THE INFORMATION TECHNOLOGY CHALLENGE AND LIBRARY AND INFORMATION WORK IN GHANA

BY

CLEMENT ENTSUA-MENSAH

ABSTRACT

Developments in microelectronic technology and telecommunications facilities have had considerable impact on library work in some parts of the world. Unfortunately for us in Ghana, we are yet to avail ourselves of these developments. Considerable progress has been made in the area of information handling, and today the combination of computer and communication equipment has overcome time and distance as major obstacles to gaining access to information stored in remote databases. The challenges posed by these developments to third world countries are many. The paper, therefore, discusses some of the propects and limitations involved in introducting information technology (IT) into libraries in the country.

INTRODUCTION

One of the most significant structural changes that has taken place in information systems development has been the use of computers in collecting, processing, analysing, storing and retrieving for dissemination to users, information and data. Although the use of computers in library and information work started more than two decades ago, it is the recent developments in the combination of computer and telecommunication technologies which have had tremendous impact on the way the above listed porocesses are carried out. The combination of these facilities has provided a very fast means for transmitting information from one part of the world to another. In so doing, the world has been brought closer together than it used to be, and with the rate at which developments are taking place, we are close to achieving what McLuhan envisaged as a "global electronic village" where information is instantaneously received everywhere.

All these developments have been made possible by what is commonly referred to as the IT revolution which has characterised the post-industrial societies of the developed countries. The impact of this revolution has touched on all aspects of human endeavour. In the industrial sector, for example,

computer-controlled robots are used to boost production processes, while in the social services sector like education and health, the computer has become one of the most dependable tools used. In library and information work, the computer has emerged as a major enabling force for gathering, organising, and disseminating knowledge. In the field of publishing too, publishers are moving rapidly towards electronic handling of text. Thus, in an era where the volume and complexity of information continues to grow, new handling techniques aided by computer technology is what members of the information profession need to enable them to serve their clients satisfactority.

WHAT IS INFORMATION TECHNOLOGY?

According to Zorkoozy (1985)[1], what has become a household term, IT, is a phenomenon of the 1980s' and has its origin in the technologies related to restricted view of information (generation, processing and distribution of representations of information). It is an area that a lot has been written on in a relatively short time because of the tremendous developments that have taken place as a result of research activities into both the hardware and software components. Incidentally, it is one area that laymen find it extremely difficult to comprehend the vast literature which have been produced. The problem is that majority of the authors couch the information in obscure jargons with the result that only the minusucle technical community understand what is being discussed.

Several definitions have been provided for IT by different authors. According to Aleksander (1986)[2], it is "a collection of machinery which enhances communication between people and processes, between organisations, and between nations". Moll (1982)[3] also defined it as "the technology whereby computer and telecommunication components provide the means for obtaining and transferring information". Quoting from a recent US report entitled 'Information technology serving society' edited by Chartland and Morentz, Zorkoczy stated that IT means "the collection, storage, processing, and dissemination and use of information. It is not confined to hardware and software but acknowledges the importance of man and the goals he sets for this technology, the values employed in making these choice, and the assessment criteria used whether he is controlling the technology and is being enriched by it.

From the above definitions it is clear that as far as information work is concerned, it is the combination of the computer and telecommunica equipment which

enhances it. It should probably be pointed out that IT means a great deal more than the technology which is applied to library and information work. It provides the means for achieving an end using the intelligence embodied in these machines to improve upon the efficiency within organisations since it can alter the dynamics or processes like communication and decision-making through the enhancement of the information gathering and dissemination processes.

