MODERNISATION OF LIBRARY SERVICES USING INFORMATION TECHNOLOGY:GAP BETWEEN POSSIBILITIES AND PRACTICES @

M.S.SRIDHAR*

Abstract: Explains the meaning and scope of `modernisation of library services', indicates the unlimited potential of Information Technology (IT) in modernising library services, examines the relation of modernised services to productivity, performance, innovation, etc., identifies a wide gap between what has been said to be possible and feasible in application of IT on services of Indian Libraries on one hand and achievements in application of IT in modernising services on the other hand, explores various reasons for such a gap vis-a-vis ways of bridging the gap and overcoming the implimentation and operational difficulties like over excitement unclear goals, lack of management support, resources, self-supporting approach, technology transfer, indegenisation of IT, technology assessment, IT skills in library personnel, and cooperation between IT specialists and library personnel, and under-utilisation of available IT, and finally concludes by pointing out some prospective areas for improvement and modernisaton of library services using IT.

1. Introduction:

A Couple of decades ago a research scholar in a university in India might have devoted half or at least a quarter of his productive career, time and energy to produce, probably, a handwritten thesis. Even two decades ago, though a scholar could afford a type-written thesis, he had to spend several hundred or even thousand hours in libraries to linearly search, browse, scan and take notes from relevant literature; revise drafts; correct typographical errors; learn and follow standard citation and reference patterns, etc. Today, literature search is a matter of hours, preparing citations and references for thesis or report or paper in any of the standard formats (like that of MLA, Chicago, etc.) is another few hours with a flexibility to change formats as he wishes by

stroke of a key, making notes and prolonged stay in libraries are skipped on several occasions with exclusive possession of xerox copies of articles, typing is only once not only for all successive drafts of thesis but also to take bye-products like papers, proof reading is minimal and so on. The advantages of information technology (IT) in information work is multifaceted.

IT covers an array of media, tools and gadgets and the impact of which is felt in many areas of life including libraries. IT may reach libraries and their users in the form of technology or a product or a resource or a facility/ infrastructure or a service. As a fast growing and changing technology, IT is all-pervasive and even unique in some respects. IT industry itself is expanding enormously with neck to neck competition. Hoping that you will hear more about various components and versatalities of IT from others, I would like to restrict myself to problems and prospects of adoption, application and updation of IT in modernising library services in Indian conditions based mainly on observations and personal experiences.

2. Modernisation of Library Services:

Modernising library services, on the surface of it, means adopting modern methods, tools, techniques and gadgets in providing library services. But it is also implied that modernisation should bring in increase in efficiency, effectiveness, speed and reduction in cost per unit service or any combination of them in library services. Unfortunately, today, using computer in a library (or even getting information product printed through computer) has almost become synonymous to modernisation of library services. It is not rare to find examples of computer applications to library services where neither efficiency nor effectiveness is achieved but an inevitable and invisible increase in cost and delays are incurred. For

example, against a couple of days or weeks delay for publishing mimeographed current awareness bulletins, computerised current awareness bulletins are taking couple of months in some libraries. In large majority of cases, the theoretical justifications for modernisation of library services with computer applications do not get critically reviewed, tested and evaluated after implementation/operationalisation. On the other hand, many such implementations are heavily subsidised or labeled as experimental or pilot studies. Hardly, a handful of libraries would have reached the matured operational state of computerisation worth subjecting to review and evaluation.

Often, modernisation of library services is more of psychological, publicity oriented and prestigious imitations rather than absolute necessities. It is forgotten that modernisation using IT does not assure better result if traditional manual ways of providing library services are themselves defective, irrelevant and unsatisfactory. It has been fairly established that efficient information support and technical communication in an organisation are associated with high performance, productivity, innovation and even creativity (Frost and Whitely.1971; Hall and Ritchie,1975; Langrish, et. al., 1972; Nagpaul and Pruthi, 1979; Rothwell and Robertson, 1975; Shotwell, 1971). But it is not yet clear whether or not modernisation of library services is positively related to performance, productivity, innovation and creativity of ultimate benificiaries. A recent study (Lee and Treacy, 1988) on how IT can affect the ability of individuals or organisations to innovate has found that IT enhanced innovation sigificantly by augmenting individual/ group capabilities through motivation support, resources support and information support. Among the three motivation support was found to be the strongest factor. However, adverse effect of IT on human values and

