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Contents

LIBRARY PORTAL FOR A BETTER INFORMED SOCIETY

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ABSTRACT :

The evolution of the internet has demanded various communication platforms and formats to generate, produce and disseminate information. This rapid change has left information specialists with multiple challenges to seek innovative information seeking techniques to cater to an ever demanding user-base. As a result, information specialists have designed varied formats and communication pathways to incorporate this change. This paper introduces the Poverty Portal designed by the Centre for Poverty Analysis focusing resources on poverty and development. The aim of designing the Portal was to introduce a dedicated online space to collate information resources that are scattered with various institutes and channel through a centralised platform. The existence of the Portal controls the duplication of generating similar resources but facilitates the generation of new resources. It is also a way of managing information in a systematic way.

The Maps and Stats section of the Portal is a unique feature that brings researchers, development practitioners and decision makers closer as it enables them to understand the ground level development realities and gaps within Sri Lanka. These maps are generated by using data from remotest areas under Divisional and Grama Niladari levels in Sri Lanka which are not captured under the state bodies.

Keywords – Digital libraries, Communication pathways, Knowledge dissemination, Online platform

1. Introduction

The breakthrough of the twentieth century paved way for more online presence impacting the production of information in varied formats. Along with this revolutionary change, it has become a requirement to cater to an audience who are able to access information digitally. Though statistical details cannot be highlighted, Sri Lanka has moved rapidly towards a digital society by academic and research institutes to serve the community with their information needs.

Functions and purposes of Digital Libraries, Institutional repositories and On-line Portals are almost equivalent to one another, but are interpreted in many ways. Bush (**1945**) defines a Digital Library as a platform to facilitate the dissemination of resources in digital formats. In the early period of 2000-2008, many scholars introduced various definitions and concepts on Digital Libraries. Among them, Bhattacharya (**2004**) defines Digital Libraries as 'Managed collections of digital objects, created or acquired according to the principles of information is stored and distributed in digital form with the associated value-added services necessary to allow users to retrieve and exploit the resources just as in a traditional library'.

This can be considered a very comprehensive and fitting definition on Digital Libraries. On the other hand, Institutional Repositories hold intellectual outputs generated by individual organisations that enable to build credibility and prestige on the knowledge created by the organisation. Crow (**2002**) states that original research generated by an institution is generally made available through an Institutional Repository. Chang (**2003**) believes that institutional Repositories are an innovative way to capture, collect, manage, disseminate and even preserve scholarly research generated in electronic form by an institution. In addition, Clifford Lynch (**Lunch, 2003**) believes that it is an organisational commitment to promote digitally available resources to a wider audience and expand the accessibility of originally generated

resources. Similarly, Portals too operate as a gateway to disseminate information in varied formats to facilitate the generation of knowledge amongst a wide audience.

Digital Libraries came into existence over a decade ago and have been functioning well. According to Arms (**2000, 2**), Digital Libraries are 'managed collection of information, with associated services, where the information is stored digitally and accessible via a network'. Digital Libraries are also gateways to electronic resources which include an OPAC (Online Public Access Catalogue) and other resources in electronic format as full-text and metadata of resources. In addition, Portals act as gateways to provide access to various bibliographic databases depending on accessibility rights. Individual institutions or Libraries have the liberty to make their digital platform interactive by including various features and formats to increase accessibility.

2. Background to CEPA's on-line Portal on Poverty research

The Centre for Poverty Analysis (CEPA, www.cepa.lk) is an independent organisation researching on poverty and development in Sri Lanka. CEPA believes that poverty is an injustice and that it creates disparities and widens inequalities among communities. CEPA's mandate is to overcome poverty by generating research and, communicating this research to diverse audiences through organisations and professionals working towards reducing poverty and influencing policies and practices nationally, regionally and globally. To do so, CEPA strives to disseminate information and exchange knowledge and research through various systems and communication platforms. The primary communication channel is through the Resource Centre which comprises a physical and digital resource base as the Portal.

3. Rationale for Designing the Portal

Even though research on poverty has taken place extensively over the years in Sri Lanka, these research resources lie within various organisations in different formats as reports, unpublished literature or paper either in print or soft formats. In addition, large volumes of information generated by state organisations on a regular basis are not freely available and directly accessible in the public domain. Even the existing resources available within some state institutions are not accessible even to those who live outside Colombo. This is mainly because most state institutions do not realise and recognise the importance of making this information public for the benefit of various civil society groups, researchers, development practitioners, decision making bodies. Thus, each institution operates in isolation in generating research and consequently carries out implementation in isolation. This leads to duplication of research generation including in the implementation of different projects without any consultation. Lack of centralised platforms to access information compels information seekers to rely on personal contacts to retrieve information but such contacts are not realistic and effective in the long run. In order to address these issues and minimise the information gap, as a research and knowledge generating entity, CEPA developed an integrated system for information generation and dissemination to enable a broad provision of knowledge availability. The primary objective of designing the Portal (www.povertyportal.lk) was to generate and disseminate information in various formats and to expand and improve knowledge among information seekers. In practice, generation of research requires rigour and should be evidence-based and as a result, the Portal enables access to robust and reliable research and thereby, facilitates new knowledge generation.

Apart from showcasing resources available at the Resource Centre, CEPA aims to enrich the resource base on 'poverty and development' by acquiring resources from like-minded research organisations, development bodies and state institutions and disseminate through this centralised platform. In instances where there are similar Portals created by institutions, a link is provided from the Poverty Portal site to maximise the dissemination of resources. Thus, the ultimate goal of the Portal is to broaden the use of resources to diverse groups to generate knowledge, enhance data and resource availability and increase

outreach to partners and new users. By doing so, CEPA strives to influence policy and change through development that will impact positively on communities to help reduce poverty.

3. Objectives of the paper

The objective of this paper is to:

3.1 To showcase a free online resource base that includes information resources in varied

formats for anyone interested in learning poverty reduction and development in Sri Lanka.

3.2 To present Maps & Stats section. This is a unique feature where maps are generated by using data produced by the Divisional Secretariats in Sri Lanka.

3.3 Encourage the use of information highlighted in the Portal, especially the section on Maps and Stats as a way of influencing policy on poverty and development.

4. Literature Review

4.1 Traditional Libraries as opposed to Virtual Libraries

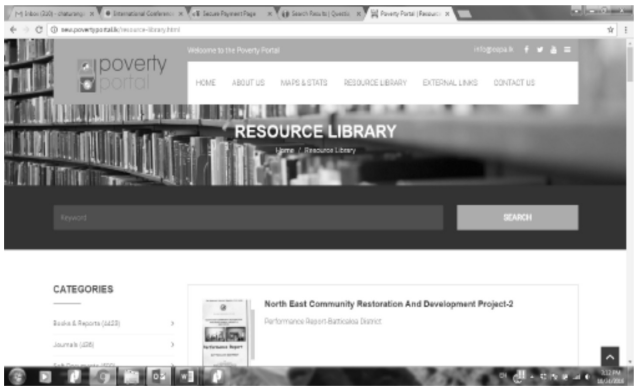
Libraries are growing digital hubs offering varied services to the scholarly community. With the proliferation of information on the internet, the role of the physical libraries has superseded giving more weight to digital content. However, functions of physical libraries cannot be completely erased or ignored as they play a lead role in carrying out technical functions such as cataloguing, allocating subject classifications and related processing functions. Babini (**2005**) states that traditional libraries have added value to resources by providing easy and swift location and accessibility by both librarians and users. In the present context, web-based library catalogues and the provision to access full-text resources and scholarly articles is a prerequisite which has resulted in greater accessibility and usage of library collections. Libraries that do not recognise the value virtual libraries provide, should make provision to such initiatives to harvest the best use of resources. Babini (**2005**) further states that different terminology is used in different regions to describe services provided by online platforms. The term 'digital library' is used in countries such as USA, Canada and Mexico whereas United Kingdom refers to web-based platforms as 'electronic libraries'. Virtual library' is the terminology used in countries like

Spain, Argentina and Brazil. With whatever term used, the primary function of the platform remains the same. Building library collections with economic restrictions is very challenging. In such instances, it is practical and cost effective to link with similar libraries to share and borrow resources. Portals, Open Access Catalgoues (OPACs) and Repositories therefore, play a prominent role in collating, synethsising and bringing libraries close to each another. Babini (**2005**) reiterates that 'working together with other virtual libraries provide additional collections and working together to communicate and share information' (**Babini, 2005**). In the present context, libraries become obsolete if librarians and web masters do not work together to contribute to a virtual platform to share metadata, e-resources to maximise resource generation and sharing.

4.2 Online Portals facilitate knowledge generation for scholarly communication

'Scholarly research' is the means of communicating new knowledge to the society by way of generating research. They are produced based on rigorous and evidence-based knowledge and therefore, are written and produced with high-quality standards. Scholarly research is important to today's world as they create new knowledge and help open avenues for debate, discourse, policy influencing and thereby, bring about change. Unfortunately, there are many challenges accessing them when they are restricted within commercial databases. In this digital era, these are produced in electronic formats made available in online portals, commercial databases and subject gateways. While it is important to maximise the availability and dissemination of these resources through web portals, it is equally important to determine that they carry the necessary quality markers. These web-based diverse platforms should facilitate sharing of research to a much wider audience. The production of scholarly research is

increasing at an alarming speed. According to a research carried out in the Sub-Saharan Africa on scholarly publishing, it is stated that between 1997-2007 periods, there has been a considerable increase in the journal research outputs within Sub-Saharan Africa region (**Ondari-Okemwa, 2007**). The author states that the highest record of scholarly output so far has been during the above mentioned period. This helps us to interpret that scholarly production has doubled in the 21st century with the advent of web-based options and accessible facilities. Talking of scientific publications, again in the African region, Schemm (**Schemm, 2013**) in her blog reiterates that there have been some positive signs in the African scholarly world with the increase of the scholarly production from about 12,500 to over 52,000 and this increase is evidently visible from the period of 1996 to 2012. Considering the example given, almost all countries produce research electronically, and therefore, should make efforts to make them available through online platforms, whether be Institutional Repositories, Portals or Subject Gateways to enable greater visibility and impact by accessing them.



5. Landscape of the Portal

The Portal is developed on a technical platform based on PHP with JQUERY, HTML, CSS- (technology use for web development) and the Database is hosted on MySQL.

5.1 Books and Reports

The Portal operates as a global resource base, both as an information portal and a subject gateway to encourage and facilitate the wide spread of evidence based scholarly research in the form of journals, publications, Maps and Stats. The 'Books and Reports' component is a growing resource base, which at present, consists of over 4500 books and reports from global, South Asia and Sri Lanka on poverty and development.

Figure: 1 – Image of the Books and Reports interface

Even though the information of most resources comprise of Meta data, it enables to understand the kinds of resources, the Portal holds.

Table 1: Holdings under Books and reports

Conflict Resolution	93
Development	453
Gender & Women	207
Macroeconomics	297
Migration	42
Monitoring & Evaluation	127
Poverty	326

Figure 2: Key subject areas under Books and Reports

This section is dominated by resources on poverty, development, gender, conflict, conflict mitigation and post-conflict development. While the Portal engages with a range of organisations to provide resources, simultaneously promotes the use of the Portal to students, researchers, practitioners, academics and civil society groups. As this is a growing knowledge

base, the Portal strives to obtain resources on poverty published by government, non-government organisations and universities in Sri Lanka and make them available through the portal. All these resources contain a comprehensive blurb for easy reference.

Journals

The Journal section consists of metadata information on various journals added to the collection. CEPA regularly contributes to the Lanka Monthly Digest (LMD) journal which is a locally based journal, covering various research areas. CEPA aims to influence a different audience of readership mainly comprising the business and corporate sector on the work carried out. Economic Review, another local journal, published by the Research Division of the People's Bank is a dynamic journal focused more towards researchers, development practitioners, policy makers and academics. This too is a powerful tool to share research findings to a wider readership.

Soft documents

Portal also operates as an open access knowledge repository to increase the availability and access to development literature and resources. Therefore, 'Soft Documents' section carries literature on social sciences, mainly focusing areas of poverty and development. These have been added to the collection by accessing various on-line and open access sources. At present, there are over 1000 literature available as full-text for free downloading. The purpose of collating and channeling them through the Portal is to support researchers and scholars access them for educational enrichment. It is also envisaged that the availability of such scholarly literature will encourage facilitating decision making practices and assist in formulating better policies on development.

Maps and Stats

Maps when analysed, synthesised and presented in a meaningful way, is one of the most powerful means of visualisation of census data. Likewise, Poverty Portal's most striking and significant feature is the 'Maps and Stats' section. The objective in creating this section is to demonstrate gaps in poverty by region in Sri Lanka.