IMPACT ON INFORMATION WORK

As far as library and information work is concerned, it has provided a range of tools to meet some of the challenges confronting it. Through these tools some of the traditional practices in the library have been changed. It has also offered new opportunities and wide range of choices to improve upon the overall information handling processes. The computer has provided the means for managing vast quantities of information. For example, it has improved on the efficiency with which the ardous task of manually searching for information is carried out. It has also streamlined some of the routine work procedures and offered both the staff and the users new opportunities to manipulate information at speeds and quantities never before possible. The computer has greatly improved some fundamental operations like compilation or statisitcs, preparation of overdue notices, handling of reservation requests, running of current awareness and selective dissemination of information services. It has reduced the labour required to handle annually the paper flow which has characterised the traditional practices. Furthermore, it has enhanced the techniques for preparing and editing bibliographic records for storage and dissemination. It is the speed with which some of these activities are performed that exposes some of the inadequacies of traditional manual system. Another area which the IT has made considerable impact is in library network operation where groups of libraries now work in closer cooperation to set up computerised union catalogue of their holdings. By maintaining extensive catalogue files on the network database through the contribution of participating libraries, the tendency is for them to have a better control over a wider variety of materials. These are efficiently assessed online from terminals located in participating libraries using such elements as keywords from titles, ISBN, ISSN, report or conference numbers, etc. Documents are quickly located because of the benefit derived from speedier access offered by the computer. In

today's information work, the emphasis seems to be on improved accessibility. This, in a way, has gone to reinforce the point which Nobel laureate Herbert Simon is reported to have made that "developments in science and information has changed the meaning attached to the verb 'to know' from having information shared one's memory to the process of having access to information", Molmer (1981).[4]

THE CHALLENGE

From developments that have taken place in this area there are now a plethora of useful technologies which we can avail ourselves of to improve on our work output. However, it cannot be denied that majoity of the members of our profession in the country have not been exposed to some of these technologies and therefore, have some ambivalent feelings about these developments. This may stem from the psychological fear aroused by the mere mention of the word computer since some of us do not have the capacity to relate to it. Others too are of the view that the time is not ripe enough for us to introduce some of these technologies into our libraries since they harbour the thought that computer-based information systems are more suitable for bigger research and academic libraries considering the cost. The greatest challenge facing us now is how to convince the majority of our colleagues to accept the idea of library automation. The answer is not hard to find. It is only through proper education and demonstration of the operations of some of these systems that will help them to overcome some of their conservative attitudes. Through that they will also be in a position to make well-informed choices based on thorough research and experiments when they get the opportunity to acquire some of these technologies. It will also afford them the opportunity to assess the cost-effectiveness of the technology they might want to invest in. It must be pointed out that the decision to invest in IT is fraught with a lot of risks hence before a final decision is made one expects that thorough risk assessment study would have been made since it is no use going in for computer for the sake of it. This is one area where the development rate is such that some of the machines easily become obselete.

PROSPECTS

A look at establishments and institutions which have library facilities reveal that some of them have computer facilities already. In the universities, for example, where mainframe computers are available the librarians can request for terminals to serve their needs. Ideally,

a microcomputer will do when one looks at the sizes of our library collections, the user population as well as the work load. Some of the micros have large storage capacities and can easily serve the purposes for which they may be required. What is more, they can withstand extreme weather conditions better than the mainframe or the mini computers. In addition, the micros are cheaper and easy to maintain.

For a start, librarians interested in the application of some of these technologies can carry out studies into possible areas they would want to apply and the resources they have at their disposal. This will enable them to set out their priorities. Under normal circumstances it will be better for some libraries to pool their resources together to establish a national bibliographic system since it will be far more easier for them to obtain external assistance. Some international organisations like UNESCO and IDRC have shown keen interest in helping to develop such systems in developing countries by providing advisory service or undertaking pilot studies. In some cases, they make available hardware and software at minimal cost in addition to providing education and training programmes.

According to Anderson (1983),[5] UNESCO has committed itself within the General Information Programme to assist third world countries to build their own databases. The benefits that the country stands to gain from such a national project are immense. For example, it will provide access to the collection of the particpating libraries, reduce cataloguing cost and at the same time streamline data entry. It will also improve bibliographic control over all types of libary materials which hitherto are difficult to trace.

Another option open to librarians is that, at the moment, there are on sale on the market turnkey systems which they can invest in. These could be obtained from vendors who offer for sale hardware, software, installation, training, and ongoing maintenance for a fee. Either that option or one can decide to adopt a "do it yourself" approach in which case he will have to seek the assistance of a computer scientist to help him to develop an in-house system. As far as this method is concerned, it is up to the librarian to guide the expert by making known all his needs so that a suitable system can be developed for him.

LIMITATIONS

The country's precarious economic conditions coupled with strict foreign exchange controls and high exchange rates make financial investment in computer-based information systems extremely expen-

sive. In this regard, the cost element is one factor which cannot be easily overlooked. This is especially the case when librarians are finding it expremely difficult to pay for their annual periodical subscriptions.

