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In brief...

Dr Sam Pitroda, in his keynote address, emphasized on the fact that libraries play a pivotal role in disseminating knowledge. The National Knowledge Commission of India regards libraries as an integral part of its programmes, and has also forwarded many recommendations to the Prime Minister to that effect. These recommendations and the entire report will soon be available in the public domain for debate, inputs, and suggestions.

Earlier people looked for information by surfing books and journals. With the advent of ICTs (information and communication technologies), information can now be accessed any time, any where. Describing modernization of libraries as an important issue, Dr Pitroda stressed upon knowledge access. A high-connectivity broadband network is imperative in India. A powerful user-friendly search facility too is required to access the vast knowledge that could be stored in digital format.

The National Knowledge Commission stresses on issues such as location, size of the library, development of a road map for the library, effective training mechanisms, research facilities, special fund opportunities from both government and private players, modern management ideas in the library, and community development and localization.

Promotion of state-of-the-art ICTs in traditional libraries to digitize resources is a clarion call for the day. There is an urgent need for a national body representing libraries to promote an effective library culture, with a mission statement. In India, there is a complex issue of multi-lingual aspects. Hence, the work has to be done at all levels – national, state, district, and even village – to preserve local contents, involving local experts. With globalization and the changing market economy, innovation is a key factor, that will lead to increase in productivity and growth. Dr Pitroda concluded his talk by saying: 'Knowledge is the key driver of the economy of tomorrow.'

Digital libraries must constantly experiment and innovate to enhance services. The various advantages of digital libraries are worldwide access and non-linear surfing through the digital material. Software engineering has contributed greatly to the digitizing process by developing specialized tools, prototypes, etc. Broad views of the incremental development process models and evolutionary development process models were also given. The role of journals in scholarly communication was discussed.

E-journal technologies and services are still under evolution. A variety of subscription models, access methods, wavering pricing policies, and complex licensing and copyright policies continue to be major challenges. Several outreach and marketing strategies have been adopted. Some of these include web-based library marketing, library portals, content integration, aggregation usage monitoring, and usability studies. Information literacy and the constitutions of usage committee have enhanced their services.

HealthNet, a Nepal-based portal that provides information to the Nepalese health community, was also discussed. This provides affordable Internet services, access to health information and technical support for several national and regional information-sharing initiatives. Yet another case presented was that of the G P Agriculture University and its development and management of e-resources. In-house databases were developed, and linked with full-text for publishing on Internet, using WINISIS/GENISIS.

The session opened with a talk on open access to information and open-access initiatives. The discussion dwelt on barriers to open communication like language and existing copyright restrictions that are heavily biased in favour of publishers. Suggestions on alternatives to peer-review system like open peer review and commentary- or citation-based reviews were made in the course of the presentation. The presentation also focused upon open-access initiatives in India using software like GSDL, Dspace, Fedora, and so on.

A presentation was made titled 'Building Global Inclusive Knowledge Societies' emphasizing the value-crisis identity problem and alternative technology in establishing an inclusive knowledge society. The session also touched upon the need for university systems to promote open educational resources citing the example of UNESCO. The need for media literacy and e-learning, promotion of global literacy, social competence, and responsibility as well as the role of weblogs were some of the other issues discussed.

Issues on documentation activities at NIPFP (National Institute of Public Finance and Policy) in a digital environment were brought up, focusing on the economics of information delivery. It was argued that an institutional repository is the need of the hour. The role of Dspace in leveraging such a repository was also discussed.

The session concluded with a presentation on the implications of digital library services in pharmacology describing the existing online services and electronic resources at NIPER (National Institute of Pharmaceutical Education and Research).

Session 4C
Digital library models, architecture, and technology

The session began with a talk on 'Building a National Access Federation with Shibboleth: the UK experience'. The presentation focused on Shibboleth in the context of UK; history of the Athens access management system; working with universities, schools, publishers; and using Shibboleth as a global access management system. It also included information on the JISC information environment and a functional diagram of the Athens.

Other aspects of the JISC system such as core middleware and infrastructure programmes, technology development, early adopters, transition plans, and so on were an integral part of the presentation. The presentation further highlighted the advantages of the Shibboleth–Athens Gateway, and charted out a road map for institutions for installing Shibboleth software based on existing installation and communication feedback.

