Collection Development/Management in an Information Technology-Based Environment: Current Initiatives and Issues

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Abstract

This article discusses the impact of information technology on collection development and collection management. Collection development policy A methods, resource sharing and networking, and collection evaluation in IT-based environment are also explained in detail.

1. INTRODUCTION

The importance of information as a vital resource in today's society hardly needs emphasis as information brings people and thoughts together. It is the exchanges of ideas, news and data, that makes a society what it is? In the post-industrial society, it has been said that what counts is not raw muscle power or energy but information, and indeed the advanced economies of the world have already become information intensive. Consequently, large investments are being made in the Information Technology (IT) industry for the purpose of generating, processing and disseminating/transmitting information. IT can be used in libraries and information centres, in the context of Ranganathan's fourth law 'save the time of the reader/staff for many purposes. On the question of the impact of IT on library and information work, Slamecka,[19] as early as 1985, drew attention to what he considers a significant change required in future systems

design, as the present information systems have been designed for use by information professionals rather than users. This, perhaps, is true in many libraries even today it becomes now imperative to design information systems for use by end-users, the primary clientele.

However, while libraries and information centres have risen to the occasion and are trying to adapt and adopt IT for their operations, they are being affected by a number of external forces-social, economic, political, technological and internal variables for a change. Thus, the challenge of change, the pressure for accountability, and the emergence of enterprise culture are emphasising the fact that library and information services need to be proactive rather than passive and hence, need to be positively and effectively managed . At this juncture, it may be useful to remember that four interrelated trends of IT-multiple IT, dispersing IT, accelerating IT, and pervasive IT — can alter, for example:

- Objectives and strategies—the nature of sources and services

- Operational structures—the ways in which service(s) are delivered.

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In addition, the advantages of IT including accommodation of increased workload, achievement of greater efficiency, ability for generation of new services, facilitating cooperation, etc., can stand in good stead in the quest for quality and productivity of library and information sources (collection) and services.

As a consequence, it may be said that we are in a time when many people involved in the library community are uncertain about their and others role in the near and distant future. All librarians to-day will have to be flexible and understand the true nature of their existence, or their missions. Products and services provided by all will have to change, but missions will stay the same.

2. COLLECTION DEVELOPMENT IN IT-BASED ENVIRONMENT

One of the questions for which an answer should be sought is: What does the future hold for collection development in libraries and information handling institutions? At this juncture, it would be appropriate to recall the functions that relate to collection development/collection management specifically selection, acquisition.

archiving/preservation, policy making, collection evaluation, etc. Perhaps, one of the best explanations can be seen in Cogswell's[5] list of eight functions of collection management (See table 1 below)

Thus, one can see that while collection development is perceived as a concept more appropriate to earlier times of expansion in higher education and academic libraries and implies building and growing, dealing with selection and acquisition of library materials. Collection management now is a more demanding concept which goes beyond a policy of acquiring materials, to policies on housing, preservation, storage, weeding and discard of stock. Rather than selection and acquisition, collection management emphasises the systematic maintenance and management of library's existing collection.

2.1 Current Concerns and Constraints

Continuing economic constraints (cuts in funding which lead to shrinking book funds, fewer staff and insufficient space together with difficulties caused by the prices of books and serials rising faster than the inflation rate),

Table 1. Collection Management Functions

Sl. No.	Management Function	Explanation of Function
1,	Planning and policy making	Making a formal Collection Management Policy statement and preparation of an actual Collection Management Plan according to the statement.
2.	Collection Analysis	Analysis collection strengths and weaknesses according to objective measures using some tools.
3.	Materials Selection	Selecting materials according to Collection Management Planning.
4.	Collection Maintenance	Making decisions on which to materials to preserve, weed, replace, and store in order to serve the current and furture needs.
5.	Fiscal Management	Active participation in acquiring a materials budget and allocating it effectively.
6.	User Liaison	Interaction with all types of library users and formal study of library users and their patterns.
7.	Resource Sharing	Establishing cooperation and communication with other local, national, and international libraries for resource sharing.
8.	Programme Evaluation	Evaluating Collection Management plans, policies, procedures, and personal by use and user studies to revise plans and policy documents for Collection Management.