Computers offer different levels of services for different levels of cost. Although the general trend on the market is that the cost of both hardware and software are falling one can say for sure that the prevailing prices are still expensive by our standards when one compares them with some operational budgets of some of the libraries. For example, an IBM PC XT with 640 Kb (RAM) hard disk drive, good letter quality printer, moden and software package cost more than £8,000.00. Taking the microlibrary software package as a typical example, the cost of the cataloguing and enquiry modules alone cost £4,500 while the circulation and acquisition modules cost £1,500.00 each.

The second point that needs to be considered is the personnel to man these computer-based information systems. For IT to become a force in this country as it is known in other countries, there is the need to have the human and technical resources to develop software packages or adapt developed ones to meet our specific needs. Unfortunately, we do not have the personnel even though with the development of menu-driven software packages part of the problem appears to have been solved.

One other factor which easily comes to mind is the problem of equipment selection and maintenance. The geographic distance between us and database suppliers and vendors is such that we are not only limited in the choice of equipment but also denied better after sale service. A lot of companies have mushroomed in the computer sale business these days, so in one's dealings, it is always better to go to the reputable computer firms which are represented in the country.

Telecommunication facilities are some of the basic requirements for successful development of computer-based systems. Unfortunately, the existing telex and telephone facilities are limited in quality and quantity to be relied upon to support such systems. With the rehabilitation and expansion of telephone and telex facilities there is every indication that we can overcome some of these problems in future.

Another problem that has to be addressed is the erratic nature of electricity supply. Since these equipment are very sensitive to voltage fluctuations there will be the need to invest in stabilisers and Uninterrupted Power Supply Systems to protect them.

Finally, the problem of technical incompatibility of hardware and software will have to be considered.

Each database is produced on a particular kind of hardward, and is searchable using a particular kind of software. Care should therefore be taken not to buy computers which are not compatible. Fortunately, recent developments have paved the way for the manufacture of compatible systems. According to Lamb (1986),[6] it is now possible to mix and match systems from different computer companies. The standard agreed on internationally are the Manufacturing Automation Protocol (MAP) and Technical Office Protocol (TOP) which break down the communication barriers existing between equipment.

CONCLUSION

The information technology revolution has, in no doubt, made considerable impact on library/information work by changing some of the traditional practices. In the opinion of Pollis (1982),[7] IT has gradually changed the lives of the library information professionals from the passive introvert role of Classifiers and Coders to Communicators and Networkers of data and information.

In our pecular circumstances, what we should realise is that the key to any successful transformation is we ourselves. Therefore, there is the need for us to overcome the psychological fear of computers and embark on a systematic programme of educating ourselves to broaden and deepen our outlook about the benefits that we stand to gain when we introduce some of these developments into our libraries. If we fail to do that then we will, in a way, be contributing towards the ever-widening technological gap that exists between us and the developed countries. The result of this will be that a time may come when we will find it extremely difficult and expensive to operate our manual systems because of the fact that most of the supporting materials that may be required would be on tapes, compact disk, and/or other storage devices. In which case we may not have the facilities to be able to utilise them.

REFERENCES

1. Zorkoczy, P. *Information technology: an introduction. 2ed. London,* Pitman, 1985. p.12.

2. Alesksander, I. Information technology and management of change. *Journal of Information Technology.* 1 (1), (1980). 7-13.

3. Moll, P. IT and the third world: aid or aggregation? *Focus on International and Comprative Librarianship.* 13 (3), (1982), 26-29.

4. Molmer, A. The coming of computer literacy, are we prepared for it? *Educational Techonology*. 12 (Jan. 1981), 26.

5. Anderson, Dorothy. Waiting for technology: an overview of bibliographic services in the third world. *IFLA Journal*. 9 (4), (1988), 283-295.

6. Lamb, John. Mix and match computers for the factory. *New Scientist*, No. 1537 (4th Dec. 1986), 31.

7. Pollis, A.R. Local choice and local commitment: response, In: Kent, A. and Galvin, T.J. eds. *Information technology: critical choices for library decision-makers*. New York. Dekker, 1982. p.115.