

Applicability of information technology in libraries with a step ahead to smart library in 21st century

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Abstract

Smart is a network enabling free access to all libraries those are digital in electronic society. Smart libraries is a behavior change initiative for cyber safety and wellbeing designed to equip libraries and connect library users with the skills they need for smart, safe and responsible use of technology. Being smart means knowing how to guard against security and privacy risks online, download content in a legal and ethical way, research and reference information, as well as manage reputation and relationships in cyberspace. Smart helps to embed a culture of positive technology use, create policies, procedures, and gain access to evidence-informed resources and track progress in becoming smart. The term internet becomes a greater part of normal life and libraries are the knowledge centers at the forefront of providing necessary services to access and assist the community. Smart helps libraries providing a good environments where people can experience feelings of safety, become part of actual and virtual communities and acquire the much needed skills. We think community-based action such as smart libraries will truly drive e-safety as a cultural norm in communities through worldwide.

Keywords: Community, Cyber-safety, Smart Library, Skill, Technology.

Introduction

Smart library is nothing but just a library solution in a digital way. It is also a very sophisticated true multimedia streaming and digital delivery solution through a device and browser agnostic. Library management system has been evolving over more than 20 years with or without digital format. The new smart version based on, what all users want and need through smart or digital library with an emphasis on aesthetics, web based solutions is appealing to the eye and easy to use for both library staff and users. It is a free solution to help the library feel confident, it has integrated cyber-safety in its policy, agreements, staff development, organizational behavior and culture, training and day to day operations. A process to keep on top of cyber-safety issues that helps the library respond to incidents and negative behaviors as well as empowering positive use of sense. A way to improve guidance and training for library community, helping them with the skills they need to use digital technologies confidently and safely, and get the best out of digital technology and avoid cyber-risks such as scams and cyber bullying.

Basic Features

The smart libraries framework is a comprehensive system providing skills and resources for the library community to confidently manage cyber-issues and continue to embrace the positive aspects of online activity. Smart libraries 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.

The interactive tool links the framework, actions and resources, giving libraries what its need, Smart libraries helps library staff improve their guidance and training for library users. Users gain the skills they need to use digital technologies confidently and safely to get the best out of digital technology and avoid cyber-risks. The most relevant resources and practical tools in cyber-safety are collated in one place. Smart libraries is designed to be adaptable and flexible for all types of libraries-academic, public, metropolitan, regional, rural, remote and mobile-providing useful guidance to libraries, who may have taken some steps to increase awareness and skills in cyber-safety, digital literacy and digital citizenship and those who are keen to start thoroughly.

Implementing smart libraries helps mitigate risks. By participating in the program, libraries can demonstrate their progress in embedding cyber-safety and wellbeing in their library practices. Smart technology helps to reduce the digital divide by empowering staff and users to increase knowledge and skills to navigate the online world in a safe, smart and responsible way. Smart libraries are an extension of a proven model for the present scenario or the modern age.

Technology Used for Smart Library

Most of libraries lead in the smart way towards digital citizenship. It should be the first places where most advanced technologies are to be implemented. Today, libraries are not only about lending books. These are creative spaces, not only for individuals, but

also groups. These are economic incubators and learning hubs. Most of all, the libraries are the entry level points to the digital world. These are the way to embrace technology and avoid digital exclusion. Therefore, to improve technological literacy of local communities, libraries should be equipped with relevant technologies for up-gradation. The following technologies are also helpful to modify or convert a normal digital library to a smart one as well.

- Library bookmark and guide
- Augmented reality app
- Book delivery drone
- Digital Interface for print books
- Library Utensils
- Mobile library center
- Print on demand machines
- Access to library via commonly used app
- Library location technology
- Wi-Fi / Internet access with 3G/4G speed network

Usefulness

The Heart of Strong Communities: Libraries can be key partners in tackling the problems of social isolation, disadvantages, fractured communities and ill health. Libraries can connect communities and change lives. It provide safe spaces in the heart of their communities and also provide many services targeting people who are living on a low poverty line, lonely, unemployed or elderly and people with long term medical conditions or disabilities.

Smart mobile libraries can help tackle rural isolation and social exclusion. Smart libraries can provide information about health and health services as well as books on prescription. Smart libraries can support strong connected communities providing access to information about local and national issues for public domain.