together with such factors as curriculum changes, research selectivity, the expansion of higher education, the 'information explosion,' and the growth of new information media, lead to a higher priority being accorded to planned and coordinated collection management and stock'revision than used to be the case .[n]

At this juncture, it would be appropriate to state that information technology is here to stay. While technology is either good or evil, it changes our very nature and must be monitored closely for its residual effects. Information Technology is different in nature from the earlier technologies and its characteristics of sheer pervasiveness, being an input as well as a final product and costs falling more dramatically than ever before have had a significant impact on library operations, especially, on information resources development and information services generation and dissemination. The challenge we face to-day is not a 'paper less society' nor the 'electronic information centre'. The challenge is to maintain, nurture and optimize the resources of the libraries with the help of this new technology.

3. IMPACT OF IT ON COLLECTION

That information technology (IT) has had a significant impact on library operations would be stating the obvious and is indisputable. In the context of collection development/management, the impact of IT has been quite pronounced whether it relates to collection development policy, selection and acquisition of information materials, resource sharing/networking, collection, evaluation, etc.

3.1   Collection Development Policy

In an IT-based environment, the entire approach and philosoohy of collection development needs to be changed as simply duplicating the collection practices evolved for print materials in the new information (network) environment does not seem responsive to current needs or capabilities. Nevertheless, collection development, whatever form it takes, still would require policies that would govern the acquisition of both electronic resources and traditional forms of documents. In this context, probably, the obvious challenge would be the problem of how to integrate both.

On the basis of a survey on the extensive literature generated on changing collection development patterns, the key issues identified for redefining a collection development policy include:

• Balancing ownership and access;

• Cooperative efforts; and

• Evaluation.

3,1.1 Ownership vs Access

In recent years, there has been a perceptible shift from 'library as a storehouse model' to library as a gateway model' (See table 2).

Echoing similar views, Dougherty and Hugh[6] say that the concept of Hie virtual library, i.e., a library that provides access to electronic and print materials from many sources, both local and remote, has achieved a widespread popularity, while Michalko stresses that the 'research library must move with minimal disruption from a library model directed

Table 2

Ownership-based Library Model (Library as storehouse)	Access-based Library Model (Library at Gateway)
Emphasis on use of traditional print collections stored locally and physically browsable.	Emphasis on access to resources that are networked and browsable electronically.
Value is attributed to the size of the collection.	Value is placed on the availability and deliverability
'Just in case' approach lo collection development based upon the goal of physical acquisition of resources that form an archival collection.	'Just in time' approach to collection management based upon a high reliance on expatiated document delivery.

primarily at ownership of materials to one in which access and delivery play a central role*. A similar line of thinking can be seem in DowlinV comment for 'the need to transform the library from a fortress to an information pipeline".

Nevertheless, libraries seeing the merits of ownership continue to build library collections. An analysis of university libraries' operating expenditures in US and Canada (1992-93) indicate that books and monographs account for 11.1%, serials 20.8%, other library materials 2.5%, salaries 50.6% and other miscellaneous items 15% of the total operating expenditure. Data on the top four libraries is given in Table 3 for purposes of illustration only:

Time, perhaps, has come that it has almost become established wisdom that the future for libraries lies in a policy of access rather than ownership,[14] since, on the one hand, much if not most material will be made available in the future only in electronic form and, on the other, economic grounds would force one to access rather than own.

But, one problem would be that browsing and serendipity would greatly be impaired by the access mode. This is inspite of the fact that online browsing is available, as it has been found that scanning screens cannot be an adequate substitute for scanning the printed page as users do not seem to prefer it. Another problem is that for many documents, especially books, monographs, the day of routine online access is a distant possibility. In addition, Lancaster has identified the following

problems of electronic resources associated with access:

• Integration of electronic resource with traditional forms.

