provides a number of databases created by other libraries and information centres, namely:

- National Library's Catalogue (created by the National Library of Vietnam)
- Dissertation and Theses Database (created by the National Library of Vietnam)
- Library for general sciences of Ho Chi Minh City catalogues
- National Standards Database (created by Standards Information Centre)
- Databases on geology (created by the Institute for Information and Documentation of Geology)

NACESTID – an important e-publisher

In order to meet urgent needs of Internet users in digital information in Vietnamese language and in English, NACESTID publishes a number of electronics bulletins and e-journal, that are accessible over Internet, namely:

E- bulletins:

- Economics, Science, Technology and Environment News (Weekly in Vietnamese)
- Knowledge for Development (Weekly in Vietnamese)
- Innovation and Rural Development (Weekly in Vietnamese)
- MPB – Environment and Sustainable Development (Bi-weekly in Vietnamese)

E-Journals and Newsletters:

- Information and Documentation (Quarterly, in Vietnamese)
- Science-Technology-Environment (Monthly, in Vietnamese)
- VDN-Vietnam Development News (Bi-monthly, in English)
- Vietnam Inforterra Newsletter (Quarterly, in English)
- Science, Technology and Economy Digest (Monthly, in Vietnamese)

Beside with the mentioned its own e-publications, NACESTID makes accessible over Internet a series of journals published by other science and technology institutions, for example:

- Science and Development (Weekly, in Vietnamese, by Ministry of Science and Technology)
- Science and Technology Activities (Monthly, in Vietnamese, by Ministry of Science and Technology)
- Acta Mathematica Vietnamica (in English, by Institute of Mathematics)
- Communications in Physics (in English, by National Centre for Natural Science and Technology).

NACESTID - an important subscriber of overseas databases on CD-ROMs

To enrich its digital information sources, NACESTID has acquired most important overseas databases on CD-ROMs, namely:

- IEEE/IEE Electronic Library (IEL)

- PASCAL- multi-disciplinary database of National Institute for Scientific and Technical Information (France)
- Chemical Abstracts
- Compendex
- Metadex collections
- Derwent Biotechnology
- Vendor Catalogue
- Country Forecasts

NACESTID - the most important overseas e-journals' subscriber in Vietnam

Since 2001 February, NACESTID has subscribed thousands online e-journals on applied sciences, business and management, and so on.

NACESTID - a nation-wide non-commercial Internet Service Provider in research and education sector in Vietnam

In order to facilitate information sources sharing, NACESTID established VISTA (Vietnam Information for Science and Technology Advance, www.vista.gov.vn) in 1997. This is a nationwide information network that is playing an important role in resources sharing and meeting information requirements of scholars and SME community in Vietnam.

Through VISTA various types of information, collected or produced by NACESTID, are distributed to those who can access Internet. VISTA is connected to the global Internet by leased line of 512 kb/s. Through VISTA, all 61 provinces are inter-connected for sharing information on science and technology by leased lines or by dial-up through the public telephone lines. Most universities and R & D institutions are VISTA contracted users. VISTA contracted users are provided with various services, namely:

- Online access to a large number of various databases created or collected by NACESTID

- Access to e-journals and e-bulletins on science and technology as mentioned above.

- Use of various Internet services (World Wide Web, FTP, E-mail, Web hosting).

VISTA - network of networks on science and technology

As ISP and ICP, VISTA connects a number of Intranets and provides them 24/24 hours, 7/7 days connection to Internet through leased lines. These Intranets belong to different R & D organisations, for example, Vietnam Atomic Energy Agency, Institute for Science and Technology Policy and Strategy, Science and Technology Management School, VIKOTECH-Vietnam-Korean Centre for Technology Transfer..

NACESTID- National focal point for a number of international networks:

- STN International (Germany),
- CIFED/REFER - Information network for research and higher education for French speaking countries
- INFOTERRA -International Environmental Information Network (UNEP)

II. STENET : Vietnam Science, Technology and Education Network

Research and higher education institutes are playing an increasing role in socio-economic development in Vietnam. However, they are still having many weaknesses and difficulties and facing major obstacles namely:

- there is a severe shortage of close linkage between universities and scientific research, business, production and employment;

- there is a severe shortage of well qualified staff and facilities;

- socio-economic conditions remain very limited;

- there is a severe shortage of scientific, technological and business information.

Vietnam is a country with a deep understanding of the importance of information services and the Internet for the research and education community. In the past years, first steps have been made in building an Internet technology based national information infrastructure in the country, which in principle can provide research institutes and universities with access to the global Internet. Many research institutes in Vietnam already have got access but, in most cases, limited access only due to bandwidth restrictions caused by the underdeveloped stage of the Vietnam Internet segment and by physical bandwidth restrictions between the national Internet segment and the global Internet.

There are 12 ISPs in the country that offer a wide range of ICT services including (local) network design and installation, software development, training of end-users and system administrators, information system analysis and specification, design and implementation of security systems (firewalls), application software package selection and/or application software programming, data base and web page design and consultancy services.

