

# Utilization of ICT for LIS with special reference to Sri Lanka

By

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## **ABSTRACT**

The Information and Communication Technologies (ICT) have impacted the libraries all over the world including those in developing countries such as Sri Lanka. The paper presents overall scenario use of ICT in Sri Lanka and particularly in libraries. Author argues that, National Information Policy and National Information Infrastructure is essential, if a country would like to exploit the IT to its advantage. A brief account of automation of libraries is also presented in this paper. At the end, challenges faced by the libraries its Sri Lanka have been listed.

### **0. INTRODUCTION**

Main belief of organizations and individuals interested in the development of information services is that a more effective and efficient service to their clientele could be provided by optimum utilization of information and communication technologies. This belief promoted the authorities concerned to re-constitute libraries and to re-define their objectives. In doing so the policies were needed to be revised, staff re-trained, systems re-formulated. ICT was expected to be utilized for creation of new media, strengthening the information facilities, reinforcing of the information systems, enhancing the information resources and introducing new services. Ultimate aim was to save the time of the users.

When the progress of library development in a country is reviewed, one would observe that in some countries ICT had not made significant impact on library development while some have contributed towards rapid enhancement of information systems and services which provide users with comprehensive, authoritative and up-to-date information. Thus, the impact of ICT on information development varies from country to country

It is evident that ICT has created a division in the modern society: information poor and information rich. The countries that had the ability to utilize ICT for information resource development have generated information rich societies while those countries which were weak in utilization of ICT have created information poor societies. As information is directly related to knowledge and skills which influence socio economic development, one could hypothesise the relationship between information and development. This has speculated the assumption that information rich countries have developed economies and information while poor countries have less developed economies.

Since economy and information are closely related and information resource development leads to economic development, the policy makers pay special attention for the development of information resources. It is recognized that ICT is a tool which could be manipulated effectively for information resource development. This explains why economists in the Developed World are interested in ICT. Library systems were re-structured to accommodate ICT in library operations. It was strongly believed that the success of a library could be measured by the extent of ICT use by the library.

Automation of library operations rapidly developed concurrent to the advancement of ICT. Some library services that were considered as imaginations of library scientists soon became realities. New information media, systems and services immersed faster than the predicted time confusing the unprepared library professionals.

The scenario in the Developing World was quite different. Most countries had no national policy for the utilization of ICT. This had resulted in unplanned information infrastructure. Information systems and services had been introduced haphazardly according to the will and capability of individual organizations. Unplanned development of information systems has become obstacles rather than promoters of development.

This phenomenon could be observed in many other professions. Some professions distinctly dissociated with ICT, allow evolution of ICT based new professions. A new tool, technique or process introduced to professionals who are not prepared to accept them, will adversely affect the profession. Pre-matured introduction of ICT to LIS profession caused similar effects in some countries. This is evident in Sri Lanka and many other developing countries. On the other hand, Governments of some countries promptly formulated policies and procedures to prepare the LIS professionals to accept the new concepts and attitudes needed for the utilization of ICT. This action helped the LIS professionals in these countries to recover from the ICT shock. Unfortunately, the professional associations which had limited resources and power to influence and interfere the national policy makers could do very little to rectify this situation. It was observed that some professional associations, which were unable to maneuver the situation, went out of action. Governments, that foresaw this problem, helped Library Associations and library authorities to reform the LIS profession by conducting crash training and educational programmes.

Improvement of national information systems and services by proper utilization should be planned and implemented in 5 stages. These are

- a) formulating a national information policy
- b) establishing a national information infrastructure
- c) developing a mechanism for information management
- d) drawing up a national information workplan
- e) operating a national human resources development programme

## 1. NATIONAL INFORMATION POLICY (NIP)

Library development is influenced by the national information policy. Non availability of a NIP allows the organizations both in public and private sectors, to develop their libraries to meet their immediate requirements without taking into account the long range objectives. As a result of this unplanned development, integration of library resources at the national level becomes difficult. This affects the utilization ICT for library and information services. Resources will be duplicated wastefully. Conflicts will crop up among organizations in allocation of the roles in national development.