The Department of Census and Statistics in Sri Lanka (http://www.statistics.gov.lk/) is the state body that generates and collates reliable and up-to-date statistical data at the national, provincial and District levels. However, they do not collate data at Divisional Secretariat and lower levels (Grama Niladari level). Portal's maps are generated by acquiring data and statistics from Divisional Secretariats and Grama Niladari levels across Sri Lanka as they are not reflected in the state facilitated data. The data is synthesised and visually presented by using GIS software. Based on data availability from Divisional Secretariats, maps are created focusing population, head count index, educational and employment statuses and other socio-economic aspects in Sri Lanka. This section enables information seekers to understand poverty gaps and disparities between national and regional levels in Sri Lanka. However, data at these two levels are equally important to a country's development which cannot be ignored as development means, inclusion of the entire society into the development process. These interactive resource formats enable stakeholders, including mid level and local government officers/decision makers to harvest maximum use of resources to facilitate discussions on the country's development processes. It is envisaged that the use of these resources would help to make unbiased and informed decision making initiatives and bring about a positive change in the society.

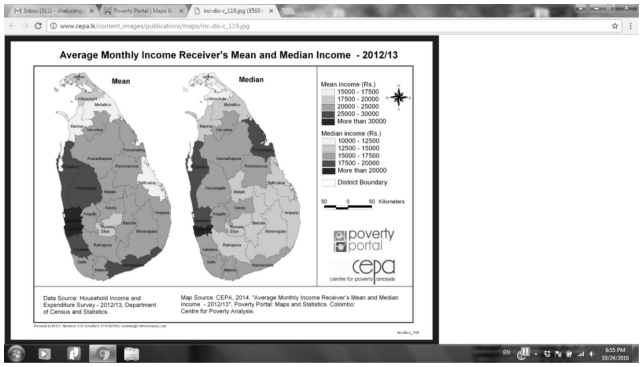


Figure 3: Image of the maps section

Figure 4: Free downloadable maps

Looking from a poverty perspective, there are many factors that contribute to poverty economically, socially and politically. Facing discrimination, lack of respect, inequality, lack of education and health facilities, identifying and placing communities under certain class structures are other dimensions that contribute to poverty.

'Perceptions of the Poor. Poverty Consultations in Four Districts of Sri Lanka'**(2001)** states that communities describe poverty as (a) Lack of access to infrastructure (b) Lack of income and employment opportunities (c) Lack of quality education and skills-training (d) Health issues and many other basic requirements. It is therefore very important that statistical data of these communities are obtained and influence state departments to target poverty alleviation programmes to make them less vulnerable to come out of poverty. With this vision, the Portal is expanding its initiatives to collect data and generate maps from all Divisional Secretariats in Sri Lanka. Thus, the Portal not only showcases the institute's knowledge base, but strives to collate the country's resource gaps and expose to decision making bodies to help make informed decisions towards country's development.

Useful Links

This section highlights useful web links that leads to valuable and resourceful databases, websites of local universities, government ministries, departments, civil society organisations, global subject gateways, OPACs and related resources.

6. Conclusion

CEPA's Poverty Portal is the online gateway to share information resources on poverty and development more widely in varied formats. It is also the platform to manage information more consistently. While the work is in progress, with further improvements, it is believed that the Portal will be a 'one-stop' for poverty information, primarily within Sri Lanka and thereafter, regionally and globally. The Portal enhances the resource base to attract divers audiences to access evidenced based information to assist in formulating strategies. In addition, it facilitates the access of information including data for research and academic purposes and be informed of new developments in the country.

Enabling maps and statistics on the Portal will encourage Divisional Secretariats and Grama Niladhari Divisions to produce high quality data as they know that these are visually presented on the Portal.

7. Recommendations

- Knowledge acquired through research, synthesis and through practice should be made available via online resource portals to reach a wider community.
- Access to Portals should enable the generation of scholarly research which should hold reliable and evidence-based information resources. Creation of new knowledge leads to innovation and discovery of another layer of newly generated knowledge.
- Collaborating with existing Portals widens sharing of high quality resources and enables the exchange of information between varied information seekers. Sharing information resources among similar Portals enables integration of knowledge across many disciplines leading to scholarship. Therefore, as information generators and disseminators, Libraries should invest time and effort to reap the best harvest through these platforms.
- The Maps and Statistics component enables to identify demographic, socio-economic statuses in Divisional and Grama Niladari levels in Sri Lanka and is a key feature to help generate policy decisions on poverty and development. It also helps to formulate and coordinate better planning, reduce duplication of research and implementation.

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APPLICATION AND USAGE OF MOBILE TECHNOLOGY IN LIBRARIES

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ABSTRACT :

Libraries are becoming modern in terms of adopting new technologies, policies and procedures. Mobile technology is one of them. Mobiles have occupied large part of human being for communication. Use of mobile phones can be fruitful in order to connect users of particular library. This paper tries to explain application and use of this technology in modern libraries. And how this technology can be effectively used. With help of mobile devices libraries can introduce new services and provide faster and better access to its collection.

Keywords: Mobile Technology, Libraries, Modern Libraries, Library services, e-learning, Wireless Technology, Mobile Devices, Mobile applications

Mobile Technology-Introduction:

Mobile technology is the technology used for cellular communication. Mobile technology refers to devices that are both transportable and offer instantaneous access to information. The technology includes, "iPods, MP3 player, Personal Digital Assistants, USB Drive, E-Book Reader, Smart Phone, Ultra-Mobile PC and Laptop / Tablet PC". Personal Digital Assistants (PDAs) and smartphones are mobile devices that are agents of real-time communication. The hallmarks of mobile technology are its portability, flexibility, simplicity of use and its unique ability for integration with other technology systems. Mobile devices are often referred to as ubiquitous and are utilized by people for many different activities.

Mobile technology instruments have become a significant force in learning and are transitioning to more affordable and compact devices with greater dependability and connectivity. In addition to its advantageous size and convenience, the technology permits multiple tasks such as note taking, telephone, email, music, video / audio recording, picture taking and GPS navigation. When compared with traditional computers, mobile technology demands less structure, which translates into easier implementation.

Definition-Mobile Application (Mobile App):

A mobile application, most commonly referred to as an app, is a type of application software designed to run on a mobile device, such as a smartphone or tablet computer. Mobile applications frequently serve to provide users with similar services to those accessed on PCs. Apps are generally small, individual software units with limited function. This use of software has been popularized by Apple Inc. and its App Store, which sells thousands of applications for the iPhone, iPad and iPod Touch.

A mobile application also may be known as an app, Web app, online app, iPhone app or smartphone app.

Mobile Technology and Library Services:

- **SMS alert:** SMS alerts can be sent to users regarding reserved books, overdue books, new arrivals, outstanding fines, reminder to return books, loan request, library notices and events etc.
- **Suggestion regarding books:** Users can send recommendations regarding purchase of new books to librarian.
- **Database or Library catalogue search:** With the facility of OPAC and WebOPAC users can have look at library collection.
- **Reference Service:** Users can ask any query to library staff through chatting or by sending SMS, immediate feedback can also be expected from user's side.

- **News and Events:** Library events, circulars, information regarding different competitions etc. can be notified to users through SMS.
- **Library Virtual Tour:** Library users, who don't have time or inclination to attend an on-site workshop, can get access to library tours on their mobile devices. Audio/ virtual library tours can be produced fairly quickly, inexpensively, and could reduce the amount of staff time spent helping new users to orient themselves in the library and explaining the facilities available. It can easily be provided both as downloads from the library website and on mobile devices.
- **QR codes on Mobiles:** QR code stands for 'quick response', and basically a two-dimensional bar codes that can contain any alphanumeric text and often used to store urls, text, etc., known as 'mobile tagging'. QR codes are used in commercial tracking, logistics, inventory control, and advertising.

  Libraries can use QR codes to label books, journals, audio/visual, and offprints, add QR codes in WebOPAC and other places. Users with phones that have a camera and free barcode decoder software can take a picture of the barcode, then the software decodes the picture, and translates the data into title, barcode, and location information that can be displayed on the phone. The QR code can be scanned, and saved for further use on mobile. QR codes not only link to websites, but also can be used to send prewritten SMS to phones, transfer phone numbers, and provide further text. They are designed to cope with a high-level of error, hence are suitable for outdoor use.
- **Mobile-based Library Lending service**: As in banking and financial sectors, libraries can formulate regulations for using mobiles for circulation of reading materials and maintenance of users account. The SirsiDynix Company has developed a handheld circulation tool called 'PocketCirc', which enables libraries to access the unicorn library management system on a PDA device. This wireless solution enables staff to assist patrons in the stacks, checkout materials while off site, such as at community or campus events, and update inventory items while walking around the library. Mobile phones make ILL/ document delivery services faster and cut-down the time to request/visit different libraries and complement the geographically remote users.
- **E-resources with Mobile Interfaces**: Some publishers are already delivering e-books (both text and audio) that are accessible via mobile phones. Using free Plucker e-book viewer, one can access about 20,000 free e-books from Project Gutenberg. Mobipocket of Amazon is one of the standard e-book reader applications and the website has over 40,000 titles (about 11,000 free). A large collection of audio books both free-and subscription based services are available for download and also transferable to mobile devices. LibroVox is a collection of free audio books from the public domain.
- **Formal Education, Distance Learning and E-learning:** Students are very versatile in using their mobile phones and various mobile applications. Academic libraries can harness the advantage to lead implementation of library services through mobile devices to support distance learning, formal education, and research activities.

Pre-requisites to application of mobile service:

- Mobile Websites
- Bulk SMS and MMS Software
- Secured Wi-Fi connection.
- Digitized Information base.
- Better connection to access library collection or any other information.
- Electronic Information Service Delivery.

Mobile Applications for Learning:

- **Dropbox:** Store, sync, and share files online and across computers. Access your Dropbox, download files for offline viewing, and sync photos and videos to your Dropbox from your mobile device. Dropbox works with iPhone, iPad, Android, and BlackBerry.
- **Evernote:** Create text, video, and audio memos. All content within Evernote is searchable, including text within snapshots. Notes can be synchronized to Mac, PC, and Web. Evernote works with iPhone, iPod touch, iPad, Android, BlackBerry, Palm, and

Windows Mobile.

- **History: Maps of the World:** This app by Seung-Bin Cho showcases high-resolution historical maps of the world from the 4th to the 20th centuries. Features include category/era views and keyword search. History: Maps of the World works with iPhone, iPod touch, and iPad.
- **iSSRN:** Created by the Social Science Research Network (SSRN), iSSRN provides access to more than 260,000 research papers in the social sciences and humanities from scholars worldwide. Articles can be e-mailed or viewed on the device. iSSRN works with iPhone and iPod touch.
- **Periodic Table Explorer:** By Paul Alan Freshney, this app contains in-depth information about all of the elements in the periodic table, including their compounds, physical properties, isotopes, spectra, and reactions. Also includes images of each element. Periodic Table Explorer works with iPhone, iPod touch, and iPad.
- **Planets:** This app by Q Continuum uses current location to display detailed view of the sky. Provides location of the sun, moon, and planets; star and constellation maps; and future and current moon phases. Viewing options such as the sky in 2D, 3D, and planet visibility are available. Planets works with iPhone, iPod touch, and iPad.
- **Shakespeare:** This application by Readdle offers the full-text of 40 Shakespeare plays, 6 poems, and 154 sonnets. Includes a searchable concordance. Shakespeare works with iPhone, iPod touch, and iPad.
- **Word Web Dictionary:** Extensive English dictionary and thesaurus that includes more than 285,000 words, phrases, and derived forms.

Mobile Websites:

- **Encyclopedia Britannica Mobile:** Offers a search box and a list of suggested searches. Results include full-text entries with enlargeable images.
- **MedlinePlus Mobile:** Produced by the U.S. National Library of Medicine, MedlinePlus Mobile provides information about specific diseases, conditions, and wellness issues. The site also contains prescription drug information, medical dictionary, and current health news.
- **World Cat Mobile:** Search the World Cat catalog for books, movies, music, games, and more. Results include items available at local libraries.

