Open Source Software (OSS) to Create Open Digital Libraries

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ARTICLE DETAILS	ABSTRACT
Research Paper	The idea of a library has undergone a paradigm shift in modern times. A3 (Anytime, Anywhere Accessible) concept has emerged in this digital era due to open source software (OSS) for library management . Anytime, Anywhere Accessible Library is known as an A3 library. It is the ICT-based library of the digital age. With the use of modern ICT devices, especially the rise of Open Source Software (OSS), the idea of the A3 Library has come to pass. It could be interpreted as a novel idea for the virtual library, electronic, digital, etc. An A3 library needs OSS to be vibrant and open to the public worldwide.
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Digital Library

A digital library is a system that offers consumers logical access to a sizable, well-organized collection of digital knowledge and information. The lack of users' prior, in-depth knowledge is what distinguishes this information and knowledge organization. Digital libraries, on the other hand, are organization that offers digital resources, including LIS specialists who are trained to select, arrange, grant access to intellectual property for the purpose of interpreting, distributing, preserving the integrity, and ensuring the longevity of digital works so that users can access them easily and affordably. The capabilities of digital technology enhance users' capacity to identify, access, and utilize digital resources. Digital libraries are actually physical libraries that have been expanded and improved by digital technology.

Among the goals of digital libraries are the following:

1. To expedite the methodical development of the tools for gathering, storing, and organizing knowledge and information in digital format as well as the creation of digital library collections.

2. To encourage the effective and affordable distribution of information to all facets of society.

3. To promote teamwork that makes the most of the significant investment in computers, communications networks and research resources.

4. To improve communication and cooperation between the corporate, government, and academic groups;

5. To support everyone's access to opportunities for lifelong learning.

A3 Library

Anytime, Anywhere Accessible is what an A3 library is all about. It is the ICT-dependent library of the new digital era. The concept of the A3 Library has been realised through the use of modern ICT tools, especially with the expansion of Open Source Software (OSS).It might be viewed as a creative concept for an electronic, digital, virtual library, etc. To be active and accessible to the global audience, OSS must be present in an A3 library.

Software that is Open Source

Open Source Software (OSS) first appeared as free software in the beginning of 1998. It generally refers to software that is made available for unlimited modification and dissemination in the form of source code. Its main characteristic is that anyone can extract, modify, and reuse the software's source code without restriction. Open Source Software (OSS) users have the following freedoms of access: The programme can be disseminated in several versions, enhanced, and used for a variety of purposes. Its functionality can also be examined and modified to meet user needs.

Rights and Responsibilities

OSS is described by the Open Source Initiative (OSI) as software that grants particular rights and duties listed below:

• There will be no fees or royalties associated with redistribution.

• Having the source code available.

• The ability to produce derivative works and changes.

• It could be required to distribute updates and the updated version in addition to the original.

• There is no bias against people or organisations.

• Every permission that is provided needs to work with and transfer to copies that are disseminated again.

• The licensing extends to all aspects of the programming, not just the primary one.

• The license may not impose restrictions on any other programme, therefore both closed- and open-source software may be distributed.

OSS: The Ten Precepts

A software product must meet 10 requirements in order to be referred to as open source, according to OSI. A software license can also be certified by OSI as an OSI Certified License by following the ten guidelines listed below:

(1) Unrestricted Distribution: No party shall be prohibited under the licence from selling or distributing the software as part of a combined software release that includes programmes from multiple sources. A royalty or other payment shall not be demanded by the licence for such a sale.
(2) Source Code: The programme needs to have source code and enable both source code and compiled form distribution.

(3) Derived Works: Distribution of modified and derived works must be allowed by the programme under the same terms as the licence for the original software.
(4) Integrity of the Author's Source Code: The licence may forbid the publication of updated source code if it allows the distribution of "patch files" that contain the source code in order to change the programme at build time.
(5) No Discrimination against Persons or Groups: The widest range of people and organisations must be equally qualified to contribute to open source in order to guarantee that the process produces the most potential benefit.

(6) No Discrimination against fields of activity: The licence may not prohibit any individual from utilizing the programme in a specific field of activity.

(7) Licence Distribution: The rights associated with the software must be applicable to everyone whom the programme is redistributed without requiring those parties to execute a new licence.

(8) Licences cannot be product-specific: The rights granted to programmes should not be contingent on their inclusion in a specific software distribution.

(9) Limitations on Other Software: The licence cannot place any limitations on any other software that is distributed with the licenced software.

(10) A clause cannot be based on a specific technology or interface design because the licence must be technology-neutral.

OSS in the Library

The following are some of the key functions of OSS in libraries:

Automation of library tasks can be completed effectively with the help of OSS. The management of the multimedia collections at the library is made simpler by OSS. Open Source Library Networking (OSS) can be facilitated by the Linux operating system, which lowers expenses. OSS can be effectively employed in various library office tasks. Office work can be managed, for example, with an Open Office Software System (OSS). OSS offers programming and scripting languages that can be utilised for creating library websites. OSS is effectively employed in the creation of digital libraries. Additionally, it allows the library to make its services available anywhere, at any time.

