THE CHALLENGES OF LIBRARY AUTOMATION

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Abstract

This paper outlines the challenges of library automation in general and those confronting the libraries in the East Asian countries in particular by tracing the causes that accelerated library automation. The challenges elicited by human (sociological), technological, policy and standards issues are presented with concluding remarks for deliberations. National information policies and some international information guidelines are suggested to be the foundation on which efficient and effective library automation should be built.

Introduction

The factors accelerating library automation are usually attributed to the following:

1) the needs generated by information explosion;
2) increasing availability, sophistication, and price declination of computers;
3) demand for better information services, and
4) the need for resources sharing, e.g. information resources, financial resources, and human resources.

In the mid-70’s libraries in the Far East also saw a real need for computer application for libraries due to these causes. How-

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ever, in this area, some of these factors have played more important roles than others.

All developing or under-developed countries are eager to build up and reinforce their national power by being fully and efficiently informed. East Asian countries, though some of them are already developed, are even more conscious of the power of information.

The need to improve library services in the Orient is more evident than in countries in the West, because most libraries were inadequate in organizing materials and in providing services. The old misconception of the library as a warehouse of books and a study hall or a place to read, in addition to the inefficient bibliographic tools and unindexed publications, have handicapped the proper developments of libraries.

When education is popularized in the East Asian countries, new ways of learning, self-education, continuing-education, and independent studies have led people to feel the importance of library resources and to appreciate the efficient services that libraries should provide. All of these invite people to explore the best and the fastest possible ways to solve the above mentioned problems. Computers thus come into the scene.

In addition to the above factors, the built-in complexities of the East Asian languages, especially in the case of the Chinese language, have been a real challenge confronting computer technology and its application for libraries. The complexity and heterogeneity of the Chinese library materials and operations were used as a means for experimentation on the processing of non-Roman scripts. With the magnitude of characters that the Chinese libraries need in order to process data, librarians, linguists, and computer scientists in China attempted to find some answers through computer applications for Chinese libraries.

Library automation has thus been elicited in this part of the world. However, there are numerous challenges confronting us. Some of the observations on this topic that I am going to share with you may be no longer true in some countries, but they are
still evident in many cases.

**Challenges of Library Automation**

**Human factors:**

1) **Librarians' insufficiency in technical know-how and system concept:**

Most librarians, being oriented in the humanities and social sciences, have little background in computer technology. Librarians are usually not knowledgeable enough to illustrate or quantify their needs in order to make the system analysis and specification writing feasible. Our needs and requirements must be identified in order to utilize computer application for any type of operation. Regretfully, most librarians are unable to do that very well.

2) **The fear of replacement:**

Certain librarians resist library automation because of a false conception — they are afraid of being replaced by machines and as a result are resisting it.

3) **The technique of finding out the information seekers need, how the readers express their needs, and the ways to fulfill their needs through "user-friendly" products:**

Reference service has always been a weakness of the libraries in the Eastern hemisphere. In the past the automated systems were merely mechanization of manual process, or rather, they were designed chiefly for bibliographic and/or management purposes.

In recent years, more emphasis is placed on how to cater to readers' informational needs; library automation is to provide the substance of information itself in addition to
bibliographic information.

Library automation aims at "user-friendly" products. For example, the best on-line catalog is designed to be in a dialogue mode. It depends on the librarians to master the skill of question negotiating in order to ascertain what the readers really want and how they want it. So that enough materials can be documented for the production of a real "user-friendly" facility. How to get the real essence of the inquiry, how to analyze the real needs of the inquirers, and how to present "user-friendly" systems seem to be a real challenge as well.

Issues of Standards:

In processing library materials, we need standards such as cataloging rules, thesauri, subject headings, standard terminologies or names in the form of authority file. To process library materials with computers, there are more standards with which to be concerned: the MARC formats, character set, and indexing methodologies, etc. Not only should we think in terms of national use but also in terms of conforming with international standards.

Fortunately, most of these have already been established. However, certain concerns of inconsistencies still exist: a) within one country, there are instances of several different character sets and different MARC formats, b) the failure to register with national and international standards organizations, and c) the magnitude of Chinese indexing methods.