Mobile Apps for Reading:

- **Kindle:** The Kindle is by far the most globally popular e-reader and e-reading app on the market, and was created by Amazon. Due to its connections with Amazon it has a huge selection of books to choose from in a multitude of categories.
- **Nook:** Similar to the Kindle, the Nook is featured by Barnes and Noble, and has many new releases for sale as well as a small selection of free reading materials.
- **Kobo:** Kobo is an e-reader company that was established in Toronto, Canada, and is the second most used e-reader in the world after the Kindle. It's most commonly used in Canada, and hosts a large assortment of books.
- **Free Books:** The Free Books app provides 23,469 classic titles for your selection, and allows for highlighting, notes, dictionary support, and bookmarks, which make it an asset for any library.
- **iBooks:** iBooks is an iTunes app that includes access to the iBookstore for a wide variety of reading materials.
- **Good Reader:** The newest Good Reader application is called Good Reader 4 and it's more of an academic tool than some of the other e-reading apps on this list. It allows you to access scholarly articles and other documents and save them to your mobile device for later viewing.
- **Bookviser:** This application was specifically designed for Windows-based mobile devices and is used by over 700,000 Windows phone owners to browse and read their favorite books.
- **Audiobooks:** Not everybody can enjoy a book on the go, or has the time to sit and scan a page; luckily, the Audiobooks application offers free books that you can listen to for multitasking and hands free enjoyment

of books.

- **Readu:** This application reads EPUB and TXT files and allows you to download books from other places and sites, as well as translate text.
- **Freda+:** Freda+ is a customizable reading application that allows for changes in font and color, and accepts text formats like EPUB, HTML, TXT, and FB2.

Few Useful Apps for Librarians:

- **Box:** Box provides secure access to cloud storage and collaborating on a multitude of mobile devices.
- **Outliner:** This application assists with the organization and maintaining of the appropriate structure for projects and planning while at the library.
- **Pages:** Create documents for many purposes including library newsletters, documents for handouts and other pages that may need to be printed later with this mobile word processor.
- **LanSchool Teachers Assistant for iOS:** This is a free classroom organization and management software that allows librarians to block certain content and monitor patrons in a digital loan setting.
- **Docs Anywhere:** As the name suggests, this app allows librarians to take their Word and image documents anywhere. This is done through USB transfer and it works with Word, PowerPoint, Excel, PDF and other kinds of files.
- **Keynote:** For librarians who make group presentations for management purposes or during patron events. Keynote supplies animated charts and many other features.
- **eClicker Presenter:** Another presentation application, eClicker doesn't just provide standard presentation guides and tools, it also gives librarians the ability to send out questions to the audience with the click of a button.
- **Moodboard:** Moodboard is a way to put together all of the events and interests going on around the library into one neat display. Print your page and post it up in the library, or have it uploaded to the library website so that patrons can see what's new and interesting.
- **Offline Pages Pro:** Although most libraries have wi-fi, there isn't always access on the journey between home and work. Offline Pages Pro will give you the opportunity to take information and webpages with you to read or work on while you're not connected to the internet. It also includes PDF reader support.
- **Dictionary:** Reading is no fun if you don't know meaning of all the words that you are reading, which is why having a dictionary on the go is a great tool for a librarian. This app also works as a thesaurus and offers a word of the day for each day of the week to strengthen your vocabulary and keep things interesting.
- **Wikipanion:** Wikipedia may not always be 100% guaranteed correct information, but it's an excellent resource for librarians in a pinch who need to look up an answer to a question of a patron. It is one of the largest online information sources across the globe, so it has a little bit of everything, and Wikipanion was designed to easily access the information in Wikipedia.
- **Mango Mobile:** The Mango Mobile Library Edition helps with language learning and is free for both iPhone and Android users. With this app you can take cultural lessons and hear the proper pronunciation of words by native speakers. This is a wonderful way for librarians to enjoy books with other languages featured throughout them, and also to share those books with children in reading programs and other events held at the library.
- **TurboScan:** This application gives librarians an edge by allowing them to scan multiple documents using their mobile devices. This works well for receipts and business cards and also for other reading resources that you might like to store.
- **CamDictionary:** CamDictionary lets you translate text into different languages and also provides the correct pronunciation. This app is particularly neat because you don't need to type the word with text, but you simply point and click, and a photograph will be used to determine the meaning in other languages.

Benefits :

- **Easy to access information:** Any user seeking information on any topic can access with this technology as user need not have to come to the library personally.
- **Time Saving:** Since user can access information at any time he need not have to wait in a que to get his/ her book renewed or asking for required resources.
- **User Participation:** Libraries can enrich OPAC by allowing users to incorporate user created content like notes or images uploaded by users.
- **Unlimited access to Library resources:** All online resources accessible on their desktop also become accessible through mobiles.
- **Location:** Mobile communication enables libraries to offer location-based services/content through global positioning system (GPS) capabilities. Libraries can guide the users to the location of specific document or service through maps and navigational tools.
- **Personalized Service:** Personalized service helps users to interact with library staff to seek specific information or reference away from library.
- **Access to Print-disabled users:** Mobile communications help providing services orally to vision-disabled and physically handicapped users.

Drawbacks:

- Content Ownership and Licensing
- High Price
- Limited Computational Power
- Insufficient Contents
- Digital Rights Management
- Limited memory of mobile devices
- Expensive and resource intensive
- Increasing Staff reductions

Conclusion:

Adoption of mobile technology in libraries to provide better and effective service is must. With the use of technology users and library staff getting closer which in turn improves quality of library products and services. The impact of mobile technology implementation raised strong awareness amongst library staff for the need to acquire skills to realize the associated benefits.

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MARKETING OF LIBRARY AND INFORMATION SERVICES

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ABSTRACT :

This paper deals with the marketing concept of today's library and information centers covering various topics such as management of libraries and commitment to customer's satisfaction Marketing of library and information services are recent development in our country. The foundation for a great marketing plan of library and information services is to examine the library mission, values, and philosophy of service. Then analyze library capabilities and research customer needs to find out what works or what needs improvement. And then it is essential to use the analysis and research to establish goals, select strategies for promotion, develop the marketing plan of action, implement, and evaluate how well the libraries meet their goals. . It also defines the marketing and its current approach to library and information services l. It also describes customer/user's topic such as customer's Priorities, customer's Expectations, individuality responsiveness, relationships, quality of services, professional skills and competencies and value added services... In the modern age, the library and information services (LIS) are customer (user) oriented. It is the "science of strategy," and its main objective is to make client (user) satisfaction, so it is necessary that the librarians are welcome to act enthusiastically on marketing applications. Telecommunications, Information Technologies and Database Technologies have been acting as key elements in this process.

Keywords :4 P's, Networking Philosophy

Introduction :

The challenges to library services from changes in educational approaches, the impact of technology, new methods for information provision and declining budgets have meant that marketing is now so essential that it cannot be considered a separate function. Many libraries have come to appreciate the contribution and application that marketing concepts can make. Due to explosion of information at global level, the more information available in the market, therefore management of libraries is necessary to meet information needs of users. "The world in which libraries exist has changed dramatically. It moves faster, relies on technology and competes more intensely. Fearful that change may threaten our existence, we must look to marketing to help us manage better" The marketing of information services is a concept of comparative recent origin; it has now emerged as an important area for libraries and information centers. Marketing covers those parts of its outside world that use, buy, sell or influence the outputs, it is products and the benefits and services it offers .Marketing is a comprehensive term that describes all the processes and interactions that result in satisfaction for users. Three main factors, namely the information explosion, the technology revolution and escalating library costs are responsible for encouraging the library professional to develop a marketing approach. In libraries and information centers budget is not adequate, the marketing concept is equally necessary to become self-sustained. Marketing of Library and Information Services **(MLIS)** is the process of planning; pricing, promoting, and distributing library products to create "exchanges" that satisfy the library and the customer. MLIS is ongoing and dynamic due to the changes in the need patents of the customers and change in library service itself. The MLIS process determines the decisions and activities involved meeting the needs of customers.

Marketing? Meaning:

There is a new meaning of marketing in library and information sector. There is still considerable

misunderstanding in most of the library and information sector as to what constitutes effective marketing. To some, it is still primarily equated with selling and the pursuit of sales, rather than customer satisfaction. Many libraries are still reluctant to make the change necessary to focus on the marketplace, even when the need for more active marketing is generally agreed. As such, the developing marketing initiatives of libraries and understanding of the total marketing concept among library and information professionals need some basic marketing frameworks that they have taken so far.

Broadly, the concept of marketing is depicted as follows:

1. **Marketing as a set of techniques**: Generally, it is viewed as a set of techniques involving a number of processes. An organization that embraces the marketing concept tries to provide products and satisfy customer needs through a coordinated set of activities and that also allows the organization to achieve its goals. In such approach marketing, planning work together. The key activities of such concept are:
    - An assessment of which the customers are, the services they want and the benefits they are looking for.
    - Analysis of the libraries? Strength, weakness, opportunities and the services it provides.
    - Assessment of the strengths and weaknesses of competition.
    - Understanding what they real differences are between the library and the competition.
    - A practical action plan which draws on this understanding of the market place and sets out measurable actions to achieve the current objective.
2. **Marketing as a philosophy**: It was less than three decades ago that marketing came into the field of library and information services as thinking and orienting library and information services business/ library and information services in marketing term. Integration of marketing into library philosophy is helpful in reinforcing and reiterating the basic values of the profession in a changing environment. In one sense, it implies commitment to shared professional beliefs. The most widely agreed beliefs are about library services? *To provide the right information to the right user at the right time*? This involves reducing barriers to access and use information and empowering users in making use of their own, particularly with the use of modern technologies. Marketing help us the following aims of the library and information services:
    - A focus on the users own purpose and on helping the individual user to articulate these at every level.
    - A focus on the users, giving them an environment in which they can sit, study, work and on giving them an experience of good service.
    - A belief that every individual user has different needs, requirements and expectations when s/ he visits/approaches the library.
    - A commitment to helping the user in acquiring skills in obtaining the information from various sources and means.

Marketing should first of all, be an attitude of mind. This is the foundation of successful marketing

3. **Marketing as an Approach**: There are exploited symbolic dimensions to human and physical resources while serving the user. In this approach everything, human skills, service attitude and information resources are put more closely to serve the customers. Information needs. According to Ranganathan, *service trinity* has great relevance with such approach in the case of libraries. Ranganathan considers
    1. Users (customers)
    2. The staff (service providers)
    3. The information resources and system (different type of material, systems, procedures, etc.) have greater relationship with each other in library and information services.
4. **Customer-Driven Marketing**: Philosophically, users are the central entity in every type of libraries. Customers are the main part of the service sector.

We need to incorporate elements of client or customer-centeredness in our approaches to serve users. Users also expect recognition, attention, and appreciation for their individual needs and desire for self-expression. Services organization should concentrate more in developing customer orientation in every operation of the organization. Their focus is on distinctive competencies: value, delivery, customer defined quality, relationship management and a customer focused organizational culture.

Defination of Marketing :

Libraries are experiencing a period of radical changes in all their activities particularly while providing services to their users because of rapid advancement in on-line technology sector. To survive in the market just as a businessman library and information professionals must perform productive role to cope with increasing competition.

Kotler (1994) - Marketing is the analysis, planning, implementation and control of carefully formulated programs designed to bring about voluntary exchanges of values with target markets for the purpose of achieving organizational objectives. It relies heavily on designing the organization's offering in terms of the target market's needs and desires and as using effective pricing, communication, and distribution to inform, motivate and serve the markets.

Is Information Marketing Different ?

The MLIS-based products and services refer to sources of information and knowledge contents that are available in electronic forms such as books, CDs, videos, journals, journal articles, data bases, films, audio digital products, online publishing, public domain and commercial online databases available through Internet and other propriety databases available through various private network providers. A number of libraries have subscribed to Information sources in CD-ROM. The different types of library Services are public libraries, academic libraries, workplace information centre, advisory services, business consultancy services, and subject gateways, organizational web sites.

NEED FOR MLIS

- Customers' requirements
- Scarcity of resources
- Maintaining relevance
- Visibility
- Valuable community resource
- Rising expectations
- Survival
- Beneficial to library image

Marketing Mix in MLIS :

MLIS requires a critical analysis of the marketing mix (the 7 Ps of Marketing mix - product, place, price, promotion, Participants, Physical Evidence and Process) to identify the nature, features, benefits, and value of the products to the customer. These concepts are utilized in the for-profit sector, but a good library-marketing plan will also profit by examining products offered and assessing the value of the products to the users. Market research helps to determine what library users are looking for in the way of product features such as variety, quality, and design, and what benefits such as good performance, quality, reliability and durability users demand in services, systems, programs, and resources.

7Ps of Marketing Strategies of libraries:

We applied the *7Ps* (Koontz and Rockwood's *4Ps* plus Rafiq and Ahmed's *3Ps*) of marketing mix which is defined. Koontz and Rockwood (2001) suggested that marketing strategy is a comprehensive, integrated and coordinated plan that combines four marketing elements, commonly called the '*4Ps*' they are: Product, Price, Place, and Promotion and *3Ps* of

The marketing mixes are: Participants, Physical evidence, and Process.

Difficulties to Marketing Library and Information Services:

Most librarians do not market their libraries, do not know how to market, or do not know how to do it well.