NIP should specify inter alia the following:

- i. identification of the apex body which takes the responsibility in formulation, revision and monitoring the policies
- ii. defining the organizations that should constitute the policy making mechanism and the contribution and involvement of these organizations in the policy making process
- iii. defining the organizations that should be involved in library development and the role and services of these organizations with

## **respect to utilization of ICT**

- iv. determination of priorities in selection and acquisition of resources and infrastructure facilities**
- v. identification of user categories and methodology of evaluating the requirements of these user categories**
- vi. facilities and support given to organizations for information development**
- vii. human resources development vis-à-vis information development**
- viii. benefits, privileges and compensations guaranteed to LIS community for their involvement and contribution**

## **2. NATIONAL INFORMATION INFRASTRUCTURE (NII)**

**A country should have a properly developed information infrastructure to carry out appropriate information services. NIP will guide development of NII. Information facilities, systems and services created without a national plan will lead to duplication of efforts, creation of conflicts and deficiencies in the services. Main areas that should be considered in planning NII include the following:**

**I. Library and information facilities : Information sources, both print and electronic are acquired, analyzed, documented and stored in libraries, information centres, documentation centres, data banks and archives. Objectives, coverage, services, user categories and role in NII of each facility should be clearly defined.**

**II. Computer facilities : Computers are for processing of data to generate different types of data. Bibliographic, textual, graphical, statistical, visual and audio information is generated by computer systems. Lack of a policy will allow acquisition of inappropriate, wasteful, incompatible and inefficient computer facilities. Installation of computer facilities overlooking NII will create problems in networking for transfer and sharing of information. Computer technology helps creation of databases, digitizing print media, generation and use of electronic media, presentation and duplication of information products**

**III. Telecommunication facilities : Information generated elsewhere can be transferred to a different location using telecommunication techniques. Quick and accurate transfer of information is possible with the help of modern telecommunication technologies. Wide range of methods such as telephone, VHF, micro-wave, satellite and optical cables are used in data communication. The country should have a policy in telecommunication development. Proper equipments, networking facilities, standards should be used in the development of telecommunication infrastructure. As a result of low speed lines, noisy transmission, unreliable services, incompatible equipment, use of telecommunication infrastructure for information networking was impossible.**

**IV. Internet service facilities : Internet is widely used as an information resource locator. As it facilitates to access globally scattered information sources and to view and download information and information sources, Internet is considered an essential resource in information development. Free access to information which is accepted as a fundamental human right is promoted by unrestricted access to Internet. With the belief of exposing the global knowledge bases to the people in the country, many countries, especially those having information poor societies, promote country-wide and low-cost Internet access points. This could be done by providing necessary infrastructure facilities. While Internet becomes an essential component of NII, Internet policy should be included in NIP. Unplanned development of Internet facilities would become an obstacle rather than promoter to information development. Rather than giving priority to acquire foreign knowledge, a country should endeavor to disseminate indigenous knowledge via Internet.**

**V. Information industry plays an important role in NII development. Political, administrative, legislative and economical support should be provided to the institutions and individuals engaged in the information industry.**

## **3. INFORMATION MANAGEMENT MECHANISM**

**Management mechanism is required to activate information infrastructure. Over looking the management aspect is the main cause for**

the failure of many national plans. Organizations and teams required for the management of information facilities should be established and developed. Their role in the operation of NII should be defined and recognized. Following are the main components of the management mechanism.

I. *Libraries and information centre management* is the key factor for the success of library and information services. Failure to provide proper management is the main reason for the ineffective and inefficient services of these organizations. Trained and professional staff as well as sound organizational structure should be established to ensure efficient services.

II. *Library consortia are created* to promote cooperation among libraries. Consortia promote resource development and sharing among the participating libraries. Cooperative programmes, conducted by the libraries in a consortia, coordinates the efforts and experiences of the library professionals.

