

The Role of Smart Library and Smart Librarian for E- Library Services

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Abstract

The evolution of libraries happens through three stages –modernization, automation and digitization. A smart library (SL) is an information centre with networks of many libraries and their services in a larger informational ecosystem around the globe. Smartness means that the development of new library e-tools and services are measured on the assessment of real resources and users. Smart is more user-friendly than intelligent. As every new paradigm, smartness bears risks. In today's era, a library equipped with 'smart library' technology is to be allowed freely open to library readers with no library staff. Technology gives facilities for controlling and monitoring of library buildings, including automatic doors, lighting, auto-services pavilions, and any computers. It gives permission to use resources 24X7 hours so that the reader s can use the library at times that that are convenient for them. The 'smart library' requires 'smart librarians which gives service to user centric and user friendly. The role of librarians and libraries is changing in the present era due to the changing demands of its users. The role of SL requires three things i.e. Smart users, SL staff and SL services. Users are expecting more from the libraries especially from the academic libraries not only for their intellectual growth but also for their day today informative demand which will certainly grow day by day. The author describes briefly details on smart library, smart service, smart readers, cloud service developing 'smart librarians, service visibility, service orientation of smart academic library, advocacy, features, vision of SLs, planning for impact, smart governance, smart library place, smart management, smart library staff, green library building, smart librarians and their e-service in digital era. This paper is purely theory based paper which is described by author pinpointed regarding smart library.

Keywords: Global Library, Green Library, Green Library, Smart Librarian, Smart Library

1. Introduction

The Smart Library (SL) is a library without a single physical lending item on the shelves, without books in print, library without shelves, just large cooled servers, whirring digital archives linked through digital networks with machines for copying and distribution. The SL is that any person who has a computer and connection to the library networks

can access not only the resources of that library but also a variety of information available through national and international networks like internet and intranet without being physically present in the library.

The library is considered as place of accumulated information for the smart readers in any area of interest. After invention of Internet, the library collections and services have dynamical changes.



We are living in the threshold of knowledge society. Academic institutions are the superstructures of this society. And Library forms the very core of these institutions where it acts as a brain. The best practice in library involves around the optimum utilization of space, service and service visibility. Two towering regulatory institutions in higher education such as UGC and NAAC are seriously concerned about how to develop standards of academic libraries. The smart libraries are those libraries which are having smart readers, e-resources, smart places, Li-Fi facilities with Green eco-environments and smart service, smart librarians. The author explained here that the library where all documents are in digital store in digital format, processed in digital format and accessed through computer with RFID facilities, standard international ILMS, federated search tools, discovery tools, web-OPAC, Standard Digital Software (Dspace/E-Print), Content Management software.

2. Concept of Smart Library

The concept of SL is to serve all library services faster, better and smartly to its end users through digital technology in different software applications with the help of Internet and Intranet. The author expresses here that SL is library which is technodrive with AI and IoT based service provider to smart readers. The SL creates:

- ❖ Creating of smart environment ,Mobile access , New knowledge creation
- ❖ Active content , Adaptively , Smart technology of content formation
- ❖ Smart detection of knowledge, Smart interface (organization of interaction with the user)

- ❖ Smart services (e.g., personal informing, & Mobile applications usage

3. Vision of SL

The vision of SL is to create an “indoor living lab”, where readers and scholars can develop, test and presents smart technologies, access and analyze the collected data to carry out both qualitative and quantitative studies also by applying different types of open source software as and when required accordingly. The author wants to express here that it is online testing centers for readers and researchers on different subjects and different library open library software tools through which they get maximum service with unlimited time.

4. Basic Features

The SL main motto is to provide skills and resources for the library community to boldly manage cyber-issues and continue to embrace the positive aspects of online activities. It also provides a free and comprehensive solution helps libraries identify gaps in their policies and operations by offering a well structured action plan that links to best practice resources. The library can track progress and access resources using an online system tool by library professionals.

5. Promoting Economic Wellbeing

The SM helps jobseekers, find opportunities and prepare them for sustainable carrier development. They offer courses and digital skills training.