1. **Old Models** - Many librarians work on the old model of existence by mandate.
    1. Students should use library databases to locate quality information for their papers.
    2. Faculty should send their students to librarians

for assistance.

3. Children should be brought to the library to learn about books.

4. Middle managers should tap into the corporate library for information

2. **Humility** - Too often librarians wait for others to notice that they are doing a good job. Librarians may be reluctant to capitalize on their strengths and knowledge, while the general public often does not see the value that information professionals could bring to sophisticated information challenges.

3. **Myth** - There is a belief that libraries do not need to be promoted in any special way because their importance to society should be apparent to all.

4. **Old Expectations** - Librarians and libraries are limited by their traditional image; that libraries offer books for lending and provide programming for children, but do not contribute to more sophisticated information needs.

5. **Lack of Training and Education** - Often librarians do not promote library services well due to lack of training and knowledge of marketing tools and techniques. Although marketing is more widely discussed and accepted professionally than in the past, this acceptance hasn't necessarily resulted in more marketing classes in library schools' curricula. Despite the growing literature on library marketing, there remains a lack of familiarity with the total marketing concept among librarians.

6. **Confusion** - There is confusion about what the term marketing means. Much of this has to do with the interchangeability of terms such as 'promotion', 'public relations', 'publicity', and 'marketing'. There is also confusion about marketing libraries; the perception is that marketing is a business tool and not applicable to library settings.

7. **Fear** - Librarians are often reluctant to borrow from the private sector. They have a fear of commercial publicity and see marketing as manipulative, a waste of time and resources, and unprofessional.

8. **Passive vs. Active Stance** - Rather than selling the library on its value and letting people know what the Library and Information Center offers, librarians often wait for customers to come to them. Rather than pushing out responses to anticipated information needs to customers, librarians wait for customers to stop by the facility or stumble across the library web site.

9. **Complex and Complicated Task** - Marketing is a complicated problem for libraries because of their wide range of products and services from books to Internet access, and an extremely diverse audience that ranges from children to seniors, public officials to business people, and students to faculty, etc.

10. **Money and Attitude** - Lack of funds is often used as a reason or excuse not to market. However, marketing library services is not simply a matter of spending dollars on promotion and advertising. Marketing is also a matter of improving the customer's experience of library services. The attitude of the library director and the staff as they interact with customers is what shapes customers' experiences and 'markets' the library to those customers.

Conclusion:

Marketing in libraries has gone beyond special days and book displays. The value of marketing library's products and services has been recognized and now we as library staff need to develop and formalize our marketing strategies. We need to give the marketing function a priority within our other library duties. Sell the idea to your manager and other staff by aligning your strategies to your organization's strategic function and business plan. Putting it all down on paper gives your marketing ideas credibility and helps keep them focused. Thinking in terms of the wishes of customers and translating customer wishes into library policy also presupposes appropriate staff management. For only staffs who are motivated are ready and able to take an interest in customers and their concerns, and to achieve high quality in their work

We must seriously reflect on the implications, relations and conflicts raised by the information-oriented processes in libraries. In the case of libraries, technologies have made their activities easier and they have changed them. The work done by the information services is an enterprise that requires commitment and a good disposition to devote time,

consideration, and love to all these activities and to become part of the change, delivering and communicating this attitude, converting ordinary things into extraordinary achievements.

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INTERNET AS AN INFORMATION SOURCE

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ABSTRACT :

Present paper deals with how Internet play a vital role as an information source in today's life for all of us. It also discusses the use of internet in library services and impact of internet in library. Internet services changes the nature of library services and Internet infrastructure required for the library is discussed in detail. It also includes role of internet, methods and most preferred search engine, method used for e-journals, format used of e-resources, search term used for full text journals, storage media used for the e-resources and satisfaction level of students regarding internet.

KEYWORDS: ICT, E-Resources, E-Journals, Libraries

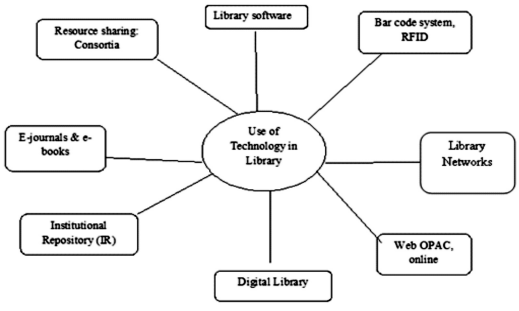
Introduction :

In recent years, a slew of wireless protocols have been developed to help bridge the gap between the information available on the internet and portable devices ranging from laptops to cell phones. We just mention a few of the most important ones here with the proviso that the wireless sector is a great deal of flux. IEEE (and its eventual successor, the quicker), also known as "WI-FI" (short for Wireless Fidelity), is a standard that defines how information is passed between a wireless access point and a wireless client (such as a laptop with a wireless card) or between two wireless clients. Bluetooth is another, albeit slower but more energy efficient. For communications with cell phones, several broad classes of technology have been developed starting with so-called 2G (Second Generation) digital PCS (personal communications service),which is used for voice but enables limited data exchange. After 2G, a transitional technology known as 2.5G was developed. This is an extension of 2G that allows for packet-switched data services.

Late in 2001, 3G (Third Generation) technology was introduced and is meant for higher bandwidth on data transfer to and from cellular phones and other mobile clients. The bandwidth is much lower than Wi-Fi, but the advantage is that the power requirements are also much lower and thus more suited to personal mobile devices. To gain access specifically to internet content, these 3G compatible devices utilize such protocols as wireless access protocol (WAP), which is an open protocol designed to request, revive, and transform internet content. Proprietary services such as NTT DoCoMo's I-Mode can also take advantage of 3G.

Although, the Internet was originally meant for communicating research information, it is being used mainly for commercial purpose.

Figure 1. Application of Technology for accessing the Information Resources in Libraries



Network is a form of arrangement that links a group of computers and individuals or organizations who have agreed to work together or share resources. In an information network more than two participants are engaged on common patterns of information exchange. A network enables each user to access vast amounts of data that is located on other computers in the network.

Computer networks are available in variety of formats but two varieties-Local Area Network (LAN) and Wide Area Network (WAN) are very prominent. A Local Area Network (LAN) usually occurs with multiple computers that are within close proximity of each other. A LAN uses cables same as telephone or television to connect is users. A Wide Area Network (WAN) uses data sent over telephone lines, as opposed to cables, to connect to its members. In the process of network, the information is transmitted through a process called packet switching. Now you could move a file from computer "A" to computer "B" by stringing a permanent telephone line between the two.

Internet Tools to Acess the Internet :

Internet Connectivity: A string of words separated by colon, slashes and dots is used to denote an Internet address like: http://cazri.raj.nic.in. The Videsh Sanchar Nigam Limited (VSNL) and NIC are two Internet Service Providers (ISPs) in India. Internet connectivity may require the following:

Telephone Connection: It should have telephone or leased line connection of Very Small Aperture Terminals (VSATs).

Desktop Computer: Since Internet offers text, pictures, audio and video a good colour monitor and audio would be useful. A good configuration will be - Pentium machine with MB memory and Hard Disk capacity with a high resolution colour monitor and sound card are needed.

Modem: If the connectivity is through telephone or leased line, a modem is required. The right choice of the modem speed depends on support of the telephone systems and ISP. Normally a modem of 1960 or 14400 speed is recommended.

Software: A browser **s**oftware package will make an Internet connection possible. Among these software's Netscape, Navigator, Internet Explorer and Lynex are most popular one.

Telent: It is a utility which allows to log on to another system and use various available on the host. One can Telent into huge databases to do research or even telent into libraries around the world to check if they have a certain book that one is looking for. It is an internet application tool to remote login within the internet. Telentruns over Transmission Control Protocols/Internet Protocol (TCP/IP) and assumes that the TCP/IP protocols are taking care of the network level activities which may include the ensuring packets to get routed between one computer and remote target.

Telent is a "client – server" and in order to remote login into another system telent facility must be available on users own system and on the system at other end. Communication through telent is its most popular usage. In this system accounts are created with a login name, usually a generic or such as anonymous or guest or the name of service.

This access / facility is often referred to as ANONYMOUS telent. Some of these systems may not require PASSWORD. The most common use for telent is to access internet services and resources, which are otherwise not available on one's own site such as 'Relay Chat', 'Internet Navigator' and Information Finding Tools'.

Internet Account: The next step is to approach the nearest ISP for an account which facilitates connection to the internet. As long as ISP is local, the telephone call is also local. The cost of using the Internet would then be the cost of ISP account and the telephone charge. Other than VSNL and NIC some private companies are in the process to come up in near future. VSNL offers two types of access one is shell account that allows the user to connect one's own computer to VSNL computer like a terminal and get information as text. Though cheaper, this is not recommended as it removes the essence of the Internet. The other is the TCP/IP account that allows full services with all sorts of graphs, audio and video.

USENET: Usenet is kind of free flowing tide of discussion which circulates round the world's Information System. While mail allows you to send a message on an electronic bulletin board for anyone to see. Usenet is an international meeting place, where people gather to meet their friends, discuss the day's event, keep up with computer trends or talk about whatever is in their mind.

The basic building block of UseNet is newsgroup' which is a collection of messages. On the other networks, these are

called conferences, forums, bulletin boards or special internet groups. There are now more than 5000 of these newsgroups, in several different languages covering everything from arts to zoology, from India to South Africa.

WAIS: WAIS stands for Wide Area Information Server and describes as a means of searching the Internet resources for information using your own key words. The Interface is similar to gopher, being a numbered menu, selecting particular achieves or information repositories to search from menu, and entering your search term or terms. WAIS, by nature, is simple in use. WAIS search can be made through e-mail.

Application of Internet in the Libraries

Library Management:

Libraries can make use of Internet for carrying out management functions and administrative work effectively. Finding out bibliographic detail of books and other reading resources can be done through various databases available on the Internet – Library of Congress, OCLC. Ordering of books and periodicals and other reading resources, processing of order, payment processing etc. can be done by the electronic way. Book selection can be done through bibliographic databases available on the Internet. Amazon.com is one of the biggest online book seller on the net. It provides access to the content pages of the publications.

E-mail Application in Libraries:

E-mail is used for different purpose in Libraries and Information center. It can be used to communicate with other librarians in the world. Librarians may post difficult reference questions, suggest resources, debate policy etc.

E-mail is a good tool for answering reference questions from the patrons or users of the library. There is no time constrain in providing and answering reference queries. It is available for twenty four hours.

Collection Development:

The Internet is very much useful in collection development of the library. It has brought new dimensions in the production of reading resources. The resources available in electronic form are also cost-effective.

Various bibliographic databases and full-text databases are available on the Internet. Bibliographic databases can be used as book selection tools, e.g. Amazon.com.

There are also full-text databases of all sorts of reading resources which are comparatively cheaper than actual hardcopy of the same document. There are also some reading resources on free basis. You have to pay for them if you access the website of concern publishers instead of going to the websites of distributors, who charge for the same document. So, the Internet can enhance the collection of the libraries and can provide exhaustive information to the users in the form of e-books, e-journals etc.

Delivery of Documents and Information Units:

Documents and Information delivery can be made easily and effectively by FTP protocol. At the same time, information available on other computers can be downloaded on our computers as and when necessary. Effective and efficient reference and information services can be provided.

Current Awareness and SDI services can be enhanced:

Internet websites contain some old or archival information. It also contains latest information in all disciplines which is valuable form research point of view. New research results or articles are published on the net and then in hard copy format. They are called as prepublications on the Internet. So, it can be a good source to provide Current Awareness Service and SDI service.

Good Reference Sources to provide Reference Services:

Good reference sources of all types are available on the Internet – Dictionaries, Directories, Gazetteers, Encyclopedia, Bibliographic Databases, and Handbooks etc. So, efficient and effective, exhaustive reference service can be provided. Bulletin Board Service also helps in updating information.

Library website can be designed or developed to promote information Products and services:

The library website can be developed to promote library's information products and services for marketing purpose. It can be an additional financial resource for the Library. For example, OCLC is trading its centralized catalogue cards on payment basis.LEXIS, NEXIS databases, DIALOG etc.

WWW and Libraries:

It provides various links across the net. The web has become

internet user's navigational tool. It uses Hypertext to link all online knowledge together.

Information Organization:

Information is organized in the libraries with the help of cataloguing and classification system. But the question is how to render headings for various documents. There may be difference among cataloguers in interpreting rules given in the catalogue code and preferring the number for a document with the help of classification scheme.

But online catalogue on the Internet such as OCLC, LC, RLIN and many more provide complete bibliographic details in structured format. For example Library of Congress has brought out a CD which contains bibliographic details of documents and DDC number which is available on the Internet also. So, Librarians get readymade bibliographic or catalogue entry and class numbers. It will provide catalogue entry and class numbers within a minute. So, it is time-saving and cost-effective tool in knowledge organization.