These ISPs can deliver access to the Internet connectivity to individual R&D institutions and universities in the country. However, the need of the R&D and educational sector are not limited to Internet access only, but oriented towards getting access to various information services of stakeholder organizations scattered throughout the country. Examples of such information services are the access to the catalogues of individual libraries, data bases containing R&D research outputs, training materials for on-line and off-line learning and distance education, high capacity computing or processing facilities and other.

Due to their present orientation, it can not be expected that the existing ISPs will provide the specific services required by the R&D and educational sector. It does not only require access to the Internet far above the commodity level provided by the ISPs, but also a comprehensive restructuring and integration of information services available in the sector.

To overcome the above mentioned obstacles of research and education sector, in framework of Sweden-Vietnam co-operation programme there was approved a Sida/SAREC sponsored project entitled Vietnam Science, Technology and Education Network (STENET).

The project is the most important digital library development initiative in Vietnam. It has been implemented jointly by Ministry of Science and Technology of Vietnam (Informatics Centre, NACESTID) and Stockholm University (Sweden) and Delft University of Technology (Netherlands).

Project Budget: USD 2 million. Project duration: 2 years (2001-2002)

Objectives of the project are as follows:

Long-term objectives: Vietnam Research and Development Institutes and Universities will provide world class research, education and services relevant to sustainable development needs.

Immediate objectives: Strengthening Vietnamese Research and development capacity through a national ICT physical network and services, STENet, which is managed by competent, well-trained staffs, supported by well-defined policies.

Specific objectives:

1. To build up a STENET infrastructure:

- ICT infrastructure (switched LAN), for each network point of presence (POP) in Hanoi and Ho Chi Minh city;

- Higher capacity network access facilities through optical at 10 R&D institutes in Hanoi region and 10 R&D institutes in HCM city's region;

- Four pilot wireless (MMDS) network access facilities at 2 R&D in Hanoi region and 2 R&D institutes in HCM city's region;

- Dial up network access facilities at 100 R&D institutes located elsewhere in the country;

- Network access facilities (LAN workstations, LAN printer, network access equipment) at 6 R&D institutes having a long lasting relation with Sid/SAREC.

2. To set up and develop STENET ICT services:

- E-portal at two POPs providing entry points to the various information services available for R&D and education in Vietnam;

- E-library providing access to library information resources located at different places;

- E-delivery (system for the electronic delivery of documents);

- E-learning (environment supporting content development): tool kits for content development, training materials, video based instruction sets, CD-ROM replication equipment, reference materials.

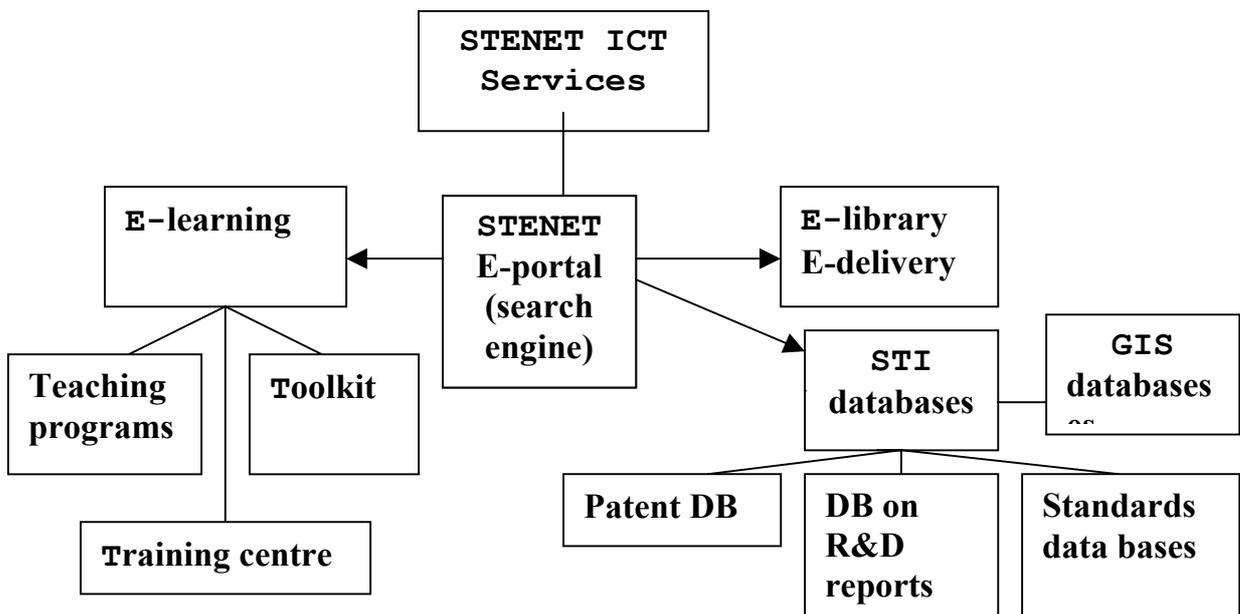3. STENET human resource development:

- To establish an adequate human resource and expertise through the provision of knowledge and skills of key STENET professional staff members;

- To train STENET end-user groups at the stakeholder organizations.

