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TECHNOLOGY BASED INNOVATIVE PRACTICES TOWARDS BUILDING A SMART LIBRARY: A CASE STUDY

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Abstract: *Change is the order of the day, so the change in the information environment is also witnessed today. It has been driven by the advancement of Information and Communication Technology (ICT) and its applications in the information systems. This has prompted the need for new changes in the contents, systems and delivery of services of libraries and information centres, as such. Obviously there has been a tremendous change in the users' behaviors too. This has called for the need for major transformation of the existing library system so as to meet the complex needs of the users. These challenging issues can be resolved by building our library and information system as SMART SYSTEM. In this era of smart society, many efforts are found to be made towards making smart library, the situation being global. In this backdrop, this paper attempts to highlight the technology based innovative practical execution of various projects both technical and non-technical perspectives towards building a smart library taking into account the Central Library, Central Institute of Technology (CIT), Kokrajhar, BTC, Assam as a case study. The findings of the study draw many clues on the way how efforts can be put towards building as mart library.*

Keyword: *CIT Kokrajhar, ICT, Innovative Practices; Knowledge Society, Library Services, Smart Library*

INTRODUCTION

From the agrarian society to the present knowledge society we have been witnessing a sea change in all aspects of human endeavor. In this Knowledge Society, Information and Communication Technology (ICT), as the driving force, has been considered as one of the main factors causing change in the way how people communicate, locate, retrieve and disseminate information. Thereby, the users' behavior in almost all the Library and Information System has drastically been changed with the successful applications of ICTs. The characteristics of the users form central element in providing library services. The library and information centres need to design their services according to users' behavior so as to fulfill the users' expectation. Their services, as such, must go beyond just providing traditional one so as to become a smart library that, as expected, facilitates active knowledge creation and provides services through collective intelligence. Therefore, the future library information service must be a smart library which combines the existing library system functions with the knowledge-based e-learning system to develop creative human resources. It must be a system that enables the participants to develop their collective intelligence-based learning knowledge base using a collaborative and interactive interface, and which promotes self-managed learning to improve the creativity and logical thinking of the student (Won Min, 2012). **"**Smart library is the concept and practice of the modern library sustainable development, based on digital, networked and intelligent information technology, with interconnection, high efficiency and convenience as the main features, and green development and digital services for the general public as the essential pursuit" (Wang, 2013). In short, smart library means a library where users are given first priority and their expectations are fulfilled with different means both technical and non-technical. The characteristics of the smart library and information centre include the technical and non-technical perspectives like creating a smart environment, application of smart technologies, providing smart services, collection of smart and active content, application of smart ideas and others. In this background the present study attempts to highlight the technology based innovative practical execution of various projects towards building a smart library taking with the Central Library, Central Institute of Technology (CIT), Kokrajhar, BTC, Assam as a case study.

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OBJECTIVES, SCOPE AND METHODOLOGY

The basic objectives of the present study include the following:

- To survey the background of Central Institute of Technology CIT, Kokrajhar, Assam;
- To highlight the background of the Central Library, CIT, Kokrajhar;
- To analyze the steps taken up towards making the library smart with the introduction of technology based innovative practices; and
- To suggest the skills and competency required to become smart professionals to work in smart library system.

Concerning the scope of the study, the same is confined to the CIT, Kokrajhar and its Library only. All aspects of its library have been taken into account in the study giving more focus on the perspectives of building of smart library. For the study, all aspects of the library have been studied, and all the records, reports and other related materials available with the Institute have minutely been scanned and reviewed. The professionals working in the library have also been considered to draw their opinions, suggestions and views on building smart library.

CENTRAL INSTITUTE OF TECHNOLOGY KOKRAJHAR (CITK)

Central Institute of Technology, Kokrajhar (CITK) is situated at Kokrajhar District of Bodoland Territorial Council (BTC) in Assam. It is a Centrally Funded Institute under the Ministry of Human Resource Development, Government of India. The Institute was established on the 19th of December 2006. The genesis of this Institute was the Memorandum of Settlement on Bodoland Territorial Council (BTC) signed among the Assam Government, the Union Government and the Bodo Liberation Tigers (BLT), on February 10, 2003, in New Delhi. The Institute is an autonomous body registered under the Societies Registration Act., 1860 and functions under a Board of Governors (BOG). CIT Kokrajhar is mandated to impart Technical and Vocational Education such as Information Technology, Bio-Technology, Food Processing, Rural Industries, Business Management, etc. as part of the concerted efforts being made by the Government of India and the Government of Assam. It is thus envisioned to acquire a unique place in the field of technical education in the country through its modular and innovative academic programs. At present CITK offers degree and diploma programmes in seven disciplines namely Computer Science and Engineering, Electronics and Communication Engineering, Instrumentation Engineering, Food Engineering and Technology, Civil Engineering (Construction Technology), Information Technology and Multimedia Communication and Design (B. Des.).