III. *Regulatory Commissions* need to monitor the managerial efforts of organizations that constitute NII and take prompt action to make necessary changes. Standards, guidelines, procedures, criteria, regulations, rules, indicators, sensors are used by the regulatory commissions as managerial tools.

IV. *Task forces* are constituted to speedup the operations that require team efforts. Multi-purpose projects which require a wide range of expertise, clearing backlogs which cannot be done as routine operations, and activities that require cooperation of several organizations are assigned to task forces.

V. *Inter-agency coordinating Teams* are required to conduct activities which involve a number of agencies. Administrative delays, misunderstanding of decisions, misinterpretation of actions and unnecessary duplication of efforts can be minimized by Inter-agency Coordinating Teams.

#### 4. NATIONAL INFORMATION WORK PLAN

The information systems and services are activated by work plans. It guides the managerial mechanism in using NII to perform as specified in NIP. A proper work plan is required to achieve the forecast objectives. The national work plan defines the activities and how those activities are carried out, what material, funds and manpower are required.

Following would be included.

- i. Conduct of a survey to evaluate the existing information systems and services and to compile a directory of information sources.
- ii. Conduct a survey to identify the user categories and their information needs
- iii. Compilation of databases, inventories, directories, web pages and other reference sources required to locate the information sources that would satisfy the information needs
- iv. Creation of electronic document collections by downloading and duplication of electronic documents and digitizing print media for the purpose of providing full text access
- v. Creation of computer networks and intranets to improve information dissemination
- vi. Creation of electronic document delivery services for the speedy transfer of documents
- vii. Preparation of guidelines, standards, procedures for the implementation of the long range and short term plans

#### 5. NATIONAL HUMAN RESOURCES DEVELOPMENT (HRD) PROGRAMME

Human resources is essential for implementing any programme. Professionals as well as non professionals are required for carrying out various tasks identified in the national plan. Very often emphasis is given only for professionals ignoring the need of the other categories of personnel. Requirement of personnel can be fulfilled either by acquiring new staff or by training/educating the existing staff.

Training need analysis of each component of the workplan will help to identify a) type and level of training b) duration of training c) topics/activities of the training d) basic qualifications of trainees and e) qualifications of the trainers

A survey of personnel in the existing organizations will reveal the human resource requirements.

Based on the need analysis and the survey, a national human resource development programme can be prepared. Training should be coupled with incentives and motivation of the staff.

ICT training and education should be a special component of the national programme. If proper attention is not paid to this component, the libraries and information centres would not acquire knowledge, skills and experiences to develop information systems and services envisaged by the modern society. HRD programme should include: a) ICT literacy programmes for policy makers b) awareness programme for the senior managers c) seminars for senior information personnel d) workshops for the library and information staff e) user education programmes for information users f) general staff orientation programmes.

## 6. LIBRARY AUTOMATION IN SRI LANKA

Sri Lanka has no national information or library development policy. Unfortunately, the role of the libraries and information centres is not recognized in the national policy making process. Even the national computer policy formulated in 1985 does not discuss library and information systems and services. Although the key organizations associated with national information development are not formally recognized, three organizations that contribute to information development in general and library automation in particular, can be identified. Policies of these organizations, although they are not formally declared as national policies, have made significant impact on LIS.

These are: a) National Science Foundation (NSF) b) Sri Lanka National Library and Documentation Centre (SLNLDC) c) Sri Lanka Library Association

Major contributions made by these organizations in the field of library automation are enumerated below.

*National Science Foundation* (formerly Natural Resources, Energy and Science Authority - NARESA) pioneered library automation in Sri Lanka. ICT applications of NSF are handled by its information wing, Sri Lanka Scientific and Technical Information Centre (SLSTIC).

