ICT AND ITS IMPACT ON COLLEGE LIBRARIES

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ABSTRACT:
ICT plays an important role to raise the standard of teaching and research development. ICT have made significant impact on all spheres of human life. This paper highlights the concept of ICT and its use in libraries.

KEY WORDS: *ICT, Research, ict and libraries.*

INTRODUCTION
The two words, information and technology, used together, have acquired special meaning and interpretation during 1990s. It is only recently that the term has been used as a collective term for the whole spectrum of technologies providing the ways and means to acquire, store, transmit, retrieve and process information.

ICT have made significant impact on all spheres of human life. The impact has been rather prominent in case of service activities such as banking, health, transportation, education and libraries. Benefits of services can be broadly explained in terms of 4Es, namely, economy, ease extension & efficiency. For the Libraries, ICT has tremendously changed the management of resourced or housekeeping operations as well as the way services are delivered. While general IT application tools and integrated library management systems are largely used in housekeeping operation like acquisition, cataloguing, circulation control, serials control etc. internet has been used extensively as a resource as well as a tool to deliver the library & Information services.

MEANING
According to the Webster's new encyclopedia, "Information technology is the collective term for the various technologies involved in the processing and transmission of information. They include computing, telecommunication and microelectronics whereas information technology is a development of information sources handled by computers and communicated by electronic channels, databases can thus be accessed by telephone and television links and computer output can be transmitted in an electronic format directly to a remote receiver.

UNESCO defines Information Technology as scientific, technological and engineering disciplines and the management techniques used in information handling and processing; their applications; computers and their interaction with men and machines, and associated social, economic and cultural matters.[1]

Information and Communication Technology (ICT) is a diverse set of technological tools and resources used to communicate and to create, disseminate, store and manage information.[2]

Marcella argues, The ICT sector is a heterogeneous collection of industry and service activities including information technology equipment and service, telecommunication equipments and services,

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media and broadcast, Internet service provision, libraries, commercial information providers, network based information services and related professional specialized services.

Hamelin provides a useful and clear definition of ICT indicating, ICTs are those technologies that enable the handling of information and facilitate different forms of communication. These include capturing technologies (eg. camcorders), storage technologies (e.g. CD-ROMs), processing technologies (e.g. application software), communication technologies (e.g. Local Area Network) and display technologies (e.g. computer monitors).

So, one can define ICT as 'the use and application of computers, telecommunications and microelectronics in the acquisition, storage, retrieval, transfer and dissemination of information.[3]

IMPACT ON LIBRARIES:-

In the field of Libraries and Information Centers also computers began to have its penetrating influence. Librarians, once considered to be the custodians of printed materials, compelled to integrate new methods of information storage and retrieval and transmission of knowledge to their clientele, along with their traditional methods of imparting knowledge.

The technological developments have made profound and undoubtedly permanent changes in libraries. The traditional services that the users were getting from the library so long and so forth is undertaking a vast and fast change during these days. The clients have started making new types of demand before the professional staff. These transitions are gradually spreading in almost all types of libraries and information centers.

According to UNESCO (2003), the exact impacts of ICT on the library are shown as follows:

ICT made information creation in digital format possible.

ICT made online access and file transfer possible.

ICT made networking and sharing of information resources possible.

With such a development, library may not only be networked and stocked with a core collection that is multimedia but also have access to global information and become digital and virtual.
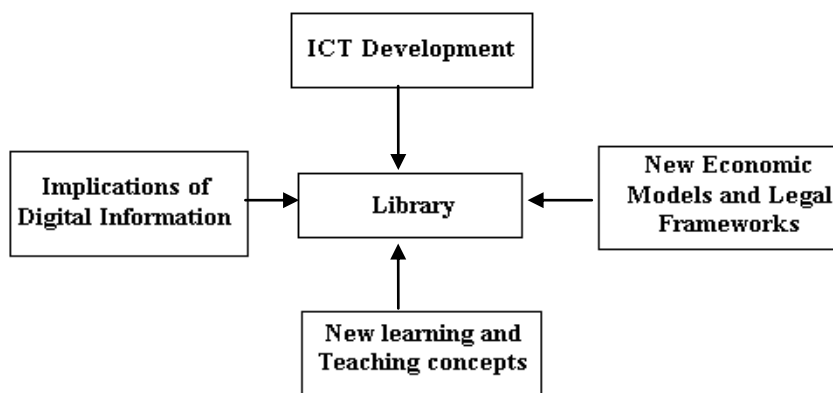
Figure 1 ICT development in Library