6. Elements for Smart Library:

- ❖ High Speed Internet, Uninterrupted Power Supply, Meta Data
- ❖ RFID, Bar Code, Smart Card, plagiarism software, IR software,

- ❖ Wi-Fi/Li-Fi-premises of Library, ETD databases,
- ❖ Green Library Building, own library web site, library blog,
- ❖ Sound budget, Standard ILMS, e-library orientation
- ❖ E-resources(e-databases-books, e-journals-e-reference tools, CD, DVD, Audio sets, e-newspapers, Mandalay reference tools ,)
- ❖ Good Scanner, Printer, digital Xerox machine, CC Camera, Sensor, library digital gate,

7. Functions of Smart Library

The main function of SL is to make systematic development of the collections, store, and organize information and knowledge in digital form and provides easy and affordable access to it from various locations via internet. The basic functions of SL are as:

- ❖ Provide web based library services to the readers and access to online learning materials
- ❖ Gives ICT-based access to a range of digitally available publications for educational purposes

8. Effect of Electronic & Optical Storage Technologies on Library Concept

Due to huge storage ability of computers, the concept of book stack system is vanishing and as a result, huge space requirement in the library building is also vanishing. It should be one resource centre for whole country or even only one for the entire world through which everybody can connect through ICT for uploading and downloading audio, text and video files so that equality in terms of accessibility to any of these types of resources can

be maintained irrespective of gender, region, religion, economical background and the country origin of the users.

9. Revolutionary Changes in Library Systems

Digital information storage technology and ICT together can revolutionize the concept of library system and can transform it into digital library. The conceptual model of Centralized National SL System is prepared and implemented. In SL, the entire library functions are automated and a central library will digitize all the information and provide such service to all public and educational & research institutional libraries in e-form. A user can get access to any information through e-books, any newspapers, e-magazines, e-journals and their back volumes through search facility. This new model will also removes the constraint of unequal sharing of library resources between rural and urban institutions.

10. Recent models for the development of SL

To cope up with new digital resources and technological challenges, LIS developed product of new concepts for the e-marketing and advocacy of public and academic libraries. Some of these concepts had impact and were successful insofar as they shaped such as

- i. **Information commons:** It is used to describe specific services and tools, e.g. library-based open access journals and free available digital libraries. It is a powerful concept for the marketing and promotion for all types of libraries. It means every reader will get information commons from knowledge/information centres.
- ii. **Learning Centres:** It should be centre place of institution/organization/heart of the city and well

decorated in side resources and outside infrastructure which should be attractiveness and performance on campus, like learning commons, media commons and, above all, learning centres.

- iii. **Green Libraries:** It is a library framed to minimize negative impact on the natural environment and maximize indoor environmental quality by means of careful site selection, use of natural construction materials and biodegradable products, conservation of resources (water, energy, paper), and responsible waste disposal (recycling, etc.). Green libraries are the part of the larger green library buildings & environmental issue.
- iv. **Global Library:** The library products & services should be universal marketed to small or big libraries of nook and corners of world. This means that library management and marketing should develop a holistic approach (“global library”).

11. Dimensions of Smart Libraries

The SM has seven dimensions such as smart economy, smart mobility, smart environment, smart people, and smart living, and smart governance, Smart services. Out of seven dimensions, we have described here four prominent dimensions which are as i.e., smart services, smart people, smart place, and smart governance.

Smart Services: It is the first dimension which can be described as the application of the “spirit of innovation” of smart readers to the development of modern library services. The SL services can provided to the readers through RFID, mobile and wireless access, remote assistance, semantic web,

and AI, IoT, machine translation, voice and image recognition, sensor, CCTV, natural language processing, augmented reality for delivering new experiences in enjoying cultural heritage etc. The SL is an information hub connected with other libraries and urban services in a larger informational ecosystem. However, these innovative tools and services are smart only insofar as they are user-friendly and user-centered.

Smart Readers: It indicates smart living related to buildings and means, for instance, building monitoring and control, monitoring of electrical devices, personal safety, and a healthy environment for the staff, as well as for the public. The readers of SL should be flexibility, creativity, tolerance, cosmopolitanism, empowerment, and participation in public life. We can categorize two levels of **smart readers:** Smart community and production of knowledge. Smart community consists of smart citizen, user of SL services and staff of library. The library staffs are a part of smart people who controls production and analysis of information and data (data librarian) or to the control of discovery tools. The second level of smart reader’s community can producer of new knowledge in SL.

Smart Place: The third dimension refers to the library as a building and as a place. In a general manner, this dimension can be described as “smart environment” and environmental monitoring. The place should be technological as well as environmental smart so, that readers can seat comfortable and read smartly.