Multimedia Information can be disseminated and developed from server to client and client to server:

A song, graphics, illustration, pictures, films, photographs etc. can be received and delivered through the Internet.

Referral Service:

With the help of various databases and metadata referral service can be provided to Users. Metadata and Referral Databases play an important role in providing referral service because it indicates the location of information.

Access to Electronic Libraries:

In addition to all functions mentioned above, the Internet provides access to various electronic or digital libraries spread all over the world. It can also be used as developing new libraries to provide information packages to users. It would be used as a source of information trade. Librarians can also learn new skills to develop website, web-page designing, database accessing, and information searching and preparing new service packages.

- A comprehensive collection is possible
- Avoid duplication of core collection specially for core journals
- Scope of electronic archives
- Easy access to resource sharing on Internet by developing common resource databases
- Effective document delivery systems
- Better scope for developing a union catalogue
- Time saving
- Reduce cost of information
- Improved resource sharing
- More professional services to Users
- Help to develop a competitive professionalism among LIS professionals

Conclusion:

The study has revealed very important and interesting facts, which will play a vital role in guiding upcoming Management Libraries and the existing one. From the foregoing pages, it is obvious that all subjects discipline, within and across nation, internet research has developed a substantial body of theoretical, practical knowledge and a set of techniques suitable to conduct such researches.

One can also purchase various items by going through various websites and choosing among a variety of options. One can get information on any particular thing around the world using internet facility.

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TECH TRENDS FOR MODERN LIBRARIES

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ABSTRACT :

This paper focuses in recent developments and digitalization of Library and Information Science and highlights various approaches and techniques applied by users and providers. Here we highlight advancement in hardware and software for digitization of information that have made libraries far more convenient and accessible. The rapid success of these technologies led to development of many types of electronic resources. Electronic Resources like databases, e-journals, e-books, project reports, reading lists, lecture materials, reading materials, Web pages, etc., are available in digital form. They are processed and managed by the libraries and information centers for providing various types of services to the users. In addition to these, different types of libraries are using many other resources to fulfill the requirements of the users. Rapid growths in the number of electronic resources and complexity of managing e-collections have posed new challenges for library professionals. Electronic Resources Management Systems are introduced in libraries both for managing e-collections throughout their life cycle and also for aiding collection-development decision making. The integration of such systems in the existing library environments is helpful to information professionals.

The paper addresses significant issues related to Library and Information Science, its various implications and problems, contributing towards addition of new concepts, trends and knowledge to Science.

Keywords: E - Resource Management, Usage analysis, virtual e-resources, Digital libraries, Learner experience, Learning environment, Learning resources

Introduction :

Someone once said that "Every age thinks it's the modern age, but this one really is" and he was spot on because innovation moves so quickly that it seems our world is blurring. All these technology advancements can make it difficult to select the most beneficial one[s] for your library to focus on, if any.

Libraries consists of a large collections of books and other materials, primarily funded and maintained by institutions. Collections are often used by people who choose not to, or can not afford to, purchase books for themselves. But that perception is now changing. It is defined as a collection of sources of information and similar resources, made accessible to a defined community for reference or borrowing. It provides physical or digital access to material, and may be a physical building or room, or a virtual space, or both. The first libraries consisted of archives of the earliest form of writing—the clay tablets in cuneiform script discovered in Sumer, some dating back to 2600 BC. In the 21st century there has been increasing use of the Internet to gather and retrieve data. The shift to digital libraries has greatly impacted the way people use physical libraries. Times have changed beyond recognition for libraries now. Libraries are now always on the lookout for new emerging technologies to see how they can be utilized in improving library instruction and the learning experience.

Harnessing information and communications technology in library education goes a long way to enhance the quality of products. The practice of librarianship is changing world over and these changes include Information handling, Greater support for research, New skills which New outlook, structure, skills and attitudes, which some library staff cannot easily adapt to, Removal of the line between the library and the teaching and learning and research functions, Integration of technology into every aspect of library functions, Networking: Institutions having greater access to networked resources such as e-journals and databases and Information literacy is now an indispensable aspect of course programs in many institutions (Hawkins 1998).

Evolving Communication Systems

Communication systems have been rapidly evolving. The trend line beginning with the 1844 invention of the telegraph and the accelerating pace of change include invention of Telephone in 19876, Radio in 1896, Television in 1939, Emails in 1965, world wide web in 1989, web browser in 1992, Google in 1996, Cloud computing in 2009 and IoT in 2015.

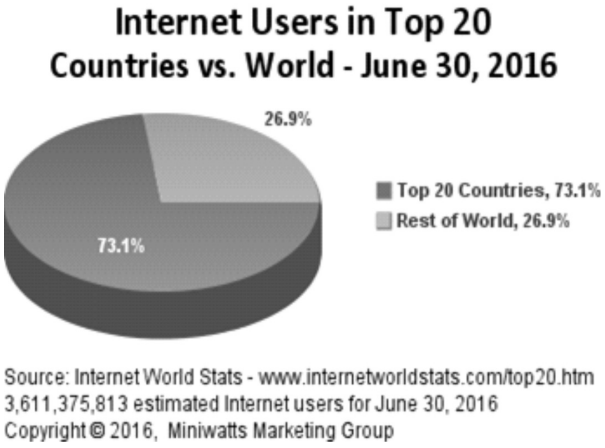
Though there are many more points that can be added to this trend line, but one can visualize the direction we are headed. Three is just one obvious question to consider: What is the ultimate form of communication, and when we will get there?

Google was launched in the year 1996 and has been a great competitor for libraries. Most people feel that the existing search technology is fairly simple. The next generation search technology is likely to include the ability to search for such attributes as taste, smell, texture, reflectivity, opacity, mass, density, tone, speed, and volume.

Internet as a disrupter

Libraries everywhere are under threat. Most librarians believe that a decrease in the usage of libraries stems from the observation of the research habits of students enrolled in colleges and universities. There believe that students have become more used to retrieving information from the Internet than a traditional library. As each generation becomes more in tune with the Internet, their desire to retrieve information as quickly and easily as possible has increased. Finding information by simply searching the Internet could be much easier and faster than reading an entire book. In a survey conducted by NetLibrary, 93% of undergraduate students claimed that finding information online makes more sense to them than going to the library. Also, 75% of students surveyed claimed that they did not have enough time to go to the library and that they liked the convenience of the Internet.

Many research findings affirm that universal access to the Internet has brought about enormous benefits and improvements to the educational system because of the Internet's unparalleled ability to spread knowledge and disseminate information. A look at the following table confirm the increased uses of interne in India and many other countries of the world. People who in the past visited libraries to find specific pieces of information are now able to find that information online.The vast majority of people with specific information no longer visit libraries. However, others who read for pleasure as example, still regularly patronize their local library.. India has an internet user base of about 354 million as of June 2015.



Despite being third largest user base in world, the penetration of e-commerce is low compared to markets like the United States, United Kingdom or France but is growing much faster, adding around 6 million new entrants every month. The industry consensus is that growth is at an inflection point

Tech in Modern Libraries

Libraries have become technology leaders by integrating cutting-edge tools to enhance users' experience. It's not enough to redesign the library website. Best practices mean developing user personas and following usability strategies to produce user-informed designs. New digital collections are stored in the cloud and mobile applications are developed around them. Libraries are claiming their venues on location-based mobile social networks, developing bleeding-edge augmented reality applications, and participating in semantic web efforts.

Forward-thinking librarians are actively experimenting with and incorporating these new technologies into their digital strategies. Libraries are now hubs of technology with over 85 percent offering wireless internet services, and many offering state-of-the-art computers for use. New (even book-free) libraries are popping up around the country, employing technology in ways most never envisioned.

The digital age has produced challenges for both libraries

TOP 20 COUNTRIES WITH HIGHEST NUMBER OF INTERNET USERS: JUNE 30, 2016

Rank	Country	Population, 2016 Est.	Internet Users 30-Jun-16	Internet Penetration	Growth (*) 2000 - 2016	Facebook 30-Jun-16
1	China	1,378,561,591	721,434,547	52.30%	3106.40%	1,800,000
2	India	1,266,883,598	462,124,989	36.50%	9142.50%	157,000,000
3	USA	323,995,528	286,942,362	88.60%	200.90%	201,000,000
4	Brazil	206,050,242	139,111,185	67.50%	2682.20%	111,000,000
5	Japan	126,464,583	115,111,595	91.00%	144.50%	26,000,000
6	Russia	146,358,055	103,147,691	70.50%	3227.30%	12,000,000
7	Nigeria	186,879,760	97,210,000	52.00%	48505.00%	16,000,000
8	Indonesia	258,316,051	88,000,000	34.10%	4300.00%	88,000,000
9	Germany	80,722,792	71,727,551	88.90%	198.90%	31,000,000
10	Mexico	123,166,749	69,000,000	56.00%	2443.90%	69,000,000
11	UK	64,430,428	60,273,385	93.50%	291.40%	39,000,000
12	France	66,836,154	55,860,330	83.60%	557.20%	33,000,000
13	Philippines	102,624,209	54,000,000	52.60%	2600.00%	54,000,000
14	B'desh	162,855,651	53,941,000	33.10%	53841.00%	21,000,000
15	Vietnam	95,261,021	49,063,762	51.50%	24431.90%	40,000,000
16	Iran	82,801,633	47,800,000	57.70%	19020.00%	n/a
17	Turkey	80,274,604	46,196,720	57.50%	2209.80%	46,000,000
18	S Korea	49,180,776	45,314,248	92.10%	138.00%	17,000,000
19	Thailand	68,200,824	41,000,000	60.10%	1682.60%	41,000,000
20	Egypt	90,067,793	33,300,000	37.00%	7300.00%	32,000,000
TOP 20 Countries		**4,959,932,042**	**2,640,559,365**	**53.20%**	**926.70%**	**1,035,800,000**

and librarians; the sheer volume of information available in e-books, databases, archives and other digital materials has spurred innovation in the organization, management and distribution of library resources. For some time, some believed that just as bookstores and libraries were becoming irrelevant, that librarians would too. However, this could not be further from the truth. Search engines do provide a plethora of information, quickly and easily, but there is no guarantee of the quality of the information.

A library card today gives more than just access to books and periodicals at the local library; it gives access to the world from home or while on the road. It also gives access to the true visionaries of information organization and dissemination — librarians, who are more valuable than ever before. While many of the duties and responsibilities of librarians have changed over the years, it is still true that they hold the keys to the best and most relevant information available on the planet.

Libraries today house more than books, and librarians are more than good stewards of materials. Both have morphed

and evolved to meet the changing needs of their patrons, by embracing technological advancements. Libraries are still a place filled with information, imagination, and community and librarians are an essential part of the system because of their knowledge, skill and passion. Are libraries and librarians a thing of the past? Absolutely not! Libraries have always been, and will continue to be harbingers for freedom, communication, creativity and advancement, and librarians will continue to bring the information to life for many children, teens and adults alike.

In the suburb of St. Paul, USA, a new library branch has no librarians, no card catalog and no comfortable chairs in which to curl up and read. Instead, the Library Express is a stack of metal lockers outside city hall. When patrons want a book or DVD, they order it online and pick it up from a digitally locked, glove-compartment- sized cubby a few days later. It's a library as conceived by the Amazon.com generation.

Some of the remarkable advancements in libraries world over are as under:

- **Integrated Library System** (**ILS**), also known as a **library management system** (**LMS**), is an enterprise resource planning system for a library, used to track items owned, orders made, bills paid, and patrons who have borrowed. An ILS usually comprises a relational database, software to interact with that database, and two graphical user interfaces (one for patrons, one for staff). Most ILSes separate software functions into discrete programs called modules, each of them integrated with a unified interface. Examples of modules include the following acquisitions (ordering, receiving, and invoicing materials), cataloguing (classifying and indexing materials), circulation (lending materials to patrons and receiving them back), serials (tracking magazine and newspaper holdings), the OPAC (public interface for users), Client-server, P2P and Internet.
- **Storage:** Digital storage in libraries include PCs, disks, CDs / DVDs, Pen drives, Portable HDs, Blu Ray Disk & Cloud.
- **Identification:** Include Barcode, Tattle-tape, RFID, Biometric and the information are getting captured through Key boards, Scanner, Digital Cameras, Mobiles etc.
- **Information retrieval:** Information retrieval (IR) is the activity of obtaining information resources relevant to an information need from a collection of information resources. Searches can be based on metadata or on full-text (or other content-based) indexing. Automated information retrieval systems are used to reduce what has been called "information overload". Many universities and public libraries use IR systems to provide access to books, journals and other documents. Web search engines are the most visible IR applications. Simple OPAC to searches like a package tour of articles, books, videos, teachers lectures, diagrams, Seamless integration of various sources, Remote login / VPN are used for this purpose. User in such a architecture need not worry where the information is located. And everything can be served wireless or through Mobile as Location and distances don't matter for access.
- **Library Automation packages:** Introduction of computers in libraries has immensely enhanced the effectiveness of library services including efficient organization and retrieval of information activities. Since the application of information technology in libraries, one of the greatest challenges before the library managers is the selection of a good library automation software package which can cater to the needs of a particular library. In India, library automation process started in the last decade of the previous century. Many Indian as well as foreign software companies had entered into the market. Some of them include names like Libsys, Liberty, VTLS and Open Sources like KOHA, New Genlib, Evergreen, etc.
- **Databases:** Most library system vendors are moving to cloud based library services platforms although their routes to that end may differ. Other databases include books, articles, reports, aggregators, publishers, IRs.