Using Open Source Software (OSS) to Create Digital Libraries

The creation and administration of material is now essential to the ongoing survival of the modern library due to the advancements in ICT (information and communication technology). Maintaining an intuitive web-based user interface while digitizing, storing, indexing, conserving, and disseminating digital content is the responsibility of a digital library. A certain amount of operating software needs to be installed in order to use digital libraries. In an effort to create digital libraries that provide comprehensive digital library solutions, a number of free software packages, such as Dspace Digital Library Software and Greenstone Digital Library Software, are available. Generally speaking, the focus is on using open source software packages, which can provide the resources required to create bespoke

apps for managing and allowing access to digital collections that are made available via online or in Web-connected Digital Library Archives. It also requires some additional software. Use the Open Source Digital Library Software listed below to create a digital library:

(a) Software for Dspace Digital Library

Dspace is an open source programme that may be downloaded for free from http://www.dspace.org. It is available as an open source system that may be customised and extended to research institutions across the globe. It facilitates the production, indexing, and retrieval of various kinds of digital content. Dspace is flexible enough to adapt to community needs. Metadata complies with international standards, and system compatibility is pre-installed.

Some of DSpace's most notable features are as follows:

- The submission feature enables researchers and scientists to upload digital materials from any location in the world;
- Workflow features include the ability to moderate submitted documents,
- The use of persistent handles,
- Ccompliance with standards such as OAI-PMH v.2.0 and Dublin Core,
- The ability to build security at different levels to effect restricted access, and
- The ability to build digital libraries based on Indian languages in accordance with UNICODE.

(b) Software for the Green Stone Digital Library

The programme is released under the GNU General Public Licence and can be accessed for free at http://greenstone.org. The Greenstone Digital Library Software was developed by the University of Waikato's New Zealand Digital Library Project and is used to build and distribute digital library collections. Data can be organised and shared via the Internet or on CD-ROM.

(c)Version 2.2.2 of the GNU E-Prints Archiving Software: You can get the software at http://www.eprints.org

(d)The software Ganesha Digital Library is available for free download at http://gdl.itb.ac.id/download/

(e) Digital Library System Libraonix: The Libronix DLS can be obtained from the website http://www.logos.com/products

The Open Library Concept is Implemented at INFLIBNET Centre:

The INFLIBNET's initiatives for free access to digital and electronic resources are listed below; they could serve as models for the Open Library Concept.

The INFONET Digital Library Consortium (UGC) can be found at http://www.inflibnet.ac.in/econ/about.html

JCCC@Digital Library Consortium: An Access Point to Academic and Research Resources in India (http://www.inflibnet.ac.in/econ/jccc.html)

Institutional Depositories at INFLIBNET Centre (http://www.inflibnet.ac.in/dspace/)

Electronic Theses and Dissertations Projects (ETD Project of INFLIBNET Centre)

Use of OSS in the A3 Library

The following could be considered the main causes of the widespread use of OSS in current libraries: Availability at no cost, saving the library's budget. Not being restricted to a single provider, which gives you the option to purchase technical support from another business or vendor. Adaptability in usage and accessibility. The ability to divide up the work of resolving accessibility-related problems with information   systems.
It is not necessary to pay any fees for licencing. OSS level of reliability is paramount. The liberty to duplicate and disseminate the software permits the library to create duplicates for each computer system.The upgrade charge is minimal, sometimes even nonexistent. The Digital Library Federation, USA (2001) Draft Report looked at the three advantages of open source software (OSS) as the main arguments in favour of OSS use in libraries. OSS is a cost-effective substitute for libraries that depend on software that is given by the commercial sector. To create software and systems that cater to the needs of its users, libraries must use Open Source Software (OSS). It guarantees improved functionality of library systems and online services for libraries and their users, which benefits library users.

The Paradigm Change:
All kinds of libraries have seen a radical paradigm shift as a result of the use of digital technologies. This change is shown in the following table:

From	To
Custodian of books service	Oriented information suppliers
One medium	Multiple media
Own collection	Wall-free library
In good time	Just in time
In-sourcing	Out-sourcing
Local reach	Worldwide reach
Users visits a library	Library comes to users

Conclusion:

Today's digital libraries use Open Source Software (OSS) far more frequently than they did even a few years ago. By using it, the libraries were able to: Lower the initial implementation costs; Increase user autonomy over computer management; Dismiss the notion that knowledge is something that should only be pursued by a small number of people; Automate the system for libraries; create digital libraries; create websites; network libraries; boost reliability; and make the library accessible at all times and from any location. In the near future, it is expected that most libraries—regardless of type—will make use of open source software (OSS) to help their patrons with complex information needs and to everyone's advantage. In this new context, library and information professionals (LIS) have to cope with content that is available in digital media in addition to traditional printed resources.

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