Technological Factors:

1) In the East Asian countries, not only should we think how we handle materials of our own languages, we have to incorporate resources of Roman-language as well. The magnitude of library materials in various different languages and the
various library operational needs call for a piece of all-purpose hardware and a multi-function software package which are hard to find.

a) The developed packages for Western library automation, such as Dobis and various other commercial packages developed by vendors, cannot be readily adopted by libraries in the East Asian countries. As a result, we cannot avoid wheel inventing; individual libraries try to explore on their own to devise some systems by cooperating with computer companies or vendors.

Because library and information centers are the minor computer users, none of such cooperative ventures have successfully produced any "all-purpose" hardware with "multi-function" software packages yet. None of the commercial firms would want to cater to a relatively smaller-user group with large investments.

b) When libraries develop software on an existing piece of equipment for their own use, these packages are usually developed by programmers who have little knowledge of library requirements, standards, operations, and services. Librarians are not knowledgeable enough to convey to them all the library needs. As a result, the hardware they use and software they produce are usually neither free of problems nor practical.

2) While we are concentrating on the possibility of an integrated system (integrating methods to handle all languages materials and all operations of the library) in an efficient networking setting for the purpose of economics, efficiency and resources sharing, we are confronted with a new challenge of the advancement of computer technology.

For the past decade, the libraries in East Asian countries hope to develop some kind of networking, similar to that
of OCLC, RIIN or WLN. Before we are able to implement this, new technological products are announced every day. Before an application is fully developed, new computer technology appears again. For example, the super mainframe computer is in the threshold; a revolutionary class of micro-computer rises.

Micro-computers are much cheaper, yet they tend to be increasingly more powerful everyday. However, they have to depend on network for communication purposes. A microcomputer can be used as an intelligent terminal of the main computing facilities for networking and sharing purposes. At the same time, some of the library functions can be implemented on micro-computers to keep its autonomy.

The individualized micro-computer application undoubtedly can be designed to gear to the unique needs of the libraries. Such individuality will also lead to heterogeneous applications with a possible danger of too much individuality. Being relatively low in price, it is a more cost-effective means for library automation.

Library automation is not an inexpensive venture. In comparison with the performance and end result, it may be cost effective. However, the investment is high, the maintenance is also an overhead. Assessing the needs, planning, and evaluation are undoubtedly necessary to make library automation a blessing instead of a disaster.

4) Some kind of workable national and international information policies might help us to meet these challenges. Most of the countries have not yet explored the importance of this basic document.
Concluding Remarks

In view of the many challenges confronting us, I believe that for the East Asian countries, the basic solution lies in a workable national information policy and some international information guidelines which should address all important information issues.

Some of these issues are brought to your attention here for your consideration for the purpose of developing some necessary mechanisms to meet the above mentioned challenges:

1) Due to the fact that libraries belong to a small-user group of computer facilities, and little effort can be expected of the computer or software manufacturers to meet our needs, should library automation be a government-sponsored, non-profit project in the East Asian countries? Should the government invest in the development of a more flexible and total system to be adoptable by all users? Or should the national library be responsible for bibliographic control only, and let the individual libraries pursue their individual management applications by using microcomputers?

In other words, how should we proceed to achieve "...a state of dynamic equilibrium between these two seemingly disparate sets of circumstances," as suggested by Dr. Davis and Lundeen?

2) Ways to advocate computer literacy through formal school education or continuing education? Ways to provide librarians with basic knowledge of computers by systematic retraining?

3) How can a better integrated library and information science curriculum be designed for librarians and information providers? Should such courses as library automation be integrated into all courses of technical and public services in
library schools?

4) In preparing to provide better library services through automation, should some basic problems inherent in our publications be solved first? Should there be a national effort in indexing all important past reference materials and in requiring all publications to provide indexes and abstracts?

5) Should there be a special effort in standardizing terms, translations, and use of words, and in compiling them into thesauri as basic tools for automation?

6) Cross references of indexing methods have been provided by the CCCII working group. Should there be continuous effort in this respect?

7) How can such issues of copyright and the protection of intellectual property be properly addressed?

8) Should we establish a regional professional association to coordinate matters and enhance communication concerning library automation in this area? Ultimately, how can libraries in the East Asian countries which share the same problems and have the same aspirations cooperate efficiently in facing the challenges of library automation?

Bibliographies