Technologies that will enable the development of Collaboration, Next Generation Architecture and Real World Web are highlighted as being particularly significant. Collaboration include Peer to Peer (P2P), Desktop Search,

Podcasting, Really Simple Syndication (RSS), Corporate Blogging, Wikis etc.

Emerging Trends for user environment include Instant messaging, SMS, MMS, Blogs, Social networking sites, Twitter and all of this on the MOBILE and a very different communication environment forcing us to rethink our communication strategies

Lib 2.0: Library 2.0 is a loosely defined model for a modernized form of library service that reflects a transition within the library world in the way that services are delivered to users. The focus is on user-centered change and participation in the creation of content and community. The concept of Library 2.0 borrows from that of Business 2.0 and Web 2.0 and follows some of the same underlying philosophies. This includes online services like the use of OPAC systems and an increased flow of information from the user back to the library.

With Library 2.0, library services are constantly updated and re-evaluated to best serve library users. Library 2.0 also attempts to harness the library user in the design and implementation of library services by encouraging feedback and participation. Proponents of this concept, sometimes referred to as Radical Trust expect that the Library 2.0 model for service will ultimately replace traditional, one-directional service offerings that have characterized libraries for centuries.

Library 2.0 will be a meeting place, online or in the physical world, where user's needs will be fulfilled through entertainment, information and the ability to create (their) own stuff to contribute to the ocean of content out there.

MOOCs … A challenge for libraries

MOOCs, or Massive Open Online Courses, have become all the rage these days. With numerous institutions such as Harvard, Sloan, Kellog, Waarton etc. joining forces with Coursera, edX, FutureLearn, and other providers, the number of students taking at least one course online has reached an all-time high of 32 percent.

Libraries have already started getting involved with MOOCs by serving in a remote environment. There are many reasons why librarians need to fully understand MOOCs. They are as under:

- Academic libraries are committed to serving students enrolled in distance education courses and MOOCs are raising questions around how services and collections could be provided to students in this transformational medium – as well as how to use MOOCs to assess online services.
- MOOCs pose important intellectual property issues for higher education.
- MOOCs may serve as a disruptive innovation - leading to questions about their impact not only on teaching, but also on research.
- As we come to fully understand MOOCs – including where they intersect with, or are contrary to, established library values – they pose important questions about the role libraries can and should play in the area of Open Education: particularly as it refers to their role as facilitators of their effectiveness and sustainability.

  However, no one is sure about the impact that MOOCs will have on higher education and we will not know for some time to come. Issues around effectiveness and usefulness will determine whether funding continues to flow to them. What is not uncertain is the emergence of Open Education - and the need for libraries to address how they fit into this world based upon their support for openness, access to quality information for all, lifelong learning and support for teaching and learning.

Recent tech advancements

Research firm Gartner believes that three top technologies will affect modern libraries in next five years. They are Cloud computing, Internet of Things (IoT) and Web-scale IT.

- **Cloud Computing:** It is the practice of using a network of remote servers hosted on the Internet to store, manage, and process data, rather than a local server or a personal computer. It is the new style of elastically scalable, self-service computing and built for serving both internal and external applications. While network and bandwidth costs may continue to favour apps that use the intelligence and storage of the client device effectively, co-ordination and management will be based in the cloud. The focus for cloud will be on synchronising content and

application state across multiple devices, as well as addressing application portability across devices, he added.

- **Web-scale IT:** According to Gartner, web-scale IT is a pattern of global-class computing that delivers the capabilities of large cloud service providers in an enterprise IT setting. The approach is to design, build and manage data center infrastructure where capabilities go beyond scale in terms of size to include scale as it pertains to speed and agility. Web-scale IT is simply defined as *all the things happening at large cloud service firms*, such as Google, Amazon, Netflix, Facebook and others, that enables them to achieve extreme levels of agility and scalability by applying new processes and architectures.
- Gartner first introduced the term Web-scale IT in 2013. According to recent research, Gartner analysts predict that Web-scale IT will be an architectural approach found in 50 percent of global enterprises by 2017. Many enterprises are expected to emulate the architectures, processes and practices of cloud providers such as Amazon, Facebook and Google.
- **The Internet of Things (IoT):** The Internet of Things (IoT) is the network of physical objects or "things" embedded with electronics, software, sensors, and network connectivity, which enables these objects to collect and exchange data. Each thing is uniquely identifiable through its embedded computing system but is able to interoperate within the existing Internet infrastructure. Experts estimate that the IoT will consist of almost 50 billion objects by 2020.

Technological Engagements for Libraries

Today's hottest web and mobile technologies are offering libraries a new world of opportunities to engage patrons. Ultra-popular social media websites and apps combined with the availability of affordable cloud-based services and the evolution and adoption of mobile devices are enabling librarians to share and build communities, store and analyze large collections of data, create digital collections, and access information and services in ways never thought about before.

Cloud based collection

As libraries increasingly deliver digital content, storage requirements may strain their local resources. DuraCloud, based on open source software, provides an interface that allows easy upload of content. That information would then be distributed to one or more cloud-based storage services. It also includes services related to validating the integrity of each file, synchronizing versions as necessary, and creating any derivative transformations needed, such as converting TIFF master copies to JPEG.

Creating Mobile Websites

Mobile sites and app generators offer the opportunity to create a mobile view of library data. Winksite is an easy-to-use tool that can create a mobile site using an RSS feed from a WordPress or Drupal content management system. The site is free and allows five mobile sites for each user account. Dashboard views and form wizards guide you through the setup of your site. The dashboard features many options for creating different mobile page views and customization.

Location based Photo stream with Instagram

Featuring a powerful suite of location-aware technologies, Instagram claims more than 80 million registered users who have shared nearly 4 billion photos. Users shoot, manipulate, and share photos with their smartphones, associating them with location information through a mobile application. Following the lead of news outlets and other companies, libraries have started expanding social media campaigns and create a visual narrative around events, displays, collections, or projects. By establishing hashtags or QR codes, libraries have also started gathering a photostream on research projects or whatever.

Libguides into Drupal: Integration

The Views module, developed for Drupal 7, enables access and interaction with library data—the catalog, for example—without having to export the data from its source and import it into Drupal before working with it. Like many data services, LibGuides—the popular web-based subject guide software package developed by Springshare—offers an on-demand XML export of library's guide content for a relatively low fee.

Many libraries add research guides to its Solr-powered search index so that they appear in search results along with pages on the Drupal site. With a little programming

assistance, one could convert the content you want from the LibGuides XML documents into an RSS-style feed, allowing each guide to be imported as, in essence, a blog entry.

Crowdsourcing to create collection

Crowdsourcing is being used by libraries for archiving. New York Public Library has transcribed and categorized all of the menus in its extensive collection of historical restaurant menus. The "What's on the Menu?" site encourages visitors to help transcribe dish descriptions on menus into a database. To date, more than 1.1 million descriptions have been transcribed from more than 16,000 menus.

Screencast

As librarians grow accustomed to screencasts, more ideas and possibilities emerge for their use in instruction. With so many free recording and hosting options, all one needs is a computer with internet access. Screener, a free program, works well for initial screen creation and experimentation.

Emerging technologies for Libraries – 2017 & beyond

Some of the specific technologies that are gaining momentum and warrant the library community's close attention are as under:

1. **3D Printing and Makerspaces:** While paper printing was realized as a patron requirement many years ago, only libraries with "learning commons or innovation labs" may still offer or implement 3D printers this year.
2. **Mobile:** The tipping point has been reached. Libraries are now getting on board with responsive web design and mobile optimization. It is now being considered necessary not just part of the "wish list" anymore. The web browser is the interface of choice rapid upgrades are predicted for 2017.
3. **Consolidation:** Mergers and acquisitions of library vendors continue to happen every now and then. Like companies, even libraries are trending towards the control of fewer and fewer of them, which are larger in size. This speeds up innovation, offers products that do more and have more power, and opens up competition from open source alternatives. These days libraries are being demanded better service and a higher level of technology expertise and creativity.
4. **Near-Field Communication, or NFC**, allows interaction between devices. ApplePay is one example of this. By the end of 20156, many applications will be using this option.
5. **Data Opportunities:** The next few years will see considerable activity based on linked data. Re-engineering of commercial products to fit the Library of BIBFRAME seems to be in the planning stages and will likely result in prototypes and pilot projects by the end of 2016. BIBFRAME represents a major step toward the operational use of linked data in the realm of resource management and discovery services.
6. **iBeacon** - A way to track user interaction by macro-geolocation. Libraries take a card from the retail deck on this one, to track physical usage of library facilities.
7. **QR Codes** - Haven't made a major impact and often are used incorrectly.
8. **RFID or Radio Frequency Identification** (usually in the form of a bar code), has allowed libraries to operate more efficiently for many years, especially in regard to physical collections. But combined with NFC, RFID has many other ways to be used innovatively.
9. **Internet of Things & GPSs** that help locate material inside the library
10. **Book delivery robots**

Conclusion:

Library services have to compete for attention. Libraries are so valuable that they attract voracious new competition with every technological advance. The primary function a library is to organize the world's information and make it universally accessible and useful. How can the (conventional) library domain respond to these trends? Organizing content to support research and learning is at the heart of the library's institutional role. A growing collection of technologies and tools can be used to more granularly organize, customize, and personalize the online information environment to fit professional, learning, and research activities.

As the spectrum of human need grows, the opportunities for libraries to meet these needs is also growing. "Needs"

are a moving target and hence library of the future will need to be designed to accommodate the changing needs of its constituency. One of the needs that will be going away is the need to use keyboards. In the current days, experience has become the key. Solemn book-reading in the neighbourhood library in no more an experience. Books themselves will transition from merely a product to an experience. As books change in form from simple "words on a page" to various digital manifestations of the information, future books will be reviewed and evaluated by the experience they create.

In view of a phenomenal digital changes that have been embracing libraries all over the world, most libraries are at the cusp of reinventing themselves. It is therefore recommended that they continuously evaluate and enhance the library experience in their while harnessing technology in their system.

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KNOWLEDGE MANAGEMENT AS A SUBJECT IN INSTITUTE AND ITS IMPACT ON INSTITUTIONAL LIBRARIES

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ABSTRACT:

Sustainability of organizations mostly depends on Knowledge Management (KM). The practices and making full-fledged benefits of KM in Indian industries is still not in a rapid growing stage. KM is supposed to be a management topic. However, Library Information Science Professional (LISP) should adopt KM in academic libraries. Institutes are sharing knowledge from ancient. Knowledge enhances the growth of society. Institutions are generally not careful about the generated knowledge. Institutional libraries are neglecting the same. Storing and capturing knowledge is essential. Sometimes institutions do not know about the already generated knowledge. This knowledge can be very much useful if maintain in institutional library. We know that "library is a temple of knowledge". It is limited to explicit knowledge only. This study focuses on KM in institute of Pune and subsequent impact of KM in those institutional libraries. This study also tries to explore the influential factors regarding KM in various section of institute. A future action for maintaining KM in institution as well as institutional library is also a research query in this study.

Keywords: Knowledge Management, Knowledge sharing, Library and Information Science Professional (LISP)

Introduction:

KM related activities are not only limited to organization, it is now in national and international institutions and universities. Explicit and tacit knowledge are very important in institution due to the demand of users. Institution can show their potentiality through sharing and managing existing knowledge. Personal knowledge (which in turn treated as tacit knowledge) is the skill and thinking of expert activity to solve a problem. Knowledge is achieved through human effort of educational activities, research activities and generating concepts in area of interest. In institution, knowledge flows from teachers to students. Teachers gain the knowledge from primary and secondary source and add value with their skill and brain. Thus, in each lesson of teaching teachers are also generating knowledge. One can store and manage that knowledge for further use. Thus, management of knowledge is becoming vital for institution. Introduction of KM as subject in institution is thus a result of that requirement. Institutional libraries could monitor the KM initiation. Institutions are now concentrating to develop knowledge (tacit and explicit) base of students' knowledge as well as teachers' knowledge. For this purpose, we need high-tech facilities as well as motivating employees. Libraries should take the forefront role to store the knowledge as explicit knowledge. Librarians may take that is as challenging task. KM in libraries can help the students in many ways such as to pick up their capability, to show their inherent talent. They can use the available knowledge more effectively and efficiently at their work thus ultimately make them easy to cope up with present environment. This research is to find out the important of KM as subject in institution.