• Costs of Acquisition vs Access.

• Critical problem of determining what collection development really means in electronic environment

Other problems are:

> Electronic resources are not adequately controlled bibliographically, they are not easy to identify, and they are not well reviewed.

> Non availability of selection tools.

> Nor is there a developed system of publication and distribution of electronic resources.

While Gaunt, on one hand, states that costs are not the only issues being faced by the collection development librarian, he identifies other problems:

(a) Finding out what is available,

(b) Evaluating the sources available, and

(c) Acquiring and servicing the sources required.

Stoller comments on one specific problem to be faced in the future, namely, how to deal with electronic journals and suggests three options:

(i) To print the journal either directly from the online file or with the intermediate step of a

Table 3

Name of University	Rank	Volumes in Library	Volumes added	Current Serials	Total Expenditure ($)
Harvard University	1	12,605,537	245,643	96,357	57,978,016
Yale University	2	9,327,219	163,217	52,971	33,1 76,000
University of California (Berkeley)	3	7,981,724	144,157	89,730	32,381,956
University of California (Los Angeles)	4	6,380,409	175,991	94,612	29,346,246

download and manipulation by word processing software.

(ii) To download the online file to an electronic medium, and provide access through PCs.

(iii j To maintain the file on a mainframe computer and provide access through LAN.

On the question of the relative effectiveness of ownership and access in relation to periodicals and monographs, Line believes that remote access to both is inferior **to** on-the-spot access (ownership). Even in the case of local availability, studies in USA and UK indicate that though 70% of material wanted by researchers is held in the library, but only 60% of the items held are available when they are wanted. On the other hand, relative costs alone cannot be considered as adequate criteria for buying or borrowing in the light of the importance of exposure and browsing. Further, cost comparisons are not possible due to two following reasons:

a) Costs of access are not stable.

b) The expected use has to be estimated before costs of ownership and access can be compared, which as all know is very difficult. But, this issue can be bypassed if the library passes on the costs of access to users. This can give rise to a dangerous tendency where libraries may tend to buy nothing and access everything.

While the debate on ownership {of printed material) and access goes on, alternatives have been suggested, like acquisition or lease of CD-ROMs (ADONIS) of full text or acquisition of tailor-made CD-ROMs. Olher possibilities are synopsis journals, mini print and tabloid publications.

From the foregoing discussion, it becomes obvious that while there are merits and demerits both in ownership and access, a sensible approach would be to redefine collection development policy which ensures on-the-spot access (through ownership) to current material and remote access to older material. In addition, it should indicate the strategies to be adopted for selection and acquisition of resources in print, electronic and other formats.

Another important component of the collection development policy statement that should form part of it relates to weeding and stock relegation which it is believer as a positive and desirable method of improving service to readers. Obviously, guidelines or criteria for weeding and the persons who should be made responsible for weeding need to be outlined. Collection development methods as well as methods of evaluation for traditional and electronic sources need to be indicated in the collection development policy document.

3.1.2 Cooperative Efforts and Evaluation

In addition, collection development policies should cover the issue of cooperation and remote access. This, in effect, suggests the planning for a resource sharing mechanism among participating libraries that would facilitate collective/remote access to the entire user clientele.

3.2 Collection Development Methods

Collection development methods relate to the procedures of selection and acquisition of materials for an expanding collection and decisions on the material to be included in the collection. While selection and acquisition methods to be adopted for traditional/conventional printed materials is well known, what one is not familiar is the uses of electronic facilities (including networks) for collection development activities. The use of networks for collection development related activities in special libraries are given below.

Use of Networks for CD-related Activities

- Receiving patron requirements for new books, journals and media.

- Requesting/providing ILL to other libraries.

- Requesting/providing missing issues, duplicates, and exchange.

- Requesting/ordering library materials.

- Identifying document sources.

- Getting quick copyright mission.

- Communicating with vendors and customers.