habits cannot be ruled out. For example, possessing xerox copies of relevant reading material by a user may also result in complacency and a psychological satisfaction of having consulted them as against a traditional way of reading them within a library and making notes out of them. It is outside the scope of this paper to examine the effect of modernisation of library services on human values and whether or not modernisation through technology should conform to values. Ofcourse, creativity of library users may not depend on whether or not library services are provided in a modern way.

I plead with you not to construe the above narration as arguments for anti-modernisation of library services using IT but as reflections of some of the practical situations of applications of IT in this country. Modernisation of library services using IT should be based on needs and with the objective of increasing the quality of services.

3. Potential of IT in Modernising Library Services:

Information Technology is neither a single discipline nor a single technology, but a group of multidisciplinary and interdisciplinary technologies almost totally external to librarianship and exclusive achievement of advanced countries. Because of stiff competition, vast scope and innumerable applications, IT is highly dynamic and new developments of IT become quickly obsolete even before they are received, understood and implemented in developing and underdeveloped countries. For the same reasons it provides enormous scope for academic exercises of putting forth expert advises, projecting possibilities of modernisation and predicting future 'fantasies'. IT has virtually unlimited potential for variety of applications in libraries. It has overexcited many professionals. IT news from developed countries provides enough ground for

visualising ideals and even fantasies in modernising library services. I am reminded of a fantasy cum joke told by a school going kid that it might be possible in next ten centuries that after a medical check up, a doctor prescribes to a patient to buy a heart in a medical shop and a pharmacist says 'if you buy two hearts a kidney is free'. But implementation of what is proposed or forecasted either do not take place like conveyor belts system, lending system based on magnetic strips, burglar's alarm, bar code/wand reader based lending and stock verification, CCTV coverage for the theft detection or miserably fail (atleast partly) like costly online access experiments, integrated library and information retrieval packages for having ignored the proper evaluation of all alternatives as well as local constraints and conditions. There is a wide gap atleast in terms of time between academic or theoretical possibilities and fantasies and costly experience-gaining experiments on one hand and the practical implementation of them for reaching ultimate beneficiaries. In case of bast chaining IT time gap i.e. delay in implementation is more risky and costly than other shortfalls.

4. Reasons for Wide Gap Between Possibilities and Practices:

Having seen purposes of modernising library services using IT, stupendous potential of IT in this direction and a wide gap in realisation of possibilities of modernising library services using IT, let us explore the reasons for such a gap with an eye on how to bridge such a gap. We are all fairly aware of advancements of IT and the modernised library services of advanced countries, atleast through literature. We are also fairly convinced about need for and possibilities of modernising our library services. Yet large majority of our libraries are not able to modernise their services using state-of-the-art IT even after several years (or decades) We

need to examine the reasons for not being able to realise our thinking and aspirations in modernising library services using IT.

4.1 Lack of Support and Resources from Authorities/Top Management:

First of all, the authorities or the top management and users of libraries and not just library personnel should have felt the need for modernisation of library services. It may happen provided they are already exposed to modern library and information services at least once or twice, if they are by nature library and literature oriented academicians, researchers or managers, if they have good vision and appreciation for modernisation of their systems in general, if they are easily accessible and amicable for selling the idea or educating them on issues. It may be enough in some circumstances, even if they just desire modernisation of library services. If services of a library are already unsatisfactory or not upto expectation, proposal to modernise them will meet with hostile environment. Reluctant clearing of proposal on principles without commitment to objectives and resources needed or with advise to manage within resources already provided for other purposes or for other departments or to seek resources from other external sources may not help much. Further pressurising on proposal to modernise library services may lead to resorting to typical 'committee approach with some reluctant external experts on the committee leading to lot of paper work and taking off strength and life of proposal.