2. Objectives & Scope:

2.1 Objectives:

There are many management and technology/

engineering institutions having KM as a subject in the syllabus. Many students are doing research project on KM. The main objectives of this research are:

1. To find out the institutions having knowledge management as a subject.
2. To find out the impact of KM on library and the reasons behind the impact.
3. To get idea about the way to change collection development in context to KM.

2.2 Scope:

From this study, librarians can get the idea to improve their service in the direction to satisfy the users for KM. It intends to give some ideas to institutional library to find the way to change of facilitating the users especially of the KM. Change is the only permanent phenomena in our life. With addition of KM as subject, libraries are bound to have lots of change. This paper also discusses how librarian could take care on change.

Findings of this research intent to help the LISP in the following ways:

1. To understand how inclusion of one subject could make changes in library.
2. To get the way to give better services to students in relation to KM subject.

3. Methodology:

A literature review is done to understand the concept of KM as a subject in institution. A list of institutions having KM as a subject is made. Some face-to-face contacts are also made to get clarification on survey questionnaire's answer. Professional views, discussions in various forums, observations are also taken considered to understand the reason of introducing KM as a subject in institution and the current situation of library in context of KM culture. An online survey questionnaire was sent. Views of KM communities are also valued for making this research.

3.1 Research Hypothesis :

1. Management institutions are bound to have KM as a subject in their course.
2. Collection development in libraries of those institutions having a subject KM is highly effected.
3. There is lots of impact on institutional library for institution having KM as a subject.

3.2 Survey Population :

There more than 210 management colleges under Savitribai Phule Pune University in Pune district having management course for under graduate and/or post graduate. Nearly 55 private institutions offering management course for under graduate and/or post graduate. Almost all are having KM a subject in their syllabus. Survey questionnaire was sent to 190 Institutions and/or librarians or library professionals of those institutions where KM is included in syllabus of management course. Response from 159 (nearly 84%) professionals was received.

3.3 Research Question :

This research intends to learn about the KM as subject in institution. I frame questions to get more and more information related to KM as subject and its impact on library. I tried to get exhaustive information related to procurement of KM related tools as well as documents by addressing the questions (In Annexure – 1). Some questions were given without any limitation to get all possible and diversified answers.

3.4 Data analysis :

Prepared excel sheet for required survey question. Graphical analysis is also done for some answer where we can quantify the result.

3.5 Limitation of this study :

3.5.1 Area Limit : This study is limited to Pune.

3.5.2 Organization limitation : Generally, KM is taken as a course subject in management institution. There are also technological institutes with KM as subject. The number of such institutions is less. This study is made for management and technological institutions having KM as subject. Thus, the result should be interpreted in light of study's limitations. To facilitate researcher's idea on each question face-to-face and/or telephonic discussions were made where it is required. However, some respondents may have misunderstandings and/or misinterpretation on some questions. Over-reporting or under-reporting of certain question may occur. This may be due to respondents' library environment or management constraints and/or personal limitations.

3.6 Ethical Issues :

All participating library professionals were guaranteed not to disclose their name in study. Thus some important name of institutions are mentioned, no library's/LISPs' names are disclosed in this paper.

4. Data[Information[Knowledge.

Data is available facts and figures in organization. For any organization, it is important to see if decision makers ask for pertinent data. It is to make sure that the demanded or required data is available through technology. In this regards we have to see whether the available technologies are sufficient for delivering those data in time.

Information is organized data. In terms of KM, we have to make sure that the demanded data is regularly being transferred to information through interpretation and presentation. The available information is to be easily retrievable and user-friendly or users' oriented.

Knowledge is the stored information in the brain of expert/skilled person. It can be treated as information with personal touch. Knowledge could be made effective when it store and make available at the time of requirement. It can be further refined, modified with the requirement of solving any problem. Knowledge is the application of information to decision-making, solving problems or action.

5. Knowledge Management in Libraries :

Now-a-days users' expectation towards library is increasing. KM is getting more and more weightage from organization. Institutions are thus bound to have KM as one of the main subjects in management and/or in technical study. Due to excessive competition in market organizations are not only thinking on high-tech facilities but also concentrating to utilize the existing staffs' expertise, technology, and management structure. KM in libraries is thus becoming important day by day. In international environment, several educational institutions have received grants to implement KM practices. Several foundations and other major funding agencies of educational institutions are interested in KM both internally and externally in developed countries. However, in India we are lacking such funding agencies or foundations. There is an obvious impact of KM in libraries. Librarians have to concentrate on the collection of title on KM. Users' demands on KM are also increasing. Thus, library needs to have KM in a full-fledged. Addition or alternation of any subject always has an impact on library. Introduction of KM in syllabus thus put the library to look for sharing knowledge. Librarians are bound to develop collection of title on KM and related subject.

6. Knowledge Management as a Subject in Institution :

Organization has to promote systems or policies so that people can share knowledge. By putting intuition into practice, KM builds upon collegial and professional teamwork by actively engaging people in sharing with others what they know and what they are learning. There is internal and external demand for knowledge sharing. Teachers, staffs, researchers in institution are seeking to understand how they can more effectively collect, disseminate and share information. Institutions are dedicated to education; they understand that knowledge is their key asset.

Thus, many institutions are seeking better ways to transform that knowledge into effective decision-making and problem solving. Institutions like schools, colleges and universities are charged with passing along knowledge to students (through exchanges between students and teachers, through exchanges between students and books or other resources, and through exchange among students themselves).

According to the Board of Study of many Institutions KM courses train students to use a step-by-step process to improve an enterprise from within by learning from using past experience and expertise. Some institutions concentrate on research method on KM. In MBA programs, KM skills can be applied to many roles central to the development of a company's infrastructure and information systems. Some institutions are also giving full time management degree on KM. According to those institutions, there are many career options relating to KM. Those include :

- Business intelligence analyst
- Knowledge coordinator,
- Information strategy specialist,
- Competitive intelligence manager,
- Knowledge engineering.

Some institutions assured that individuals who earn an MBA with KM might also be qualified as management analyst.

As KM is interdisciplinary, with a degree in KM, an individual can help maximize the value of an organization by effectively using its intellectual and knowledge-based assets. Corporate sectors and business houses may hire graduate of knowledge information degree program to oversee documents, research and business strategy development. They may also get the career as chief knowledge officer, knowledge engineer, systems architect, program manager and senior webmaster.

6.1 Knowledge Management MBA Program :

Master of Business Administration (MBA) degree programs generally offer KM course as electives. Some institutions have taken KM as focused and specialization. A doctorate degree in KM is rare but now available. These MBA programs are typically completed within two to five years and require the completion of 38 to 54 credits hours of coursework. KM coursework may entail subject relating to the following :

- Social Learning,
- Individual and group development,
- Problem solving,
- Knowledge organization,
- Statistical data analysis,
- Program development.

MBA in KM covers social learning, statistical data analysis and program development, Problem solving, knowledge organization, Individual and group development.

6.2 Knowledge Management as degree :

KM is an interdisciplinary subject. The following degrees are available on KM or KM related.

6.2.1 KM Degrees by Level

6.2.2 KM Master's Degree

6.2.3 Database Management Master's Degree

6.2.4 Doctor of Management Information Systems.

6.2.1. Knowledge Management Degree by Level :

This is a degree can prepare individuals to collect, organize, store and maintain the pieces of information that make up the collective intelligence of a business or organization. It is not a very common, but is offered by a few universities. In this KM programs students can have an understanding of how knowledge and information can be organized and utilized to serve a company, organization or agency. This programs may consist of about 42-45 credit hours. This program does also have online study system.

In this program students are trained to find and retrieve print and digital documents, operate database systems and computer networking

systems, maintain libraries and information centres and search through archives. How to propose business strategies for organizing information and knowledge is also part of this study. A thesis paper or capstone project that furthers research in the field is to be submitted for this program. Some KM degree program fields are : Library and information management, Economics of information.

6.2.2 KM Master's Degree :

Nearly all of the courses included in a master's degree program in KM are research-based and focus heavily on research methods, research strategies and organizing research date. Specific courses may include :

- Knowledge organization structure,
- Foundations of KM
- Record management
- KM and research methods
- Data communications and networking
- Media management.

6.2.3 Database Management Master's Degree :

It is typically a concentration within a Master of Science in Computer Science or a Master of Science in Computer Information Systems degree program. With this degree students play a key role in organizing and securing this information by using a variety of database technologies. This program prepares students to work with databases, computer systems and web applications. This degree course consists of :

- Database administrators design,
- Implement and support a company's computer systems.

Prerequisites of this course are Bachelor's degree in computer systems or information technology or a related field, relevant work experience, personal statement of goals, background in database management. This program duration is 2 years. Students have to submit thesis. In some programs, students can specific area such as systems management or database technologies. This program covers Data mining, computer system architecture. Course work may be made in the following areas :

- Database design
- Information Structures
- Database applications
- Database technologies for the Web
- Information security
- Data mining and warehousing.

According to U. S. Bureau of Labor Statistics (BLS) a median annual wage of $80280 for database administrators in 2014 (www.bls.gov) The number of jobs for database administrators is expected to grow much faster than the national average; the BLS projected 15% employment growth from 2012 to 2022.

There is a chance to have doctoral programs in related fields including management information s systems or computer science after this course.

6.2.4. Doctor of Management Information Systems :

It is highly advanced credential in which students learn through classes and hand-on field experiences, working with advisors to craft a program of study that meets their needs. Completion amount to meet 130 credit hours which include core studies, research seminars and a thesis paper. This program emphasizes research fundamentals, ensuring that all students have a definite grasp of methods of investigation, how to formulate a thesis and the ways in which to present one's finding. Typically, programs culminate in the completion and defence of a dissertation bases on original research. Students are involved in hands-on field projects that allow them to test their expertise in real-world scenarios. This program includes advanced subjects within computer science, economics and management

theory. This programs consists of the followings :

- Database management
- Networking and telecommunications
- Services-oriented systems design
- Web data mining
- Behavioural research methodologies
- Qualitative research methodologies.

This degree gives the students opportunities to have position in research and academia in Design, Computer system operation, System analysis. The projected job growth for such post is 19% from 2012 to 2022 (US Bureau of Labor Statistics). The mean annual wage for computer science professors was $80370 in May 2014, while a business professor earned a mean salary of $ 88740.

7. Survey feedback and Discussion :

The response of all questions is in the Table No. – 1 as below :

Response ⇨ / Question ⇩	No. of Respondents	Percentage
Starting of KM as Subject	159	100%
Total No. Of Document on KM in 1st Year	155	97%
So far No. of Document on KM	155	97%
KM Tools	101	63%
Effect of KM to Users	64	40%
Changes in Library for KM as Subject	126	79%
Reason of Changes	112	70%
Knowledge conversion system in Library	56	35%
Earlier collection on KM	159	100%
Recent collection on KM after introducing KM as subject	150	94%

Table No. – 1

A graphical presentation of the responses is in Figure – 1 as below :

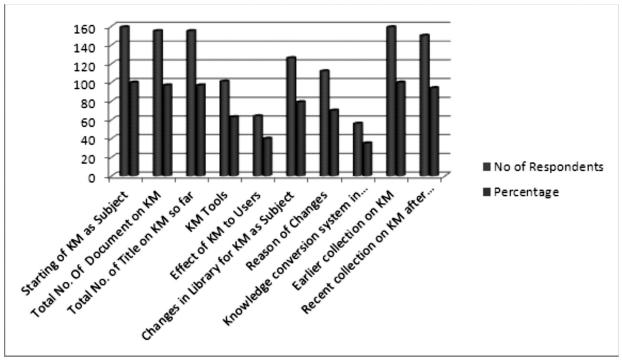


Figure – 1

7.1 Starting year of KM as subject :

KM started in 1995 in India. It was limited to corporate and industrial culture. However, KM was not a subject in institution until 2010. Thus, in India systematic education and learning on KM was lacking. There are very few institutions started KM as subject before 2010. It is only 6 % of the surveyed institutions. Most institutions have started KM as subject in between the year 2010-2016. It is 94% of the surveyed institutions.

7.2 Collection on KM in the first year of introducing KM as subject :

This question intends to know the impact on collection of the title on KM that is newly insert in the syllabus in any institution in the first year.