- Safer and stronger communities
- Thriving neighborhoods
- A strong shared community
- Tackling poverty and social exclusion
- Longer, healthier lives
- Reduced health inequalities
- Tackling disadvantage

Act as Cultural Centre: Smart libraries can inspire people through e-books and e-literature, music, film and theatre. Libraries are spaces in which people can be creative, where groups can meet to pursue a shared interest in the field of arts and crafts with cultural activities through new technology.

- Enriching the lives of individuals and communities
- Placing art and culture at the heart of regeneration
- Promoting the social and economic role of arts and culture
- Creating a vibrant creative economy

Well supporting learning: Smart libraries support learning at all stages of life, offering support for everyone from children to older people of modern society. Library staff of a smart library can help people understand and act on information which can make a real difference to their wellbeing or about new technology.

- Creating opportunities
- Tackling disadvantage
- Creating smarter citizens
- Helping everyone to reach their potential
- Making opportunity more equal
- Improving skills for employment

Promoting economic wellbeing: Smart libraries help jobseekers, find opportunities and prepare themselves for sustainable career development. They offer courses and digital skills training, which enable people to seek work and support for the development of small businesses. It will provide essential support for people applying for welfare benefits in the digital future.

- Growth and sustainable jobs
- A wealthier and fairer country
- Enabling business to create jobs
- Creating sustainable economic growth

Impact on Society

Smart libraries are a form of information technology in which social impact matters as much as technological advancement. It is hard to evaluate new technology in the absence of real users and large collections. The best way to develop effective new technology is by undertaking multiyear large-scale research projects that develop real-world electronic test beds used by actual users and by aiming at developing new comprehensive and user-friendly technologies for digital libraries.

WWW (World Wide Web) has made access to the Internet part of the structure of everyday life. Millions of people all over the world search the web every day. Institutions of higher education, under increasing pressure to improve outcomes, are making well-documented and significant investments in emerging technologies. Colleges, universities and public users of modern society are scrambling to collect data, measure performance, and demonstrate success well. At the heart of this shift lies personalized learning technology that helps users differentiate instruction and think differently about the delivery of instructional content text.

Although indexing an Institution's library repositories is substantially more challenging than open web pages, thousands of digital assets (e-books, e-serials, audio and video) can now be crawled, indexed, enriched and matched to learning objectives each minute.

Imagine the impact on access to materials, as the use of over \$1 billion of buried, digital academic content is increased. But a library's role in powering this digital transformation doesn't end with access. Smart libraries hold the potential to make Netflix-like content recommendations based on students, faculties, research scholar's outcomes or user's preferences first of all.

Application of Recent Advances

Cloud computing: Cloud computing, is a kind of Internet-based computing that provides shared processing resources and data to computers and other devices on demand. It is a model for enabling ubiquitous, on-demand access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications and services), Cloud computing and storage solutions provide users and enterprises with various capabilities to store and process their data in third-party data centers. Cloud computing has become a highly demanded service or utility due to the advantages of high computing power, cheap cost of services, high performance, scalability, accessibility as well as availability.

Cloud computing is a general term for the delivery of hosted services over the Internet. The goal of cloud computing is to apply traditional supercomputing, or high-performance computing power, normally used by military and research facilities, to perform tens of trillions of computations per second, in consumer-oriented applications such as financial portfolios, to deliver personalized information, to provide data storage or to power large, immersive online computer games. Cloud computing services can be categorized as private, public or hybrid accordingly.

Web 2.0: Describes World Wide Web sites that emphasize user-generated content, usability, and interoperability. A web 2.0 site may allow users to interact and collaborate with each other in a social media dialogue as creators of user-generated content in a virtual community, in contrast to web sites where people are limited to the passive viewing of content. Web 2.0 is a set of trends and tools for using the internet. The concept of web 2.0 has emerged into other disciplines and changed the entire mode of practices in library science as well, and a new concept of Library 2.0 has been introduced.

E-Granthalaya 4.0: Library automation software developed by NIC Library and Information Systems Division. The software has been designed keeping in view the requirements of special and government libraries. The software contains various modules like Administration, Acquisition of books and Cataloguing, Circulation, Serials Control, Articles Indexing, Budgets Controls, and OPAC etc.

E-Granthalaya 4.0: A digital agenda for library automation and networking - is an Integrated Library Management Software from National Informatics

Centre (NIC), Department of Electronics & Information Technology, Ministry of Communications and Information Technology, Government of India. The software has been developed by a team of experts from software as well as Library and Information Science discipline. The software is useful for automation of in-house activities of libraries and provides various online member services. The software provides built-in web OPAC interface to publish the library catalogue over Internet.