- a) Distribution of CDS/ISIS, WINISIS and the associated software; promotion of these software
- b) Compilation of a common data format for the exchange of data among libraries. SCBF (SLSTINET Common Data Format) is the standard format used by libraries for data transfer.
- c) Distribution of a turn-key library system to help library automation
- d) Conducting workshops to train librarians in utilizing IT (CDS/ISIS, WINISIS, Internet, Email, Electronic Publishing)
- e) Preparation of manuals to help librarians in using computer software

- f) **managing a computer training center for library professionals**
- g) **hosting web pages of libraries**
- h) **Maintain an online Union Catalogue of Books (PURNA)**

*National Library and Documentation Centre (NLDC)*

- a) **organizes computer awareness programmes for administrators and librarians**
- b) **organizes seminars, workshops and exhibitions to promote ICT applications in library work**
- c) **compiles the National Union Catalogue (UNICAT)**
- d) **functions as the national standardizing authority relating to library automation**

*Sri Lanka Library Association (SLLA)* has appointed the **Committee on Information Technology** to look after library automation. Its contributions for the development of ICT application are:

- a) **Conducting the Course on Library Automation (COLA). This is the first and only course on library automation in Sri Lanka.**
- b) **Organizing workshops and seminars to promote ICT**

*The Boards of Management or Executive Boards of these organizations have representatives from the other two organizations. This fact has ensured coordination and cooperation among the three organizations.*

**The following could be recognized as the milestones in the history of library automation in Sri Lanka**

**In January 1983, NSF (then NARESA) acquired a mini-computer for SLSTIC. This was the first computer system installed in a library in Sri Lanka. The acquisition process took more than 2 years which involved a long debate on suitability, usefulness, affordability, justification and cost-benefit analysis of library automation. However, this gave an opportunity to the senior library professionals and managers to review, analyze, evaluate and redefine the vision and mission of the libraries.**

**In May 1983, SLSTIC announced the Union Catalogue of Scientific and Technical Books. This was the first bibliographic database in Sri Lanka which was compiled by re-entering data received from about 30 libraries. The union catalogue project motivated several other libraries to initiate library automation.**

**Library automation did not make a significant progress mainly due to lack of a suitable and affordable software. To solve this global problem, UNESCO compiled the CDS/ISIS software in 1986. This software boosted library automation in developing countries. In July 1987, SLSTIC was designated the national distributor of CDS/ISIS. SLSTIC organized workshops, seminars and consultation services to promote CDS/ISIS.**

**Data transfer among libraries is possible if the libraries use a common data communication format in database development. In December 1988, SLSTIC formulated the SLSTINET Common Bibliographic Format (SCBF) based on the Common Communication Format (CCF). This promoted compilation of cooperative databases. National Union Catalogue of the National Library & Documentation Centre, Union List of Scientific and Technical Serials of SLSTIC, National Agricultural Bibliography of the AGRINET are the cooperative databases compiled by library consortia.**

**As more libraries automated their systems, particularly the cataloguing functions, need of integration arose. With the initiative of the Council for Agricultural Research Policy (CARP), in 1995, a common integrated library automation system, based on CDS/ISIS, was**

compiled. This integrated system which was named AGRINET Information System (AIS) helped the agricultural libraries to automate their cataloguing, acquisition and circulation functions.

The National Science Foundation by expanding and improving AIS, compiled an integrated library system which could handle all the major library operations. The system known as PURNA (meaning complete) can be used for acquisition, cataloguing, serials indexing, circulation, serials management, current awareness, SDI services and OPAC. DOS version of PURNA was introduced in 1997 and the WINDOWS version in 2000. (<http://www.nsf.ac.lk/purna>)

NSF compiles an union catalogue of the PURNA user libraries. This was linked to the Internet in 2001 making it the first web based Sri Lankan cooperative database. (<http://thankshana.nsf.ac.lk>)

In March 2002, International Water Management Institute (IWMI) in Colombo published a virtual library web page linking databases, portals, gateways, OPACs, home pages of journals and electronic document collection. This is the first virtual library in Sri Lanka. (<http://intranet.iwmi.org:81/isis/main.shtm>)