CHANGE OF PROCESS AND SERVICES:

In the beginning computers were used only for numerical calculations. This wonderful machine began to use for general purposes many years later since its invention for library, it started using nearly two decades ago. As libraries are institutions handling a large amount of information, and that too in a repeated nature, it was understood that, these functions could very easily and accurately be done by a computer or computers seemed ideally suited for dealing with a particular feature of library operations, that of handling large amounts of information. Indeed librarians are being spent considerably more time in processing information about books and periodicals that they devote to handling the object themselves.

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Computers are seen as practical alternative for managing proliferating library collections and increasing demands. The paper based system is in use at the time had reached and often exceeded the limits of their effectiveness. Some libraries began automating the library functions early in 1960s. The US National Library of Medicine, The Library of Congress, University of California at San Diego and Southern Illinois University were the libraries automated during early days. American Library of Congress began the Machine Readable Cataloguing (MARC) in 1965. This was developed to define standard format for machine readable catalogue records that could be used inter changeably in different on different types of computer across the country. It is designed to automate the record keeping functions of Librarianship. Though computer based, this system continued to produce paper products such as catalogue cards and such other records.

In the beginning Librarians designed their own local automated system suited for each library. This caused for high cost in software development and such other things. Soon it was realized that most of the activities in all types of libraries were more or less similar. Libraries collectively turned to share automation efforts to manage routine functions. [4]

CONCEPT OF ICT IN LIBRARIES: A GRADUAL DEVELOPMENT

Library and information centers entered into information and communication technology era in 1960s.

Table 2.1: The devices and systems available to manipulate the resources of information

Operations	Information technology Device/System
Capture	Remote resource sensing satellite, Radar system, Electronic camera, VCR system, Video disks
Transportation	Coaxial cable, Optical fiber cable, Microwave link, Communication Satellite, Satellite phone, Cellular mobile radio, Laser beams, Facsimile transceivers, Video phone, Electronic teleprinter, Modem, Multiplexer.
Storage	Memory chips, Hard disk/Magnetic tape/Drum/Floppy disk Holography Laser emulsion, Microfilm
Processing	Integrated circuits, Microprocessors, Computer Software/Peripheral equipments
Retrieval	High definition television, Teletext/Videotext, Pay Television system Online database.

Table 2.2: Comparison between old and new technologies

Functions	Old technologies	New technologies
Text entry, editing and composing Replication	Typing, Typesetting Printing	Electronic word, Processing OCR scan, Computer terminal, Display, Print, Videodisc mfg.
Storage Searching, selecting, retrieving	Shelving Cataloguing Catalogue search, browsing	Digital mass store, videodisc Computer database software
Communication	Mail, freight, Personal travel	Computer network, Teletext, CATV, satellites, videodisc

*Source: Communication media and electronic revolution, 1996.

With the availability of general purpose computers for performing traditional library activities. Some of the significant developments regarding ICT in libraries during that period are as follows.

- The MEDLARS (Medical Literature Analysis and Retrieval System) project to mechanize the handling medical literature at the national library of medicine, USA;

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- The pioneering work on serial control by the Southern Illinois University of California at San Diego.
- Initiation of project MARC (Machine Readable Cataloguing) by the Library of Congress to provide a format for cataloguing.

The next era of ICT based library began in the late 1960s to a great extent with the success of INTREX and the MARC projects. During this online, real time interactive computer systems were introduced in the library and information field.

In 1967 both OCLC and BALLOTS became operative. In the early 1970s, Online Systems were in operation in several libraries, for example, Bell Telephone Laboratories, Eastern Illinois University etc.

