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COMPUTER APPLICATIONS IN LIBRARIES AND DOCUMENTATION CENTRES:
WHAT A MANAGER NEEDS TO KNOW ; 1993

Introduction

Sharing of information is best achieved by networking sources of information using computers. Computerised databases can be easily and effectively linked to facilitate information sharing. The process needs careful planning at the initial stage. Managers are responsible for providing leadership and guidelines in computerisation process. They are responsible for setting the goals for co-ordination and sharing of information resources. It is therefore important that managers acquire sufficient technical information to enable them to make the correct decisions. They should know what a computer system consists of and what it is capable of doing. The manager should know what is available on the local market in terms of hardware and software.

Hardware Facilities

A computer is a tool that we use to improve the productivity and efficiency of our systems irrespective of the professional domain. It consists of two major parts, firstly Hardware, and secondly Software.

Hardware can be defined as the intangible parts of a computer. The parts you can touch. Hardware consists of two major parts, the central processing unit (CPU) and the Peripherals. Peripherals is a term used for all the hardware parts that work in conjunction with the CPU to input data, process it and produce an output. They consist of:

- Input devices (keyboard)
- Output devices (monitor, printer etc.)
- Storage devices (disks, tapes, etc.).

All of these parts make the hardware part of a computer irrespective of the size and make. Choosing the computer hardware therefore involves considering the power and quality of the CPU and the peripherals. The choice is entirely determined by the needs of the organization. There is nothing like the best computer. The best computer system is one that will best meet your needs.

Depending on what you want to do your hardware decision will consider the areas stated below:

- Mainframe environment
- Minicomputer environment
- Microcomputer environment
- Networking environment
- Dedicated versus non-dedicated system.

The difference between these terminologies is vital to decision making.

Mainframes are large systems that are only cost effective if acquired for processing large volumes of data. They are specifically ideal for time sharing environment where many users are accessing the same storage. It would be a total waste for a single library or documentation centre to acquire a mainframe. But if the parent organization has a mainframe installation, it is advisable to explore the possibility of using the facility.

Minicomputers are slightly smaller computer installations than mainframes. Most of the library turnkey systems like GEAC are minicomputers based. Such systems would be ideal for large libraries like university libraries. Like mainframes, minicomputers offer facilities for time sharing.

Small libraries will do better with microcomputer systems. The size of your collection will determine the size of the hard disk facility that you require. The make of the machine (IBM, ICL, Olivetti, etc.) is irrelevant for your decision making. You should accept any supplier that will meet your needs satisfactorily. At

the moment any IBM compatible microcomputer is good enough. The main reason for this compatibility is the fact that most available software packages are IBM. You are therefore safer with IBM compatibles. The new technological development has made it difficult to draw a line between the microcomputers and minicomputers. The latter is actually a dying term in computer world.

Networking is a term used to refer to the art of connecting computers for the purpose of sharing information. The commonest network systems are local Area Network (LAN) also referred to as in-house network system. A manager should be in a position to decide on whether to acquire stand-alone-micros or a network system. The major advantages of a network system is that it allows you to share common files. You are also able to share common storage facilities. The problem of networking is that in most cases the microcomputers will be tied down to one room.

In a dedicated system the installation is dedicated to the use of a specific department, not shared by others. It could be shared by users within that department so long as the sharing does not go beyond the department. It is strongly recommended that libraries and documentation centres give serious consideration to dedicated systems. The needs of information centres are unique and always urgent. Such needs cannot be efficiently met under shared environment.

The Kenyan market is fairly advanced in terms of computer hardware. You can get almost anything you want. The limitation is prices which are abnormally high as a result of importation charges.

Software Facilities

Computer software are the programs used for developing computerised systems. A computer program is a set of instructions that the computer uses to carry out a particular task. Generally speaking, software are the intangible parts of a computer. The parts that you cannot see and you cannot touch. Software is the

most important part of a computer system. Without the software the hardware is useless. The tricky part is choosing the appropriate software. Once the right decision on software is made, hardware is not a problem.