The progress of library automation is not satisfactory compared to most of countries in the Region. Even the little progress Sri Lanka had made in library automation can be contributed to certain catalytic elements. If these elements had not evolved, the situation would have been worse. These catalytic elements or promoters are identified as:

a) CDS/ISIS and WINISIS – This is the most widely used library software in the world. More than 100,000 libraries throughout the world use it. WINISIS is rapidly developing with Internet and Intranet applications and users find it difficult to keep track of its progress. Hyper-linking has enhanced the capabilities. WEB ISIS and GENISIS offer powerful search engines for Internet surfers. DOS version of ISIS had several drawbacks, which created hostile users. Unfortunately, these users were ignorant of the new developments and new features of the software. WINISIS is not offered to the Developed countries and therefore it had become unheard software by library professions in the developed world.

In Sri Lanka more than 95% of the libraries, having automated systems, use either CDS/ISIS or software based on it. CDS/ISIS has become an essential topic in library curriculum. Students of SLLA and the University of Kelaniya who follow library courses are given extensive training in CDS//ISIS.

b) COLA – Course on Library Automation organized by SLLA is the only course, which deals with library automation. This has become a popular training programme among library professionals.

c) SLSTIC – SLSTIC, the information wing of NSF, offered number of services to help libraries in automation. It regularly offers workshops and consultation services. Being the national distributor of CDS/ISIS, it is obliged to promote CS/ISIS and its new developments. SLSTIC organized library seminars to keep the library personnel up-to-date in new trends in library automation.

Library professionals who were enthusiastic in developing automated library systems had to face numerous difficulties in achieving their objectives. Some of these impediments have been cleared with the proper awareness while some continue to exist.

A survey conducted by the writer in 1995 revealed that the following factors were the main impediments to library automation:

a) Low priority given to library automation by institutions. Many administrators and management decision-makers were ignorant of library automation. As a result, when allocating resources for computerization, they overlooked libraries.

- b) **Lack of library personnel knowledgeable in computer systems was another major impediment to library automation. Even when computer facilities were available in the institution, library personnel were not confident enough to use these facilities to demonstrate their capabilities.**
- c) **Non-availability of suitable software was another major obstacle. Librarians who were keen in automation had to depend on the systems designers for development of automated library systems. However, system designers who had no knowledge in bibliographic data processing used general-purpose software; these were found not suitable for bibliographic data processing.**
- d) **Most librarians who managed the libraries were not prepared to undertake the challenges of adopting new information technologies to their working environments. They were not aware of the advantages and the benefits that can be gained from computerized library systems. Therefore they were not in a position to bargain with their management for computer facilities.**

As mentioned above, these impediments still exists, but in different modes. Present situation could be evaluated as below.

I. **Most managers who have developed information skills using ICT are now aware of the advantages of automated library systems. In fact, in many institutions, the management takes the initiative in library automation and gives high priority for library automation. Considering the fact that it took two years to convince the decision-makers at NARESA to acquire a computer; the present situation is very encouraging. With respect to library software, the situation has improved.**

II. **ICT training of library personnel is offered by several organizations. Leading organizations involved in formal library education such as SLLA, University of Colombo and University of Kelaniya have revised the syllabi of their courses to accommodate ICT.**

III. **Several library software packages are now available and hence librarians have a choice in selecting software. Library managers often do software selection. Misconceptions and misunderstandings in library automation would lead to wrong decision making in software acquisition.**

IV. **The impediment (d) mentioned above remains unchanged.**

## 7. CONCLUSION

Library automation in Sri Lanka moves at a slow pace and it will continue in the same pace unless it gets the support and blessing of the authorities. National Information Policy which recognizes the need of library automation will rectify the situation. Haphazard development of library and information systems would retard the process rather than accelerating it. It would result in unnecessary duplication of efforts. It would create unexpected conflicts among organizations in decision making. The progress of library automation in Sri Lanka is a result of the effort few professionals who worked collectively. One good feature in the Sri Lankan scenario is the commitment and obligation of library professional for library cooperation. Library consortia in Sri Lanka function with the initiative of the library professionals with minimal administrative and financial support from the authorities.

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