CENTRAL LIBRARY, CITK

The Central Library of CIT Kokrajhar came into existence along with the establishment of the institute and is located in the ground floor of the Academic Building-II covering 5400 sq. feet area at present. The permanent building and the interior works for the library has been completed and the shifting to the new building is under process. At present the library has a collection of more than 70,000 books, 39,000 E-Books, 1,116 E-Journals, 2,000 CDs & DVDs and other resources like Old Question Papers and Project Reports in digital formats for the users. The staff component of the library includes the following:

- Librarian-1 (one)
- Assistant Librarian-2 (two)
- Library Assistant-1 (one)
- Outsourcing Staff-5 (five)
- Security-2 (two)

The library has gone through different phases since its inception and tremendous efforts have been put forward from all corners to make it a “Smart Library” by way of introducing innovative practices, enriching with technologies related with the process, involving the working staff in different innovative programmes, etc.

TOWARDS BUILDING SMART LIBRARY

A number of clear and comprehensive steps have been taken by the library introducing technology based innovative practices towards building it a smart library. Both technical and non-technical perspectives are given due importance while taking steps towards making smart library. Major steps which have been taken up towards making smart library are discussed below:

SMART COLLECTION

Collection of the Library is said to be the heart of any library and a balanced collection comprising of both physical and E resources may be called as “Smart Collection”. Collection may be in the form of:

- Physical Books
- Physical Journals
- Physical Papers
- E-books

- E-Journals
- E- Papers
- In house digitized resources (Old Question Papers)
- CDs and DVDs
- And other forms of collection.

Library at the beginning had a collection of 2000 physical books during 2008-09 financial year which was not sufficient to serve the users. Tremendous efforts were made to strengthen the collection of physical books to support the teaching and learning process of the institute at the average rate of 10,000 copies collection per year. Collection of physical books were given due importance at the beginning considering the non-availability of ICT infrastructure at that point of time. Afterwards with the start of providing ICT infrastructure, purchase of E-Books, subscription of E-journals, digitization of project reports, old question papers were taken up and as of now library has a balanced collection comprising of physical and e-resources which may be termed as smart collection.

APPLICATION OF SMART TECHNOLOGIES

During the recent years, the computer and telecommunication technologies began to build up an information society, which has crossed the geographical limitations and has provided facilities to access into global information systems. As a result, nature of modem librarianship has changed considerably with the advent of new technologies. In fact, 'automation' has become an indispensable part of modern library's information systems development, organization, management and services. In the present age of information, automation has been making tremendous impact on different sectors of libraries and information centers. Automation has been playing a vital role in improving the capabilities of libraries/information centers towards attaining satisfaction of the users, (Natarajan, 2010). Keeping in view to serve the users community with greater efficiency and accuracy in time, the steps to apply latest technologies which may be called "Smart Technologies" in the present day context were taken. Application of smart technologies in the Central Library of CITK are outlined below:

CHOOSING OF SOFTWARE PACKAGE (SOUL 2.0)

Choosing a compatible software was a first step before applying any other smart technologies in the library. Software for University Libraries (SOUL2.0) which is designed and developed by the INFLIBNET Centre based on requirements of college and university libraries was selected considering the various parameters like compatibility, manpower availability, developed by Govt. organization, ownership of responsibility, reasonable price, easy to use etc.

APPLICATION OF RFID TECHNOLOGY

Radio Frequency Identification which is known as RFID Technology in short is being used by many libraries for different purposes. This technology may be called smart technology which is being applied by many libraries. In general RFID in the library is used for security, self-Check-in and check-out, Patron Check, User Entry Exit record, self-shorting, and other purposes.

Central Library of CIT Kokrajhar has been able to apply RFID Technology successfully in most of the function of the library system. The major sections of the library with RFID Technology applications are – *Circulation* - Enabling Self Issue-and Return facility, *Security*-Enabling Anti-theft alarming system, *Patron Record*- Enabling keeping record of entry and exit of the patron, *Patron Check*- Enabling Self Credit Check System.

Fig. 1: Implementation of RFID Systems at Different Sections

Providing Smart Services

With the advent of latest Information Communication Technologies, there are number of services which may be provided to the users in a smart way which may be called the smart services. Central Library of CITK have been successful in providing smart services in number of library

services. The smart library services as provided by the Central Library CIT K may be discussed as per the below mentioned sub-headings:

Web OPAC

OPAC may be termed as the "Door of Window of the Library" which shows the holdings of the library in detail. Online Public Access Catalogue shortly known as OPAC may be sub-divided in two types based on its accessibility. These are-OPAC which are accessible within the campus through intranet and Web-OPAC which is accessible from anywhere and anytime through internet. Maintaining Web-OPAC continuously without any interruption is a very critical task which require dedicated server with dedicated power backup which many libraries are unable to continue seamlessly. Central Library, CITK has been able to provide Web-OPAC seamlessly with the help of SOUL 2.0 software.

Fig. 2: Central Library, CITK Web-OPAC

E-Library

Electronic library shortly known as E-Library of Central Library, CITK is developed by Knimbus.com basically to provide single window remote access of subscribed E-Resources of the library based on user ID and password. Normally, subscribed E-resources are IP configured and the access is limited within the campus and IP range. But this E-Library module provides smart access to the smart content from anywhere in the world.