- Accessing electronic journals and newsletters.
- Subscribing to electronic publications.
- Searching remote catalogues and union lists.
- Searching online systems.
- Scanning journals tables of contents.
- Retrieving files via FTP.
- Receiving documents and technical data.
- Searching files for acquisition lists and articles.

    (Source: Special Libraries and Internet)

A comprehensive treatment on the main uses of networks for collection development work can be found in library literature and hence not discussed here. The arrival on the scene of INTERNET has completely revolutionised the entire gamut of activities that constitute library management, be it collection management, information services management, document delivery services (electronic), etc.[4] However, some of the crucial issues that need to be addressed in a network environment include copyright management, standardisation, training and education as these would facilitate effective utilisation of valuable resources and power tools available on networks.

3.3 Resource Sharing/Networking

Resource sharing (RS) has a long and noble tradition. But, in recent times, RS has become a central focus of interest to the librarians and information professionals and a likely direction for future development. This can be seen from statements, such as "pride in collection has got to be supplanted by pride in patronage."; "libraries should think materials as community resources rather than with a simple institutional orientation"; "local ownership to collective access", etc. Further, the terms, such as, consortium, network, and cooperatives have been used to label the organisational arrangements for achieving a variety of resource sharing objectives.

While developments in information technology and its widespread availability in support of networking, the world over, is the most significant factor in the growth of RS

activities, that RS as an operational concept has not gained sufficient ground in India.

Perhaps, it is time, that information professionals realise that provision of access to information is more important that collection building. Therefore, a necessity has risen to strike a balance between local ownership and network access which should be reflected in the collection development policy statement. Consequently, librarians must shift the focus of their acquisition policy from the collection of materials by and for an individual library to policies that weigh the merit of acquiring the same resources by consortia of local libraries, regional library cooperative and/or state library networks.[20]

However, in the context of electronic sources, it is not necessary to acquire them so long as it is possible to remotely access. In such a situation, selection activity is of different kind librarians select what to access to satisfy a known demand rather than what to purchase in anticipation of future demands.[21]

The importance and usefulness of networks and networking can be gauged from Chaudhry's[4] statement(s) given below:

"Network' information resources, as extension of library collections and as bibliographic and communications utilities with their unprecedented connectivity, speed of transmission, and worldwide breadth have created excellent opportunities for libraries. Networks provide navigational tools and associated services which can be used by libraries to access remote resources for browsing, searching, and even downloading. They are redefining the concept of collection and collection development and transforming the selection, preservation, communication, and liaison functions in libraries. They are creating a powerful new context for the theory and practice of collection management and requiring librarians to develop new skills, accept new responsibilities, and change their ways of performing various library operations."

Internet is a very good example of network which facilitates selection and procurement of information materials, document delivery, and access electronic journals and specialised

materials. Three basic applications of Internet are e-mail, remote login, and file transfer (FTP) have been used by librarians to acquire and process information electronically and to facilitate access to electronic information .

3.4 Collection Evaluation

Collection evaluation can be viewed in two senses — macro sense where the focus is on the entire collection and micro sense which for cusses on the evaluation of a specific document or journal. Viewed from another perspective, there are three fundamental dimensions in collection evaluation; ownership, availability and accessibility. While all the three dimensions are applicable in traditional collections, the concept of ownership is not particularly relevant to electronic sources. Whatever be the sense, its purpose is to determine whether a collection is doing what it should do in the most cost-effective manner. Obviously, there is a need for performance measures. In the traditional library, the size and variety of its collections were the main measures of excellence of an library. Other measures used include exhauslivity/completeness, quality, document availability, browsability, circulation and reference use, document exposure (hours of use of a book by the reader), etc. Performance evaluation of collections can be determined through questionnaire surveys, interviewing, observation, library statistics, and other collection-centred and client-centred methods.

But, in the context of electronic resources, client-centred methods can be used keeping in view the two dimensions of evaluation—of availability and accessibility. If they are not already there, there will be a need for developing them.

On the other hand, in evaluating traditional library collections, a host of evaluation methods, have been developed in recent times which include: checklist approach, comparative holdings statistics, availability studies, standards, formulas, etc.