Smart Governance: The last dimension of the SL is smart governance. It includes all library features that represents to the concept of “smart governance” in the state/country, which encapsulate, for instance,

collaboration, cooperation, partnership, citizen engagement, and participation. The library user becomes stakeholder of the library and takes part in the library management and administration. The keyword of smart governance is collective intelligence, based on shared responsibilities between the library staff, the library community, and other institutions.

12. Smart Library Services

The following best smart library services can be applied in this context.

- ❖ Library Marketing & Promotion Service, Newsgroups/ Newsletter Services
- ❖ E-SDI, Bulletin Board, Discussion Forum, Start-Page/Home Page
- ❖ Electronic Board Services, Atmospherics, Mash Ups, Linking different datasets
- ❖ Ask the librarian /Contac us / Feedback Process, Webliography
- ❖ Collaborative Digital Reference Services, Video Podcast
- ❖ E- Document Delivery Services, Institutionalisation/personalisation–portals
- ❖ RSS (Really Simple Syndication), Virtual Library Tours, Streaming Media
- ❖ Value added, aggregator services, Open access publishing, Metadata schemas

13. Developing smart Librarians

The ‘smart library’ requires ‘smart librarians. The library staffs prove themselves to improve the overall work environment within their organization, could libraries create an ‘employer brand’ aimed at

projecting an image of the organisation as a compelling place to work, develop a ‘community of knowledge workers, a highly ‘networked’ team should be created. Here author’s view is to develop good working culture with healthy environment.

14. Planning for impact

It is true that everyone is trying to fittest to survive in this smart technological era. It has to develop value-based service provider to the readers so that it has to make a plan. As per the author’s point of view, every year the library should make a plan to provide innovative and new services which will be impact to the readers.

15. Advocacy

Librarians and libraries services have to increase the efficiency of existing services to release the resources and to introduce the new services needed in the ‘smart library’ and smart librarians. It advocates the following points such to encourage policy makers to better utilize libraries resources, influencing the decision makers’ for sound budget to the ‘smart librarians’, communicating an understanding of libraries’ role and impact in development to politicians and other decision makers. Nobody can develop a ‘smart library’ without its own ‘smart’ staff.

16. Cloud Service

It is a web based technology, which is a new form of computing. It is a service provided on the internet or network and a server based service, which is very helpful library in digital era. Library services can provide faster to the readers through cloud computing in area of acquisitions, cataloguing, process system, digital contents and provision for inclusion of cutting edge technologies used in

libraries and also supports various standards such as MARC21, XML, Z39.50, Unicode and so on which directly related to library and information science field.

17. Service Visibility

The visibility of service of smart libraries is vital in service sector of library. The present time is marked by cut throat competition where Google or the concepts of Internet of Things (IoT) is proved to be the tough competitor of library set up. In this context Libraries should walk extra mile to introduce various courses on information visualisation, analytics and natural language processing in order first to counter this reality and then utilise its full potential. The future is of linking all open metadata in order to create an exhaustive linked union of open metadata. The library should be designed in a way to become a designing hub for linking open data and get the optimum benefit out of linking open data. This data while linked can be used, reused and share for continuous researching and development.

18. Service Orientation of Smart Academic Library

The outlook of smart libraries should be global in nature. It should act as a production and facilitating cell for information production and duration. The information produced in these centres would strengthen the causes of open learning and creations of resources of commons. The Wikipedia can be used for alternative pedagogical practice. The MOOC (Massive Open Online Course) and DOCC-a feminist alternative to MOOC (Distributed Online Collaborative Course) are required to include in library services to address the need of new digitally moulded generation. The service of the library is reckoned to be fruitful if the service provided should directly proportionate to the information generated

from the library. The information thus generated should be openly shared with others.

19. Space Management

Library space is poised for innovative and experimental development. Environment friendly green academic libraries with ergonomically designed modules are the order of the day. The need of the hour is to make that space free from archaic rules and regulations to make it conducive for all streams of thoughts to come and mingle. The space in this new age smart libraries need to be used effectively and efficiently. There should be provisions to optimally use day light and to tweak with open and free source software's. There should be earmarked a zone for researching activities with video games. Video games can also be designed for the purposes of populating metadata for least known cultural heritage object. This space, thus used can be known as makers' space. The designers of green libraries of today's are thinking out of the box. They can even be built in the lap of nature. North Eastern states of India can take a lead in this context.