There is also an element of truth in that the management may not be willing to take risk as a leader in the area of modernising library services, but try to safely imitate others in the environment. This may be partly justified due to lack of faith and confidence in their library personnel as they are

not IT specialists. It is also possible, in these days of scarce resources, that the management genuinely do not have enough resources for such modernisation. Hence it is quite rare that proposals to modernise library services receive consideration, evaluation and approval of authorities with commitment to resources needed except possibly in some R&D institutions and other special library environments. Indirect and invisible mobilisation of resources and piece meal grants for IT activities are waste as IT may become obsolete by the time it is implemented. Unless modernising library services using IT is done on turn-key-basis with stringent time targets it is not worth doing.

4.2 Unclear Goals, Over Excitement and Perpetual Experimental Approach:

The present way of organisation of library services is, by and large, carried away by immense attraction of media like microforms, optical disks, tools and means like online-access, computers, etc., and the goal has taken secondary position. Having seen the problem from the angle of authorities/ management and users let us examine some problems which are well within the profession. Over decades experimental computerised services, online access, etc., are being carried out without much of cumulation of experience or improvement in quality and quantity of services in the country. Quite often, IT is brought in to modernise library services without identifying the goal and without preparing the ground. There is a clear failure to match goals and objectives with required level and sophastication of IT. Mc Kee (1988) says that "education falls into the twin traps of getting carried away by techno-fantasy and getting excited about technology for its own sake, rather than thinking of the basis of educational purpose".

Technology should always seen from the perspective of organisational purpose and no amount of technology can help us if we lack clear idea of what we are trying to accomplish and its importance. Modernised library services should be logical extensions of traditional services taking into account the receiptivity of the overall system of which library is a part and with a definite proposed target date of replace the technology when it becomes obsolete without disturbing the system or services.

4.3 Lack of Longterm Self-supporting Approach to Library Services:

Generally, information systems are paternalistic and not self-supporting. Looking at the giant information systems in developed countries it becomes clear that in the long run all information systems should aim to become self-supporting. Atleast special services and those services offered outside the organisation/ system should be charged to generate sufficient resources. Otherwise the system degenerate without having sufficient justification in terms of cost-benefit analysis and the growth is difficult. Unlike any other industry, information industry has the versatility of producing innumerable customer-oriented products and bye-products to generate resources. A good example is NTIS which is now covertly aiming at even profit making.

It is peritnent to note here that advances in IT are increasing both the economic returns of developed countries and dependence of less developed countries on developed countries. For example what was a way of producing abstracting and indexing journals two decades ago has resulted in an "Akshaya Patre" called "databases" for them and pushed the printed secondary (abstracting and indexing) journals to a real secondary

byproduct position. Yet less developed countries have no proper plan for development of their own "databases" but keep paying for accessing databases, hiring/subscribing to databases on CD-ROM or magnetic tape as well as printed secondary journals.

4.4 Lack of Technology Transfer and Indegenisation of IT:

Lack of attempt to transfer technology itself and indigenisation of the technology are major reasons for our not being able to realise the full potential of IT in the library services. For every component, service and development we are forced to look towards developed countries or their representatives.

Unfortunately, a developing country like India has been importing many products and services of IT of different generations (and even obsolete ones !) without any attempt to start the necessary R&D in the soil. The only exception to this may be in the area of computer software development. Heavy penalty is being paid and going to be paid by us for this serious lapse in our long term plans, whether it is in the area of hardware gadgets or development of databases or running online services through networks.

It is unfortunate that development of (local) bibliographic databases which is fairly within means of important libraries is lagging behind in the country inspite of long term economic prospects of local databases. It is neither economical nor strategically sound to buy/hire a service or database or information product and even to subscribe to document supply from secondary and commercial sources where own arrangements can be made within the country. Even though buying an information service or product initially looks attractive and easy, it is

derogative in the long run and in the overall interest of country's self-reliance approach. Though initial cost is more for building collection, developing databanks and databases, it is worth attempting in a phased way to develop own databanks and databases. Even where it is essential for us to buy or hire an information service/product it should be bought with least of derogatory conditions and constraints such as recurring cost, compatibility/ suitability, subjecting to outside scrutiny and other conditions of lease so as to distribute and share the services among different subsystems.