The session emphasized on textual search in the graphic stream of PDF and covered introduction, digital document categories, application domains, and research issues. The scope of work, searches in digital libraries, retrieval, approaches for recognition, dynamic time, warping, and Indian language issues using PDF were also discussed.

The discussion focused on the Digital Library of India Project. Highlights of the present scenario in the digital library project with emphasis on the approach of the project, problems and challenges like procurement of books, incomplete and incorrect metadata, duplication, data management, and so on were discussed in detail. Several policy issues were also brought up for emphasis. The discussion then moved to technical issues and challenges in devising digital libraries. The digitization of Gandhi Smriti Library at LBSNAA

(Lal Bahadur Shastri National Academy of Administration) was cited as an example.

The session came to a close with a talk on performance evaluation of Freelib—a P2P-based digital library architecture. Key concepts such as user feedback, content and access patterns analysis, peer ranking, performance evaluation, client design, and implementation were identified.

SESSION 5

Session 5A
Metadata and ontology (Dublin core and metadata standards with OAI-PMH)

In the education domain, teachers and students are beginning to depend more heavily on the web to acquire knowledge that is not found in books and is more up-to-date. The usage of Wikipedia has increased to a great extent among the academic community. New web-based e-learning standards and specifications such as Sharable Content Object Reference Model and IEEE learning object have been defined to facilitate inter-operability and reusability of learning objects, which can be digital or non-digital entities used for learning and education.

A presentation on G-Portal interface and its functionality was also made in the session. The various attributes of semantic web and ontology application in the Vidyanidhi project were discussed. A detailed explanation was also given on OWL, KAON, expressiveness, inference mechanisms, and support of exchange for ontology between applications.

The Million Book Project by the Ministry of Communication and Information Technology and the Carnegie Mellon University featured in the discussion. Under this project, one million books would be digitized. It was mentioned that digital library could be classified under two major categories: fundamental research and applied research.

In India, the morphology of words needs to be understood since it is a multi-lingual country. In the multi-lingual environment, knowledge access management is an extremely complex issue.

Another important issue that was touched upon was digital content management. There is an urgent need to have structured metadata. Digitization of books is the largest in India, while China is slowly trying to catch up. Open-system architecture provides a robust platform and the best selection of digital media management solution and development tools.

Session 5B
Digital divide

The session began with a presentation on 'Extending access and impact of Western journals in a globalized online world'. The origins of STM publishing and its growth in the 19th and 20th century, and the rise of the Internet in the 1990s and its impact on online publishing were discussed. The session also focused on the 'unrest and innovation' in the publishing industry in the new millennium. It was felt that web publishing has given a new approach to building access, with low unit cost. Many institutions do not have enough infrastructure to sustain the movement. The role of HINARI in this context was discussed.

The role of other programmes like TEEAL and that of open access and self-archiving was discussed along with their impact on scholarly publishing. It was felt that governments, publishers, and libraries from the West must continue to support distribution and access with fair pricing. The importance of information in empowering rural masses was emphasized upon and lack of knowledge in using ICTs was highlighted.

There are different methods for measuring digital inequality; there is a correlation between GDP (gross domestic product) and the density of Internet usage. In this context, the role of libraries and research institutions for information dissemination was emphasized. The last part of the session focused on some historical perspectives. Many valuable manuscripts were destroyed during foreign invasions. The current scenario is very positive for growth of IT. It was established that India is marching ahead in the IT sector and that the digital divide is decreasing.

Session 5C
Digital library: multi-lingual and unicode

The session began with a discussion on multi-lingual document summarization – single or multiple types – for digital libraries. Such summaries could be categorized as extracts or abstracts. Different approaches to multi-lingual summarization were also discussed.

The following presentation focused on issues related to Indian languages in a digital library environment that aims at providing the entire metadata in the original language for global access and discussed the techniques employed, right from the selection of appropriate software to information management and retrieval in multiple language situations in UNICODE. The case of CIIL (Central Institute of Indian Languages) was cited as an example.