20. New Identities of Smart Librarian

The new identities of the smart librarian in library and information professionals can be identified as:

- ❖ Library and Information Officer, Cybrarian, Information Manager,
- ❖ As a Search Intermediary/ Shifter of Information Resources/ Researcher
- ❖ Facilitator/Trainer, Knowledge Manager, Network Manager,
- ❖ As an Information Scientist/ Web Site Builder/ Publisher/Consultant
- ❖ As Information Architecture, As Interface Designer, As a Marketing Officer

- ❖ As an Information Specialist/ an IR Builder/ Initiator/ Collection Developer
- ❖ As an Information Provider from/in Internet, As a Resource Preserver

21. Smart Librarian Require New Skills:

In present e-era, library and information professionals owe much greater responsibility to be effective information professionals. Closer look at the existing skills of the challenges of today and tomorrow, they not only need to acquire wider range of skills but also need to keep themselves up-to-date. Now Smart librarian needs to retain their flexible working, their openness to new ideas and their personal attention and caring approach to user needs. New e-environment demands that SL must have technical skills, IT skills and Managerial skills as the world is in transition.

22. Importance of NAAC and NBA towards Library

The two national important agencies of GOI have given importance digital library that to be innovative and be a philosophy, policy, strategy, program, process or practice. It has developed a set of best practices followed in academic libraries and presented under the following four broad areas:

- ❖ Management and Administration of Library, Collection and Services
- ❖ Extent of User Services, Use of Technology

Following are the lay out in details regarding these points

Management and Administration of Library

- ❖ In-service Programmes, Maintenance of service area,

- ❖ Observation of other Library practice. Student participation programme.
- ❖ Resource Generation through external membership.
- ❖ Special deposit scheme, Staff promotional policy.

Collection and Services

- ❖ Collection development in different formats, Library book exhibition
- ❖ 365 days & 24 hours of service

Extent of User Services

- ❖ Information aids, Initiation to fresher's, Library best user award
- ❖ Library use statistics, Preparatory course for students project
- ❖ Suggestion box and timely response, User education
- ❖ User feedback practice through different formats, User orientation

Use of Technology

- ❖ Access to e-resources, Broadband internet centre, Free browsing unit -Internet access.
- ❖ Information retrieval through web OPAC, User feedback through library homepage
- ❖ Library homepage for information dissemination

23. The Role of Smart Librarians in Future Library

In the technological era, librarian has multifaceted role to play. These are as Knowledge manager, Multi-

media user, Intermediary, Enabler/facilitator and Team player

24. Future Smart Services

There are following ways to enhance future library services.

- ❖ Digital and systems library, Use of apps, E-books — exceeds expectations
- ❖ E-tool literacy, Library blog, Video & Downloadable Audio
- ❖ Library 2.0 presentation for the future of online library services
- ❖ Mobile optimized web site, Easy to use remote access
- ❖ MARC records for e-journals in the library catalogue, Youth Helping Youth

25. Application of Recent Advances

There are some applications of recent Advances for SLs which are mentioned as:

- ❖ Cloud computing, Web 2.0, E-Granthalaya 4.0, Greenstone, RFID
- ❖ Integrated Library Software (ILS): Evergreen, Koha, Open Biblio, New Gen Lib (NGL), SOPAC, WEBOPAC
- ❖ D-Space, Greenstone, Drupal, Joomla, Wordpress
- ❖ Bibliographic reference tools-mendeley, EndNote, Reference Manager, Zetero

26. Challenges

Libraries have a difficulty with advocacy and marketing. When library automation came to the

library, people asked the existence of the library. Some of them even predict the end of the library, unable to cope with the digital age and social change, unsustainable, some kind of vintage of the Gutenberg era; having reached an impasse they “may disappear like the dinosaurs”. But now, it is still survive in the society.

27. Conclusion

Library in nutshell is the disciplined and linked store house of universe of knowledge. The present thrust of digital tool in everywhere has made it possible to visualise data and information. This has opened a new vista for smart libraries. As discussed, the academic libraries of today are required to brace for the rapid change in order to become relevant in this age where any information may be obtained from multiple sources. The SL has four dimensions i.e., smart services, smart people, smart place, and smart governance. The transition to SL will eliminate some of the risks and disadvantages of existing library systems. The implementation of a fully functional SL is possible through the consistent implementation of individual smart mechanisms and / or smart functions (providing personalized information resources via personal account). The author purposed here that there must one information resource centre in a glob where users can access all types of resources with ICT enabled via internet.

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