4.5 Incomplete Exploration of Available Options and Lack of Technology Assessment:

When we face a situation where we have to inevitably import the products of IT to modernise library services, whether it is a software or hardware or database, systematic efforts have rarely been made to identify key technologies and for a comparitive assessment of all available technologies and products against needs and requirements. Usually easy or free access/ availability like availability on Rupee payment dominate the decision. For example, free availability of CDS/ISIS software has already resulted in hundreds of libraries rushing to it without proper assessment of their software requirements and evaluation of other alternative softwares available. So is about different makes of plain paper copiers, CD-ROM drives and different versions of CD-ROM databases and their search softwares being bought. There is no single published or otherwise source and Technology Assessment Centre which examines appropriate technologies, finds possible innovative new products and services, disseminates information about adoption of these imported technologies to Indian conditions, compares different options, monitors and reports the results of performance tests, reviews and evaluations of adoptions or

implementations in the country. In the absence of such technology assessment centre, we are often wedded to either to dead-end or obsolete or incompatible technologies. I am yet to see a single comprehensive evaluation report of any of the technologies already talked in the country.

4.6 Under-Utilisation of Available Imported IT:

As on today, tremendous under-utilisation of imported IT products, services, tools and means can be seen everywhere. I have recently received a computerised monthly list of acquisition of library which is 8 months behind schedule, covering 1-2 year old documents. Such a list can only be of historic or academic interest. It is not difficult to find out places where computers are used like typewriters under the name of computerisation and lack of integrated approaches. If we look at the trends in information industry right from microfilm technology to advances in expert systems, baud rates and electronic document delivery we have often bought 'sword' (instead of knife) and used it to cut apple and called it an 'experiment'.

4.7 Lack of Requisite Level of IT Skills in Library Personnel:

Mentally and technically preparing users and library staff at all levels for modernisation of library services through IT is most fundamental for the successful implementation of it. Regretfully, the general level of knowledge, skill and competence of library personnel in IT is quite low with probable exception of few personnel worked in advanced institutions where ample opportunities are available to gain hands on experience.

University libraries are the laboratories of library schools. Skills in IT cannot be imparted in class rooms or by suggesting to read literature. It can be gained only when one gets hand-

on training and experience in laboratories under simulated conditions or in real life situations. These laboratories of library schools do not have worth the name IT gadgets and other facilities. Hence the graduates and post-graduates turned out by library schools do not possess adequate skills and expertise even to confidently interact with IT specialists provide their requirements, evaluate what is recommended by IT specialists. A BLR&DD sponsored project to examine the effects of new technology on the labour market and demands for information services within the UK carried out by Technology Change Centre (Information Media & Technology, 1985) has concluded that the demand for traditional skills is likely to tail off and many of the traditional skills will not be required in the future except in small selective areas. The report identified some eleven categories of information jobs and our library schools in India can hardly cater to 2-3 categories of jobs. Another similar investigation on the forces of change in library schools in United States, Canada and the UK found decline in applications to library programs in universities due to lack of introducing students to technology (Erick, May/June 1989). Even those professionals who are already on job are severely handicapped if they do not have enough scope, opportunities and self-initiation to absorb and update the necessary skills, expertise and knowledge relating IT.

4.8 Difficulties of Hiring IT Specialists and Achieving Cooperation Between Library Personnel and IT Personnel:

Finally, IT is multidisciplinary and interdisciplinary technology, the team effort with highest degree of cooperation and coordination between library personnel and IT specialists is necessary in implementation phase. Librarians have not been able to hire IT specialists. On the other hand, IT specialists are hiring librarians. This is a serious blow to profession. Further, even if a specialist is hired it has not only become

difficult for librarian to have consistent support of specialist (like software engineer) but also to sustain the commitment and interest of specialists in modernising library services. The degree of such cooperation and coordination needed is reduced much in a turn-key project as well as adhoc hiring of specialists on specific aspects of IT work.