The responses are in Table No. – 2 as below :

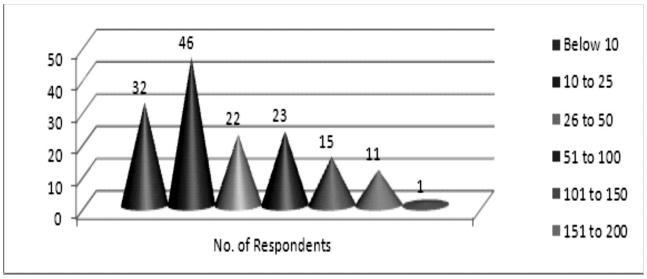
No. of Title on KM ⇨	Below 10	10 to 25	26 to 50	51 to 100	101 to 150	1
No. of Respondents ⇨	32	46	22	23	15	

9 respondents were abstained to response. They have mentioned that they were already having title on KM. They have added some related titles or documents.

It is found that most institutions made lots of collection on KM in the first year of introducing the subject in the instructional course syllabus. The added title in first year is mostly from 10-25. This shows that institutional libraries are committed to fulfil users' requirement of title on KM. Institution reported to develop titles on KM 201 to 250 was communicated for clarification. Respondent has counted all the related documents (not only Title in Hardcopy but also other form of document on KM and related to KM) also. Some of them have reported the collection on related subjects. Thus, it is quite clear that there is an impact on collection of library title in the starting year of inserting KM as subject.

A graphical view of the response is as below in Figure – 2

Figure – 2



7.3 Total No. of Collection on KM in Library as on the date :

When a subject is added to any course of any institution, there must be some added documents on the same subject. Librarians have to concentrate to fulfil the high demand on subject related title. The response to this question may reflect the impact on total collection in any library. The maximum limitation is decided according to the rules of UGC and AICTE on developing collection for particular subject.

The responses are as below in table – 3 and figure - 3

Total No. of document on KM	No. of Response	Percentage of Response
Below 50	10	6%
51 to 100	25	15%
101 to 150	32	20%
151 to 200	08	5%
201 to 250	10	6%
251 to 300	34	21%
301 to 350	15	9%
More than 350	25	16%

Table – 3

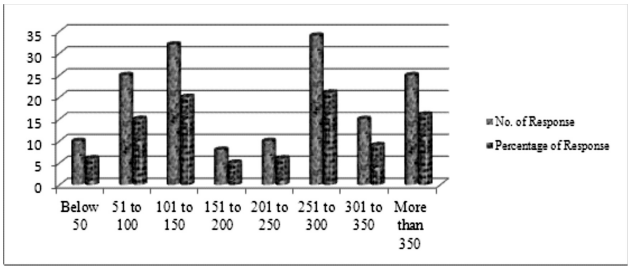


Figure - 3

It is quite interesting that most of the institutions are following UGC or AICTE rule on developing collection for particular subject in accordance with the year of inserting the subject. Later starters have fewer collections and early starters have more collections.

7.4 KM tools for storing, arranging, capturing knowledge in library :

This is to find whether the librarians are taking initiation to have full-fledged KM in library. It is necessary to have KM tools.

No. of Response ⇨	Yes	No	Percentage of Yes	Percentage of No
	23	123	16%	84%
No response from 13 respondents				

The responses are as in Table – 4 and Figure – 4

Percentage is Calculated based on actual response received.

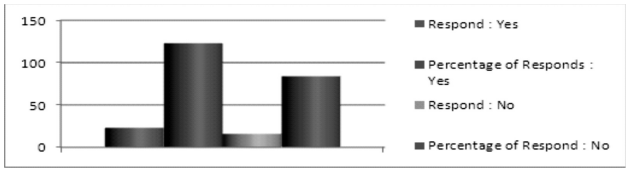


Figure – 4

KM tools are generally used in organization. For giving better service related to KM many academic library has also using KM tool. Some institutions have the financial constraints for having relevant KM tools. 84% institutions have no such tool, which indicates libraries in such institutions are not thinking of knowledge sharing. They are just concentrating the availability of KM related documents in library.

7.5 Effects of this subject to users

Various informative responses are there. Librarians are agreeing about the effect of KM to users. Some of them mentioned that faculties are giving assignment on KM or KM related topics. Thus, students are becoming bound to use the title on KM. Some of the important points are :

1. KM is producing knowledge manager posted abroad with good salary.
2. Influencing students to make career on KM.

3. Research are also going on KM

4. KM enhancing the knowledge sharing activities in the institution

5. Users are demanding some tools and/or software on KM

6. Users are also suggesting and appending many documents on KM to library.

7.6 Changes in Library for introducing KM as Subject

Introduction of any subject definitely has an impact on library. Here some suggestions of changes to be identified were given. As it was little narrative type question, response was little less. However, respondents have mentioned many changes. Most of changes found in library are :

- Increase in collection on KM
- Library services and Reference service in relation to KM
- Infrastructure of library and facilities in Library
- Queries faced by LISPs.
- Library Hours
- Users' visit to library
- Usage of documents in library

7.7 Enhancing forces for those Changes :

LISPs have responded with very eye opening forces. Most are very interesting and helpful to the LIPs for their change management. Those are :

1. Demand of market forces organizations to recruit employees for KM related job. Thus, a great demand for the course on KM.

2. Introduction of any subject has definitely an initial and overall impact on library collection development.

3. Due to users' demand the LIPs services is to be made in direction to the KM. They have to change their service concentrating on KM related queries.

4. Students are given assignment on KM related topics. They need to study on the same. When they found sufficient documents are there in library, they naturally are visiting the library and are requesting for increasing library hours. Thus, many libraries have to increase the library hour.

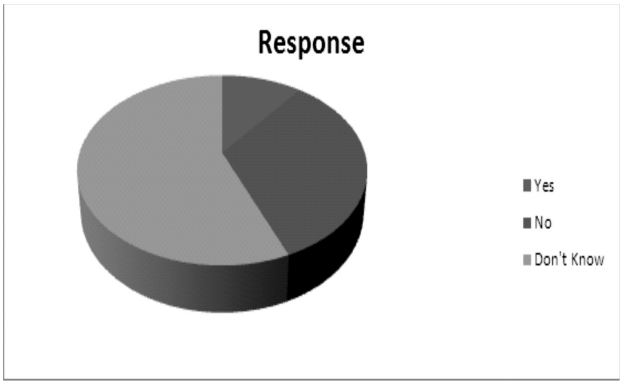
5. When users are visiting the library for the purpose of KM documents, they are also browsing through the KM related documents. Thus, the use of library documents has increased.

7.8 Knowledge conversion system :

The responses are tabulated in Table – 5 and shown in Figure – 5

No. of Response	Yes	No	Don't know
	11	34	58

No response from 56 respondents



Some respondents couldn't understand the question. Thus, there is no response. They thought that they have already mentioned the same in KM tools section. Researcher put this question with intension to get information about transferring tacit knowledge to implicit knowledge. It is found that most Institution are not careful to convert knowledge. They claimed that they are service provider. Conversion is a job of KM team. Being a member of KM team some LISPs are helping the knowledge conversion.

7.9 Initial Collection (Before KM introduce as subject) :

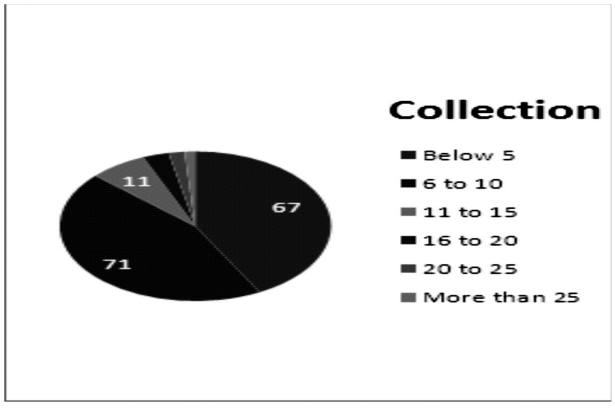
The feedback for initial collection from the respondents are in Table – 6 and Figure – 6 as below

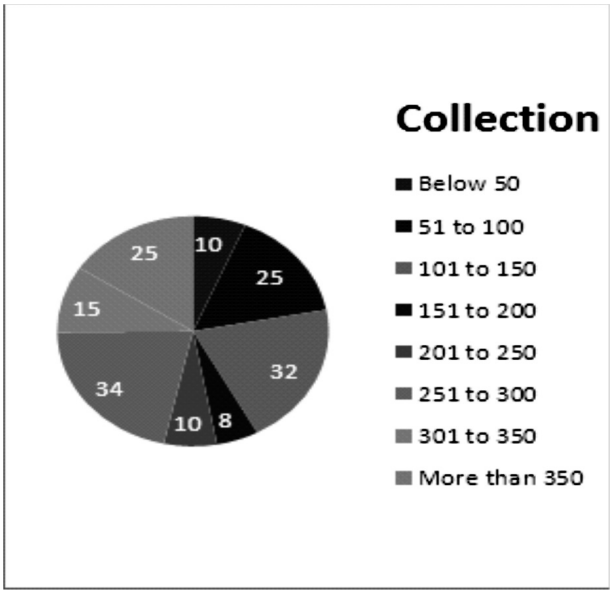
Earlier Collection on KM	No. of Response	Percentage of Response
Below 5	67	42%
6 to 10	71	45%
11 to 15	11	7%
16 to 20	05	3%
21 to 25	03	2%
Above 25	02	1%

Some institutions had the collection on KM because of having management degree in those institution. There are some institutions taught KM in management degree. Some institutions also encourage students on management to choose project related to KM. It quite indicating the importance of KM in management studies. Nearly 90% institutions do have 5 to 10 title on KM.

7.10 Initial Vs. Total Collection on KM related documents :

Respondents⇨ Collection ⇩	No. of Respondent
Init Vertical (Value) Axis Major Gridlines	
Below 5	67
6 to 10	71
11 to 15	11
16 to 20	05
21 to 25	03
More than 25	02
Total : (After KM as Subject)	
Below 50	10
51 to 100	25
101 to 150	32
151 to 200	08
201 to 250	10
251 to 300	34
301 to 350	15
More than 350	25





Initial (Before KM as Subject)
Total (After KM as Subject)

It is found that initially some institutions were having collection on KM below 5. Most institutions concentrate to develop collection on KM as the institution introduces KM as subject in the course syllabus. The increasing number of collection on KM indicates the demand on users for the subject in rapidly increasing. Many institutions have increased the collection on KM related to 25% from initial state. Some institutions even cross the increase 65%.

Conclusion :

KM is becoming a strong pillar to be successful in market for any organization. Institutions have started to give degree on KM. With the growth of this subject, libraries of those institutions are eventually getting impact. The findings of this research would give the researcher for further study on the same. There are few institutions having KM as a subject in syllabus, and giving KM degree. However, in future KM related degree would be a great management degree for aspirants.

References :

1. (www.bls.gov) Accessed on 12/10/2016
2. Thomas, J. C. and Kellogg, W. A. (2001). Knowledge Management puzzle : Human and Social factor in Knowledge Management. *IBM System Journal,* 40 (4), 863-67.

ANNEXURE – 1

A. SURVEY

1. Your Name : Designation :

2. Name of your Institution :

3. Address of your Institution :

Ph. No.: E-mail ID :

4. May I contact you on your phone (if require) : Yes No

5. From which year KM is taken as subject in your institution? Year : _____

6. How many titles on KM procured in the first year of introducing KM as subject? Please put ü in the appropriate box.

Below 10 10 to 25	26 to 50	51 to 100	100 to 150	151 to 200	201 to 250	Above 250

7. So far how many documents on KM are there in your library?

Below 50	51 to 100	101 to 150	151 to 200	201 to 250	251 to 300	301 to 350	More than 350

8. Are you using any KM tools for storing, arranging, capturing knowledge in library? If yes, please describe briefly. Please put ü in the appropriate box

Yes No

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- One separate page including title of the manuscript, an abstract of no more than 200 words followed by up to 6 Key Words should be included in both the files. Author's identity or institutional affiliation should not appear on this page.

- The text should be double spaced and should be typed in Times New Roman style with a font size of 12 pts and 1 inch margin all around. Use standard indentation for paragraphs.

- Footnotes should appear at the bottom of the page on which they are cited/ referenced.

- Tables and Figures should be numbered in Roman Numerals and can appear either in the body of the manuscript or at the end of the manuscript. Sources of data used in both tables and figures should be duly acknowledged as a footnote to the same. In case some abbreviations and acronyms are used in the tables and figures, these should be duly described in the main body text of the manuscript where they have been cited/ referenced/ interpreted and well as in the footnotes of the table/ figure.

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