In a guidebook for young professional librarian, Rowley and Lea pointed out that Information Technology (recently called ICT) is a comparatively a recent term to be found in the literature of library and information science. It is first appeared in 'Library and Information Science Abstracts' (LISA) in 1975, but didn't assume regular use until the early 1980s. Libraries and information centers have witnessed landmark development in ICT culture during last decade of the last millennium. These major developments of ICT can be expressed in the following manner:

Bran comb one of the pioneers who played leading role to transfer the concept of traditional library into ICT based library, have compared traditional library functions with new technology based library (Table 2.2**).**

ICT IMPACT ON EDUCATION, RESEARCH AND & SCHOLARLY COMMUNICATION:

Economic, social, political and technological changes and developments interact and mutually influence one another. National developments impact on the functioning of local institutions; and national events and institutions are impacted upon by global developments. Such impacts have become more frequent and almost inevitable due to the emerging and converging ICT and facilities for domestic and international travel. The teacher, the researcher, the student, and the practicing professional must keep themselves updated with the rapidly changing environment, at the local, national and global levels, in case they become obsolescent and outdated.

The impacts of ICTs on scholarly publication and communication   have significant impact and affect the way libraries, more particularly digital libraries. Over 20 percent of conventional publications and audio, video records are produced and stored in digital form. The material will always be copied from the original master work in the digital form, 'which means that the mechanical aspects of printing and publishing a list of works, etc. may more be necessary. With electronic publishing and distribution, the material can be accessed on the network as soon as the author has keyed in the data/text, or created graphs and images. Mechanical aspects of printing and publishing and of resources directories can be bypassed. A person can be an author, editor, and publisher as well.

Students, teachers, researchers and others need not personally visit the library. They can browse online the library catalogues and other resource directories; and electronic methods can deliver the required texts, images and even voice recordings in "their workplace, dormitory, home or wherever they are. Distance learning and delivery of education to remote areas, could become a reality. Information seekers will have almost seamless global access to a wide range of information resources, including peer groups and experts, whole texts, voice recording, multimedia, etc. via satellites and networks of networks such as .the internet, without the intervening services of editors, indexers, publishers, and perhaps librarians too.

Three key roles of libraries in learning are: sharing of expensive resources, preserving and organizing artifacts (cultural role) and bringing together people and ideas (social role. Lectures, demos, and hands-on training in the classroom or lab can be organized with the instructors and experts operating at global distance. This, in turn, will permit more integration of different types of learning through sharing of resources, and expertise and conserving time, energy and expenses). Libraries can support provision of various incomes. Avenues therefore need to be created for knowledge incubation to be supplemented by capacity-building support and enabling policy frameworks, which provide opportunities to people to use the power of knowledge for propelling their growth.[5]

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WHY ICT NEEDED IN LIBRARIES?

Various factors have contributed to bring about change from traditional to ICT based library operations. Basically ICT is needed in libraries for the following two main reasons:

In terms of various problems faced by the traditional library systems:

The manual performances of library functions were getting difficult because of the following main reasons:

- The size of recorded information is ever growing whereas space available at the disposal of each library is limited. No library can think of getting additional space every year, although the collection will grow continuously;
- Due to knowledge explosion, the society is faced with multifaceted and multidimensional information to such an extent that not only its storage has created challenge, but the organization of this bulk of information has also become unwieldy;
- Library operations, due to potential growth of information, could take many hours to perform manually;
- Due to information explosion, all sorts of housekeeping jobs and information works can be performed by manually with less effective and less accuracy

In terms of various facilities provided by computers and related technologies:

The advantages of using computers and other telecommunication media/devices in managing libraries are manifold. Some of the advantages are as follows,

Speed: A computer can carry out an instruction in less than a millionth of a second. Searching of information, compilation of bibliographies, preparation of current awareness bulletins, indexing and sorting can be processed by a computer in a few hours.
Storage: Human brain can store pieces of information to some limitation whereas computers can store voluminous data.
Accuracy: Computers can perform functions very accurately.
Reliability: Computers and all related technologies have long life if maintained properly. The data gathered in it are reliable.
Repetitiveness: A computer can be used repetitively to process information.
Compactness: The present day computers are laptop/waptop/palmtop, which do not occupy more space.[12]

NEW ROLE OF THE LIBRARIAN

It is the library worker who is assisting the individual. This may be the only librarian, the person specifically designated as the reference librarian, or the person qualified by experience; whoever is assigned the job of helping patrons at any particular time.