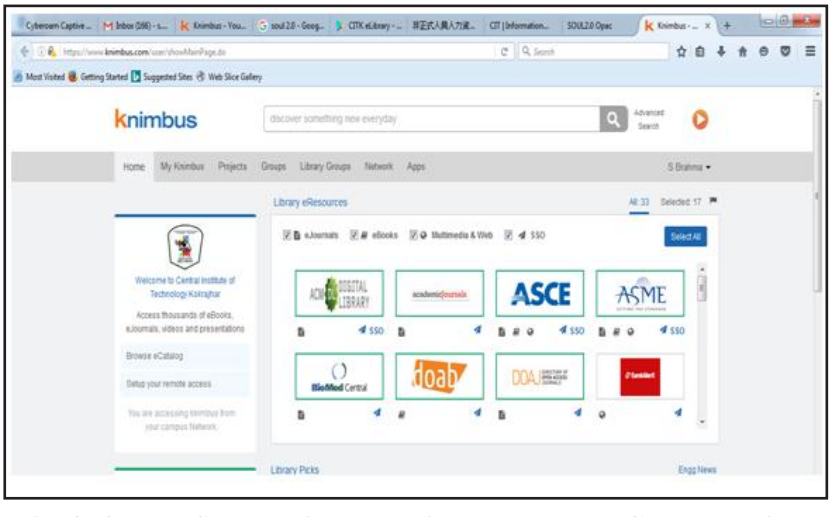

Fig. 3: Screen Shot, Knimbus E-library Module, CIT Kokrajhar

Mobile Application

It is a general observation that the use of smart phone among the various sections of the people are increasing day by day due to availability of such devices in cheaper price. This increase in number of smart phone use is more in the case of young students. The use of smart phone among the students can be assumed at almost 100% and the institutes' of higher learning so mobile devices are one of the most convenient way to reach to the library users in the academic and research library environment. So as to provide quick and remote smart access of smart E-Resources of the library on the go, a mobile application for the Central Library, CIT Kokrajhar has been developed which is downloadable from google play store (https://play.google.com/store/apps/details?id=com.elib.citK&hl=en).

Fig. 4: Screen Shot, Googleplaystore, CITK Elibrary Mobile App. Download

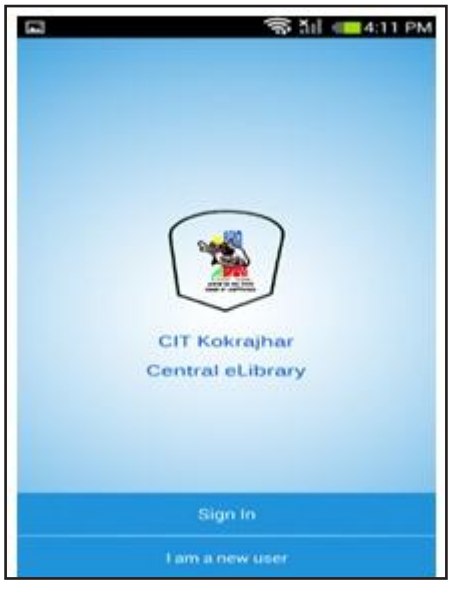

Fig. 5: Screen Shot, CITK E-library Mobile App

With the introduction of mobile application, the statistics of e-resource use is increasing which require a detail study.

APPLICATIONS OF SMART IDEAS

The concept of home delivery system in the field of food and other items have been growing fast in the metro cities. The idea of delivering the various library resources in the doorstep was developed to serve the users in the better way. With the development of this idea the delivery of various reading resources in the doorstep of the users have been launched in the central library of CIT Kokrajhar in the name and style of "Library on Demand". One dedicated staff during the office hour along with a dedicated bi-cycle have been allocated for the purpose. Users can order available resources in the library through e-mail and phone calls. At present the service is available within the campus during the office hour. This services is taking its momentum and a comprehensive delivery plan is in the process to make it 24X7.

SMART LIBRARY STAFF

The smart library staff including the Librarian needs to serve the user smartly by using various tools and techniques. They must have holistic thinking and planning ahead. In the present smart library environment, academic librarians and allied staff are required to work independently or as a team to deliver service-oriented and user-centered applications, instructions, programmes, projects and services. Thus, the staff are required as smart as to serve in a smart way. The smart library staff always needs to create a smart environment inside the library and follow the concept that "User Is the King". In order to be smart library professionals

or non-professional staff to work in the smart library system, they need to take part in continuing education programmes to develop skills and competency towards this end.

CONCLUSION

From the above description based on the study of the practical experiences and analysis of the situation in the CITK Central Library, many clues have been drawn that different factors both technical and non-technical led to the development of smart library. Every single factor need to address properly in building smart library. Major factors like smart collection, application of smart technologies, providing smart services, application of smart ideas and having skill and competent smart library staff as discussed above form driving force towards making smart library. Besides these, proper planning to develop skills and competency also play a vital role. In this context, through different phases, the Central Library of CIT Kokrajhar has enabled to achieve some of the major aspects towards making a smart library and at the same time more plans are to chalk out to make it even better in future. In this way, the smart library system would enable to deliver services in the new environment to serve the users better.

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