The software is UNICODE compliant thus, supports data entry in local languages. Latest version of e-Granthalaya i.e. Ver.4.0 is a 'Cloud Ready Application' and provides a web-based data entry solution in enterprise mode with a centralized database for cluster of libraries. E-Granthalaya 4.0 uses PostgreSQL-an Open Source DBMS as back-end database solution. E-Granthalaya 4.0 is made available in NIC National Cloud for Government Libraries Only on request basis with free hosting of application and databases for online access to all smart libraries.

RFID: RFID (Radio Frequency Identification) is the latest technology to be used in library theft detection systems. It allows a library book, to be tracked and communicated with by radio waves. This technology is similar in concept to a cell phone. RFID is a broad term for technologies that use radio waves to automatically identify people or objects.

RFID can be used library circulation operations and theft detection systems. RFID-based systems move beyond security to become tracking systems that combine security with more efficient tracking of materials throughout the library, including easier and faster charge and discharge, inventorying, and materials handling as well.

This technology helps librarians, to reduce valuable staff time spent scanning barcodes while charging and discharging items. RFID is a combination of radio - frequency-based technology and microchip technology. The information contained on microchips in the tags affixed to library materials is read by using radio frequency technology, regardless of item orientation or alignment properly.

Open Source Software

For Digital Repositories: D-Space, Greenstone.

D-Space is institutional repository application software. D-Space is the software of choice for academic, non-profit, and commercial organizations building open digital repositories. It is free and easy to install "out of the box" and completely customizable to fit the needs of any organization. D-Space preserves and enables easy and open access to all types of digital content including text, images, moving images, mpegs and data sets with an ever-growing community of developers, committed to continuously expanding and improving the software.

Greenstone is a suite of software for building and distributing smart/digital library collections. It provides a new way of organizing information and publishing it on the Internet or on CD-ROM. Greenstone is produced by the New Zealand Digital Library Project at the University of Waikato, it is developed and distributed in co-operation with UNESCO and the Human Info NGO. It is open-source, multilingual software, issued under the terms of the GNU General Public License.

For Integrated Library Software (ILS): Evergreen, Koha, Open Biblio, New Gen Lib (NGL), SOPAC (Social On-line Public Access Catalogue).

Evergreen, highly-scalable software for smart libraries that helps library patrons find library materials, and helps libraries manage, catalogue, and circulate those materials. Evergreen is open source software, freely licensed under the GNU GPL.

Koha, the first free and open source software library automation package (ILS). Development is sponsored by libraries of varying types and sizes, volunteers, and support companies from around the world. Koha became a viable, scalable solution for smart libraries of all kinds. Koha is built on this foundation with its advanced features set; Koha is the most functionally advanced open source ILS on the market today.

Open Biblio is an easy to use, open source, automated library system written in PHP containing OPAC, circulation, cataloguing, and staff administration functionality. The purpose of this project is to provide a cost effective library automation solution for private collections or public libraries.

New Gen Lib (NGL) is an outcome of collaboration between Verus and Kesavan Institute of Information and Knowledge management. NGL is developed and maintained by Verus Solutions and Kesavan Institute has provided the domain expertise. It provides many basic ILS functions as well as having several social media functions built in.

SOPAC (Social Online Public Access Catalog) is a module for the Drupal CMS that provides true integration of your library catalogue system with the power of the Drupal content management system while allowing users to tag, rate, and review your holdings. User input is then incorporated into the discovery index so that SOPAC becomes a truly community-driven catalogue system.

Conclusion

As a result smart library is designed to serve all library services faster, better and smartly to its end users through digital technology in different software applications. Smart libraries, as environments for social learning and collaboration, present facilitators of education and knowledge with accelerating dissemination of information in a digital age. Smart libraries emphasize their activities on providing an information commons to the peoples of modern society. In other words, an informal interactive learning place and process that encourages all types of its visitors to communicate, contributes, participate, and engage with the smart library in a smart way. This new dynamic and scientific technological process leads towards a collaborative, social construction, and sharing of information and knowledge between smart users in a positive sense. Smart libraries world-wide have a huge potential to facilitate open and free sharing and human interaction in innovated design open source softwares. Users may use shared physical spaces which can made social and spatial barriers, enabling them from very different backgrounds to engage and share in social learning activities through smart library. The vision of Smart library is to create an "indoor living lab", where students and researchers 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.

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