5. Conclusion:

I did not go in detail about prospects of various information technologies for modernising library services. Yet I wish to stress here that our prospects of having decentralised yet integrated or coordinated library systems will be made possible by communication technologies like data communication networks, digital fax machines, telecommunication satellite communication, etc. Our document outputs and publications could be more timely, efficient, elegant and appealing to users than ever before due to graphic arts technologies like laser printers, colour copiers, DTP, etc.

On the front of mass-storage, mass-copying and retrieval technologies, it is pertinent to note a finding of a recent study by M/s.Coopers and Hybrand (Hendley, 1988,p17):

> "...of the information that enters an organisation in paper form, only 1% is coded and entered into computer systems, under 5% is converted to microfilm at some stage of its life and 94% remains in paper form throughout its life time. In addition, as the volume of transactions grows the volume of paper handled is rising at the rate of 25% per year".

Thus inspite of many mass-storage devices like microforms, optical discs, etc., paper form continues to have a major share. But having surrogates/ bibliographic databases and unconventional documents on these media may help in many ways.

We can modernise library services by making our mundane current awareness services really current, user directed, timely and intelligent without much additional data entry wherever computerised operations are in vogue. We can activise our dormant library card catalogues by providing online public access to uptodate inhouse databases and ornamental abstracting and indexing journals by subscribing to CD-ROM version or providing online access to these databases.

We have already been able to use computer for quite a few of our house keeping operations and information retrieval function in many special libraries and information centres. But there is a lot to be done to improve and integrate them. Information processing technologies also offer increasingly more powerful tools like high resolution PCs, PSS, etc., A microcomputer based expert system for providing referral service on line with PLEXUS (of University of London) should not be far away if we desire and need it. We have to look for serendipitous insights with innovativeness and ingenuity in latest technologies like expert system, hypertext, workstation technology, optical storage media, OCR, network technology, etc.

REFERENCES:

1. Frost, P. and R. Whitley. "Communication patterns in a research laboratory." R&D Management 1(2) 1971: 21-79.

2. Hall, Kevin R. and Eric Ritchie. "Study of communication behaviour in an R&D laboratory." R&D Management 5 (3) July 1975: 243-245.

3. Hendley, A.M. "Document image processing systems : Part II - Applications". Information Media and Technology 21(1) January 1988,17-18.

4. Jul, Erick. "Treror Haywood investigates library and information science education". OCLC Newsletter, (179) May/June 1989, 13-14.

5. Langrish, L. et al. "Wealth from Knowledge" London: Macmillan, 1972.

6. Mc Kee, B. "Systems astigmatism" ITS News, (17) September 1988, 18-29. Quoted from `Editorial', The Electronic Library, 6 (6) December 1988. 401-403.

7. Nagpaul, P. S. and S. Pruthi. "Problem-solving and idea-generation in R&D : the role of informal communication" R&D Management 9 (3) July 1979: 147-149.

8. Rothwell, Roy and A. B. Robertson. "Contribution of poor communication to innovation failure." Aslib Proceedings 27 (10) October 1975: 393-400.

9. Shotwell, T. K. "Information flow in an industrial laboratory - a case study" IEEE Transactions on Engineering Mana-gement EM-18 (1) February 1971: 26-33.

10. Soonchul Lee and Michael E.Treacy. "Information technology impact on innovation". R&D Management, 18 (3) October 1988, 257-271.

@ A paper proposed for presentation in National Seminar on Modernisation of Library Services in University Libraries, 22-23 September 1989, Manasa Gangothri, Mysore-6.

About the Author

Dr. M. S. Sridhar is a post graduate in Mathematics and Business Management and a Doctorate in Library and Information Science. He is in the profession for last 36 years. Since 1978, he is heading the Library and Documentation Division of ISRO Satellite Centre, Bangalore. Earlier he has worked in the libraries of National Aeronautical Laboratory (Bangalore), Indian Institute of Management (Bangalore) and University of Mysore. Dr. Sridhar has published 4 books, 83 research articles, 22 conferences papers, written 19 course materials for BLIS and MLIS, made over 25 seminar presentations and contributed 5 chapters to books.

E-mail: sridharmirle@yahoo.com, mirlesridhar@gmail.com, sridhar@isac.gov.in **; Phone:** 91-80-25084451; **Fax:** 91-80-25084476.