Whatever be the methods adopted, one should always keep in mind that the ultimate objective or purpose of collection evaluation is to satisfy the needs of users. Some of the collection management performance indicators useful in this context are relevance, delivery, effectiveness (use satisfaction), cheapness, cost-efficiency and staff efficiency.

4. ROLE OF LIBRARIES AND LIBRARIANS

In this changing scenario, libraries and librarians will continue to play an important role in handling traditional/conventional and electronic resources. Unless this is recognised and acted upon, other professions and professionals will usurp own roles and functions. Libraries must be quick to recognise and realise the advantages of IT and must try to adapt and adopt it for their operations. Nevertheless, in attempting to introduce new technologies, regardless of how marvelous they may be and regardless of how they enable us to create new innovative services, one should not forget they are only the 'tools of our trade'. We should not be overwhelmed and overpowered by them. On the contrary, there is a need to re-examine the various collection development/ management activities for their amenability to these technologies. If amenable, the activities can be performed using the new technologies. If not amenable, some rethinking on the whole design and operation of the existing system should be done. In other words, a reappraisal of the existing system vis-a-vis new technology should be undertaken.

A similar line of thinking can be seen in the statement of Margaret Johnson who says 'libraries in their central role as providers and organisers of information cannot afford to ignore computer files or to approach them in a piecemeal fashion' or Alberico's comment that if we don't become involved at all levels, there is a very real possibility that resources will shift to other segments of the economy that can (handle and) deliver the electronic services that academic and post-industrial organisations will need to survive and Summer hill's observation that clearly groups of local users will have an ongoing need for the proximate location of heavily used data. Thus, achieving a balance between local collections of heavily used

electronic resources and the provision of network access to less frequently used resources should be the (role) goal of the library acquisition process in a networked environment'.

Atkinson,[2] however, believes that the role of the library in an IT-based environment would be:

a) To identify resources that are likely to be of greatest interest locally and downloading these to a local database—a kind of deferred collection development operation (locating information sources as they are needed rather than to predict the needs in advance).

b) To become a publisher and disseminator of information by uploading rather than downloading.

Holding a similar view^ Alberico comments that 'libraries may become publishers by using the network to build customised multi-media documents for clients or by providing the technology/training, and facilities to allow clients to build their own composite documents". In other words, library is being viewed as a creator and disseminator of information and also have such value-added responsibilities on user education.

On the role of librarians, Chaudhry[4] comments that 'librarians will have to initiate the transition to an access-based model of service based upon electronic networks that will provide bibliographic, numeric, and full-text information to scholars and researchers. They will have to create an environment where access to collective scholarly resources super cedes the historic quest for the great comprehensive collections'. Other roles identified are that of gatekeeper, one who identifies that potion of the universe of information resources that is likely to be of greatest value to a particular user or group of users. Whatever happens to the library as an institution, Shreeves [8] believes that clearly gatekeepers of this type will still be needed in the future, and perhaps, will be even more important than they are today. Further, librarians will have to involve themselves in the access process and also in negotiating with publishers

and vendors about site licenses and methods of royalty and copyright payments. In addition, they have to be prospectors selecting and acquiring materials in the complex network environment.

5. CONCLUSIONS

From this discussion, it becomes clear that for libraries and information centres, IT is a crucial consideration as it has an impact not only on the organisational structure, but also on the library purpose and service. Hence, libraries and librarians have little choice but to adapt and adopt IT for library operations, especially for collection development activities and information services generation. Despite its enormous potential, information technology—be it optical disc technology or computers and communications technology—is largely underused by libraries and information centres. Therefore, it is necessary that information professionals examine and design appropriate strategies in the selection and use of emerging technologies so as to increase productivity in library operations like collection development and management, and also in enhancement of services to the users.