The important thing to note here is that the computer market in developing countries in Africa at the moment has nothing to offer in terms of software for information centres. The available general purpose software packages like DBase are not appropriate for libraries and information centres. One requires a package specifically designed for information centres. Among the general purpose packages the following could be of some use to information libraries and documentation centres:

Wordprocessing packages (very useful)

Spreadsheet packages e.g. LOTUS 1-2-3.

DBase has been tried in libraries and found unsuitable though in the absence of a suitable package one can use it. However, if one has an alternative, DBase should be abandoned. It has serious limitations that have resulted in discouraging expenses for libraries who have tried it. DBase is a general purpose Database Management System (DBSM). Problems facing these centres are unique. They cannot be adequately handled by a general database management system.

DBase fields are limited to a maximum of 254 characters only. Library title and keyword fields go well beyond this figure. The memo field offered by DBase for this purpose is a hectic field to use. You have to call it into the database each time you want to use it. It is not automatically incorporated into the design of the database. Thus when you use DBase in libraries you are forced to shorten certain fields which can distort information.

For complex reports (outputs) one needs a programming background to use DBase effectively. You need to write programs in order to produce your outputs. Most library queries are fairly complex. One has to produce subject headings, indexes, etc. This requires a lot of programming. DBase is wasteful. It has fixed

fields, meaning that space is reserved in advance equal to the maximum number of characters allowed (254). If any field falls short of the maximum then the remaining space is wasted. Nothing can be saved there.

Development trend in modern technology is shying away from programming and focusing on packages that do not need programming. That time when computer rooms were restricted to only the experts is over. Computers are descending into the hands of everyone, managers, clerks, secretaries, and even housewives. For this reason, programming requirements would be a major limitation in a software package. We need packages that do not need programming. Presently the best library software available to developing countries is the Unesco package Mini-Micro CDS/ISIS. Its advantages are:

1. The package is available free of charge to non profit organizations of the Unesco member states. With the present financial constraints in developing countries, we couldn't have a better offer.
2. It is a very flexible software. Once database is designed you can make any type of changes you want at any time. It is possible to produce any type of report (output) with minimum effort.
3. The size of the database is only limited to the size of the disk storage facility available on your computer and by the power of the operating system. MS-DOS for instance supports only up to about 32,000 records.
4. It has variable fields, meaning that the storage space for any field will adopt the size of that field at that particular time and will automatically change as the size of the field changes. Thus variable fields do not waste disk space. Furthermore it offers a facility for unlimited number of fields. The maximum number of characters for a field is over 1600 which is more than what information centres require.

5. CDS/ISIS is easy to master. You do not have to be a programmer to use it effectively. The format language is very easy to master.
6. The software was designed specifically for libraries and documentation centres. It therefore answers about 99% of data base problems in these centres.

The disadvantages of the Mini-Micro CDS/ISIS software package are the following:

1. Presently the main CDS/ISIS problem is the absence of network version. You cannot gainfully run it on a network environment. Unesco however is working on this problem. It has been announced that a network version will soon be released.
2. The other problem is that it's mainly a DBMS. It cannot handle housekeeping processing like issuing of books in libraries. To handle this area, one has to shop for integrated packages on overseas market.

Computerization as a Management Issue

The current revolution in computing is changing the way we manage organizations. Managers in a computerized environment must be aware of this change and learn to adopt to it.

Managers must realize that computerization is not just a matter of acquiring a computer and hiring professionals to design and develop information system. They are responsible for decision making of the information systems being developed. They must determine the information they require for their users and for planning. Managers must therefore be in a position to set priorities and establish criteria to ensure the relevance and scope of information, the structure and availability, and the presentation and distribution of this information. They must be involved right from the start. The role of the computer expert is only to provide advisory services to help the managers to make best use of and sustain their information systems. Computerization is thus first and foremost a management issue!