The session witnessed a discussion on script encoding, an area on which research has been concentrated. The issue of the need for a standard code for character encoding also came up for discussion during the session. The speaker also identified various issues like script encoding using ISCII and UNICODE.

A presentation was made on creation of metadata XML files for digital preservation, which included a discussion on images in the TTF format, their cropping and cleaning as well as OCR. Special emphasis was placed on the development of OCR for Indian languages for easy content retrieval.

Recommendations made in the session were such as taking language-related issues pertaining to digital libraries and their problems seriously to bridge the digital divide, especially within a country with such multitude of languages. Further, information management in a multi-lingual environment can be carried out successfully by providing a perfect module to create a multi-lingual digital library under the purview of the National Resource Centre for Linguistics and Indian Languages.

SESSION 6

Session 6A
Content organization and knowledge management

The session began with a presentation on content organization and knowledge management in various libraries. It focused on digital library information repository data and information exchange on oceanographic or marine sciences. Exchange of information in wireless information networks and geo-references in text form were also discussed and debated. The basic aim of this session was to discuss how information has been exchanged among the general public and barriers to such exchange of information.

A detailed presentation was also made on the digital library information repository initiated by UNESCO as part of a project to facilitate and promote the exchange of oceanographic information. They are also responsible for various activities like workshops, advisory missions, internships, and regional ocean data and information exchange.

The session also focused on information systems where geo-referenced information is a key component. The audience engaged with usage and management of geo-referenced information, information available on wireless networks, and geo-references in text forms such as newspaper articles.

The discussion established a model in knowledge platforms in the form of a case study. Basic information requirements would be user-profiling and assigning base perceptions in form of tags and matching the users perception with the available information.

The session concluded with a presentation on architecture of digital library in P2P and mobile networks. This is a portable learning library, user-customized to provide semantic system overlap. Here information can be exchanged through wireless communication and also through the peer-to-peer system.

The session discussed the learner-centred approach in a virtual learning environment, important components of which are contents, services, and infrastructure. It also focused on learning management system, content management system, and major initiatives at the Indira Gandhi National Open University. Sakshat is a one-stop education portal developed by the Ministry of Human Resource Development, and there was a detailed discussion on its features and components, including the challenges and issues involved.

The Makarere University Digital Library was focused upon with specific reference to challenges and barriers to digitization. Special attention was given to gender-specific challenges (challenges and opportunities in Uganda), connectivity, and high cost. There are many challenges in digitizing material, but the need of the hour is to overcome these challenges and so far we are on the right track.

A case study was presented on L&T (Larsen and Toubro). It focused on e-learning information and knowledge management initiatives, enhancing human capabilities, and content creation in corporate environment. A survey was conducted at the Utkal University on e-learning as a virtual media to meet future challenges. The problems and promises for the developing world were deliberated upon, with particular focus on the role of digital library in the developing world. The important parameters are collaboration, coordination, and synergy. The impact of digital library on higher education and research in Bangladesh was also highlighted.

The discussion highlighted several issues related to digital library evaluation, and proposed a design methodology for practical digital library evaluation. The methodology was developed for assessing the value for money of a large-scale working digital library: SCRAN. The features of SCRAN could be employed by every digital library. A paper presented in the session focused on the experience of the CSIR (Scientific and Industrial Research) in e-journal and consortium. The CSIR had assessed the usability of e-journals by using the Pavetu Law of 80:20 and lab-wise use pattern, which suggests addition of more resources relevant to the subject areas of less usage in a balance-striking manner.

e-Journal usage and the impact on the scholarly communications was also featured in the discussion. It was highlighted that the usage statistics provided by publishers indicate a huge growth in accessing these e-journals. A study has been conducted in this regard for the Tata Memorial Hospital Library. The study pointed that most non-cited journals are e-journals. The session emphasized that there is also a need to evaluate the effectiveness of digital libraries. Some benchmarks for the evaluation of a digital library were proposed.

Participants also discussed on changes in users' attitude in a hybrid context, citing the GGSIP University experience. During the course of the discussion, there was an attempt to define characteristics, building service system, usage of resources for reference service, information and cooperation of service, and formation of functions of service system.

The session concluded with a note that users' needs are the main points to be taken into consideration, which leads to the satisfaction of users—the ultimate goal of a library.