In this process of re-appraisal, it would be helpful to try the six R's of selecting new technologies, namely, review the mandate or mission of the library or information centre; refocus the direction to keep in step with the clients and the information environment; redefine your client's needs; relate with the staff and suppliers who are providers of external information; software and technology; revamp the activities and services; and recreate by using the tools of the future, i.e., new technology.[8]

In the context of collection development and management, it should be remembered that the key issues to be considered would relate to: ownership vs access, cooperative efforts, and evaluation. Ownership implies building up of collections and there need not be any doubt about this activity as printed materials will always be a part of library collections, but the shift towards networked and local electronic resources presents exciting possibilities for reengineering collection development and

acquisition processes. In other words, libraries will need both ownership and access.

The question then arises as to what would be owned and what to be accessed—access for older material and ownership for current material leading to the concepts of 'core access' and 'core collection'. This is correct, since increases in acquisition yield diminishing returns. By implication, it would mean the need for a policy for weeding and stock relegation which would lead to 'Leaner, fitter libraries', which is the need of the hour. In effect, it implies that 'libraries need to shed the unnecessary fat of unused old stock, not lose the muscle that current material gives them'. This is necessary as otherwise 'it would lead to the danger of combining bulimia (accumulating as much old material as they can lay hands on) with anorexia (starvation of current proteins and vitamins'.[14] At this juncture, it is necessary to give a warning that access wilt not necessarily be cheaper in the future and it would be unwise to plan on the assumption that it will. Thus, achieving a balance between local collections of heavily used traditional and electronic resources and the provision of (network) access should be the goal of the library acquisition process in an electronic networked information environment. However, it needs to be mentioned here that a mechanism for document delivery should be thought of from the beginning.

On the other hand, to keep the information professionals updated with knowledge and skills required for handling information technology, course modules need to be designed both for formal and continuing education programs. This is absolutely necessary if the librarians and information scientists expect to play increasing roles in establishing connections between information resources and people in the coming information society.

At this juncture, it would be appropriate to quote Foskett who remarks 'At such a historic moment when new technology offers librarians and information officers the chance to make a real contribution to enhancing the cultural heritage by active exploitations of all its records, it would be a tragic irony if the medium becomes the message, technology becomes the

master and not the servant and librarians find themselves once more cast in the role of keepers, not of books, but of machines. Librarians must not neglect their role *as* repositories, but become also mediators and promoters of communication'. In addition librarians must assume new roles as gatekeeper (rather as gate opener who opens the flood-gates of information), and prospectors relecting and acquiring materials in the complex network environment. The role of the libraries, on the other hand, would be to become a creator, publisher and dissemination of information and also have such value-added responsibilities on user education.

To conclude, the challenge we face is not a 'paperless society' nor the 'electronic information centre'. The challenge is to maintain, nurture and optimise the resources of the libraries with the help of new technology. Hence, we must be ready, emotionally, professionally and financially to accept and make* good use of new technology.

Finally, let us create an information future with technology as though our lives depend upon it.

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Information systems and technologies have become a vital component of successful businesses and organizations. Information systems constitute an essential field of study in business administration and management, as they are considered a major functional area in business operations. An IS Framework for Business Professionals: Figure 1.2.Â Open System: A system that interacts with other systems in its environment is called an open system (connected to its environment by exchanges of inputs and outputs). Adaptive System: A system that has the ability to change itself or its environment in order to survive is called an adaptive system. An information system model expresses a fundamental conceptual framework for the major components and activities of information systems. The latest technology trends in information technology bring exciting changes in the way businesses build relationships with their customers. Chatbots and voice-operated tech will actively feature in the short-term plans of companies, while AI-enabled user interfaces and process automation will rule the game by 2025. 12. Growth forecasts look optimistic for device sales as well. 2018 reported a 3.6% rise in tech device trades and 2019 â€" another 2.4% hike. (Source: Gartner).Â As the Cambridge Analytica data breach scandal erupted, their stocks plummeted in a matter of hours. That fateful day cost shareholders a staggering $120 billion. 21. Despite all the risks and threats, recent technology innovations will continue to be a hot topic in the business world.