The librarians providing reference service will attempt to adhere to the highest standards of knowledge and proficiency. They must have knowledge of the following:

- The reference collection
- Library collection scope (local and system wide)
- IRIS and other networked electronic resources
- Major bibliographic networks (e.g., RLIN, OCLC, and the Internet) .
- Libraries' website -
- Local services and expertise and where to refer effectively within the
- Libraries system wide.
- Regional and national resources, especially in their areas of expertise
- Library and university policies.
- Newly emerging technologies, such as the World Wide Web

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UNESCO (2003) revealed some perceived roles of librarians in learning and teaching in an information society

- **Creators:** developers and producers of information products and services
- **Collectors:** librarians, archivists and record managers
- **Communicators:** information workers, extension workers, subject specialists
- **Consolidators:** reference librarians, information brokers, analysts
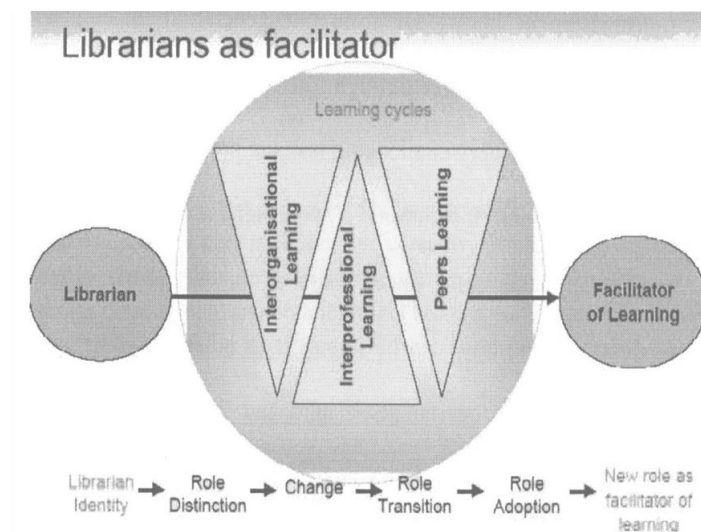
Figure 2 Role of librarian

Professional development is the ongoing responsibility of all librarians to maintain current skills, develop new skills, and to implement the information services needed in a constantly changing environment. To support this generally provide in-service training for librarians, encourage and support attendance at other professional programs, and provide the appropriate equipments suitable for service at the highest level.

The Libraries will continue to provide, on a system wide basis, workshops and other formal programs designed to help librarians keep abreast of new technologies and other advances and to maintain traditional skills at a high level. Such programs should include both in-house and external experts.

Individual units will continue to provide local workshops and programs targeted to the needs of local librarians and their immediate constituencies.

All libraries will continue to foster an atmosphere of Friendliness and collegiality that encourages, colleagues to share their expertise with one another on a formal and informal basis. Participation in formal and informal educational programs is recognized as a key part of scholarly development.

The library user spends a lot less time being a library user than the worker does in being a librarian; therefore, the user is less secure in that role and needs reassurance from the more-secure of the two. This is especially hard for a beginning librarian who already feels very insecure. The library worker is being paid, however, and the library user has every right to expect the librarian to rapidly and easily find exactly what is wanted. The library worker is worrying about how to find what the library user wants and how to appear even reasonably competent, instead of trying to put the user at ease so that trust can be established. The library user needs to trust the librarian sufficiently to answer questions about the needed information.

In the process of reference service, the first words of the librarian are important. They should try to show respect for the inquirer as an individual and at the same time show a desire to primary objective at this point is to try to get the user to tell more about what is needed. The library worker

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should try to answer the question in a way that keeps the user talking while escorting the person to the requested source and saying, "The gardening encyclopedia is right over here — if you'll tell me what you're looking for, perhaps I can help you find it" or "What kind of information do you want about cats?" The librarian wants to end the message in such a way that the natural response is more than a "yes or no". Otherwise the librarian will end up sounding like an interrogator or someone playing twenty questions, while the user will not have the opportunity to throw in little aside or phrases that make all the difference in the librarian's subsequent search. [6]

CONCLUSION:

Today, only on the basis of information and technology the social, economic and geographical references are changing. Hence the thing right access to right information at right time gets importance in changing situation. For that the effective use of is very important to look how to link the use of ICT in LIS and traditional library trade. Therefore, it is a challenge for library professional. The ICT truly benefit the library to achieve the goals and objectives of the library. At last fruitful result can be obtained by using the ICT.

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