4. STENET sustainable management and organization:

- Organizational structure responsible for the management, operation and maintenance of the STENET ISP and ICP facilities and services;

- ICT service provision policies for the areas security management, financial management, (legal) use of software and procurement.

The STENET e-portal should have a number of main components, namely:
- E-library entry point for users
- Directory
- Search engines
- Personalization
- Tools and facilities of portal.
The STENET e-library will have both national and international information:

+ National e-library will contain national gray literature and materials published locally and made available by the participating institutions such as:

- Patents (partly supplied by the National Patents Office and partly downloaded from the Internet);
- Standards (national and international);
- Journals will be made available mainly by NACESTID and National library;
- R&D reports, dissertations, theses, conference proceedings;
- GIS data bases;
- Legal documents.

- Access to international digital collections:

- The e-library will centrally have a set of subscriptions to international digital libraries in selected fields from selected publishers for example, Proquest, ScienceDirect, IEL, etc.
- Accessing to various e-journals available on the Internet;
- Linking to science and technology directories in the world.

- Directory

The e-portal should naturally contain a directory of all participating organizations, other R&D institutes and universities in Vietnam as well as respective local and overseas agencies with interests in Vietnam.

- Search engine

The e-portal should contain a search system for the content of site itself as well as for e-library. This search engine must be able to handle both Vietnamese, the most common foreign languages - English, and maybe French and Chinese as well.

- Personalization

The e-portal should be able to accept profiles entered by users to enable the system to alert users for new incoming material that suits their interests. Users should be able to specify their profiles and interests through a set of keywords or classification codes and through unconstrained text, for example by giving example of documents that interest them, namely:

- Information filtered via on-line access sources such as reviews, newsletters, websites, etc;
- Subscribers receive information of concerned topics;
- Newsletters may be sent via e-mail to users;
- Users can access personalized news on-line, can choose contents and output formats.

- Tools and facilities of e-portal

- Computerized English-Vietnamese translation;
- Classification and multi-lingual support;
- E-mail (for a number of 100,000 users);
- Forum;
- Teleconference;

- E-delivery

The e-delivery should afford participating institutions to scan documents from paper to digital form, run, and maintain document over the net rater than sending it on paper. Scanning should not only be done opportunistically, at time of request, but also strategically, in the sense that entire sub collections that can be expected to become interesting should be scanned and made digitally available systematically.

- E-learning

The special fields, which e-learning is implemented first are: information science, information technology.

Next to setting up the e-portal, the STENET will support the setting up of a virtual library (e-library: spanning catalogue systems of libraries of various stakeholders) and a system for electronic delivery of documents (e-delivery).

STENET-Infrastructure

Through the proposed STENET-infrastructure , a first and significant step will be made in building the core infrastructure needed for providing and making available Internet based information services to the R&D and educational sector in Vietnam. For this purpose is proposed to establish a Internet Service Provider (ISP), as 1st step, and a Internet Content Provider (ICP) as 2nd step. The proposed ISP and ICP are both dedicated to R&D sector in Vietnam and intend to provide services addressing the specific needs of the sector.

In principle all R&D groups and related organizations in Vietnam will be entitled to make use of services offered by the proposed STENET ISP and ICP.

It is planned to set up two point of presence (POP): one in Hanoi and the other in Ho Chi Minh city. The two ISP and the ICP POP' will form the core of the STENET infrastructure and will provide Internet based information services including E-mail and Internet connectivity available to all interested R&D groups in Vietnam. Example of other services are e-library services, R&D search engines, training materials for distance learning (online and offline) and GIS services.

Next to the setting up of the ISP and the ICP, network access points will be set up at the interested R&D groups. The objective of the project will be to connect 10 R&D groups in the Hanoi region and 10 R&D groups in the HCM region through higher capacity data communication facilities (preferably optical fiber) to the two POPs. Also - as pilots- four R&D institutes will be connected through alternative wireless communication technology (MMDS). Modems will be distributed to interested R&D institutes elsewhere in the country offering dial in access to these institutes and, in a latter phase when the Vietnam Post and Telecommunication (VNPT) has made available entry points to the districts to the national optical fiber network between Hanoi and HCM city., higher capacity access can be delivered through these news services.

STENET ISP and ICP infrastructure, for each point of presence consists of:
- Higher capacity access (2M) to the global Internet, preferable through VSAT
- Router
- Proxy/firewall server
- 25 ports L2/L3 switch
- DNS server
- E-mail server
- 100 ports access server
- Netwok management equipment
- ISP software tools
- LAN and workstations.

Conclusion

Digital library development is a very new concept to Vietnamese library community. The first efforts have been made in data bases creation and network establishing. A number of digital library development initiatives have been started thanks to the Government and international organizations Sida/SAREC (Sweden), JICA (Japan) and IDRC (Canada). STENET- Science, Technology and Education Network is being established as a Internet

segment comprising of a physical Internet infrastructure and ICT services dedicated to the sector of R&D and education in the country. The most important component STENET has to be e-library and e-portal for science, technology and education.