

COMPARATIVE SURVEY ON TRADITIONAL LIBRARY AND WELL EQUIPPED DIGITAL LIBRARY

¹TASLEEM BANU,²Dr.ARUN MODAK

¹Research Scholar, ² Research Guide

¹SSSUTMS, Sehore, India, ²SSSUTMS, Sehore, India

Abstract— this work discussed about various technologies used in storage of libraries, it can collect, organize and disseminate data and information in an effective manner if they have good information management systems support. Information systems require well-structured data and consistently applied vocabularies in order to be truly useful. In order to access information systems they require elements of readability, browse ability, search ability and interactive assistance. As the size of an information system increases it requires ability to browse and search.

Index Terms— DSpace, Software, Content Management, Open Source Software

INTRODUCTION

DoKS is an open source project initiated by the library of the Katholieke Hoge school Kempen (KHK) during 2013 for organizing electronic theses and curricula vitae of graduating students at Flemish university colleges, Belgium. The project was funded by the Institute for the Promotion of Innovation by Science and Technology in Flanders, private industry partners and non-profit organizations. One of the main reasons for developing DoKS software was the need for a system that could be highly customized by users and tailored to specific needs of Flemish university colleges.

DoKS software also support students to define to what extent their CV should be available to other users. For the present study installation of 1.2.4 version of DoKS software was carried out and selected for further evaluation. Though 1.3.0 as a latest version of DoKS is available on SourceForge site, the installation of this version was not successful, hence earlier version was selected and further evaluation was carried out on different evaluation criteria.

DSpace is an open source digital library software developed jointly by MIT libraries and HP labs. DSpace provides tools for management of digital assets, and is commonly used for building institutional repositories. It was basically designed to manage, host, preserve and enable distribution of the scholarly output of MIT's faculty.

DSpace helps to create, index and retrieve various types of digital contents which include research articles, grey literature, theses, cultural materials, 3D digital scans of objects, photographs, films, audio/videos, scientific datasets, institutional records, educational materials and other forms of content. DSpace was established to capture, preserve and communicate the intellectual output of an institution's faculty and researchers through central place.

CHARACTERISTICS OF DIGITAL LIBRARIES

The consistent characteristic of a digital library is integration of technology and policy. Digital libraries are the digital face of traditional libraries that include both digital collections and traditional collections. DL also includes digital materials that exist outside the physical and administrative bounds of any one digital library. DL provide a coherent view of all of the information contained within a library, no matter its form or format and serve particular communities, as traditional libraries, though those communities may be widely dispersed through the network.

DL are mainly characterized by 'collaborative support, digital document preservation, distributed database management, hypertext, information filtering, information retrieval, instructional modules, intellectual property rights, multimedia information services, question answering and reference services, resource discovery and selective dissemination of information. To build DL one requires both the skills of a librarian as well as those of computer scientist.

KEY FEATURES OF DIGITAL LIBRARIES

Digital libraries possess large collection of digital information which has high value. While creating digital libraries, not only material is of high quality, but also some care is placed on cataloging the material, and making sure that the origin, date, and other external descriptive information is accurate for preserving the same information for future use. Many digital library projects are concerned with providing digital access to material that already exists within traditional library collections such as scanned images of photographs or printed texts, digitized video segments, etc. as well as scientific data sets, software libraries or multimedia works.

One of the important feature of any DL are, DSL's provide different services such as:- Alerting Services, Browsing and searching, Filtering, Translation, Publishing, Classification, Intelligent User Agents, Personal Digital Libraries, High Performance Document Servers, Efficient Retrieval Functionality, Document delivery and Data Dissemination, Security and User Access Models, Trusted Document Servers, Multilingual, etc.

Many digital libraries provide different search options and users can conduct searches on various fields as well as provide facilities for federated search or unified search such as searching across number of digital libraries. The following are the common browse and retrieval features available in most of the Digital Libraries:

Boolean operators, phrase searching, match of exact words/phrases, field specific searches, limit field searches, save search, search history, truncation, wild card, proximity search, range searching, use of thesaurus or permuted index, subject search and stemming, table of

contents browsing, Alphabetical browsing, Explode or expand search, lateral searching, density of terms, frequency of terms, reference links, persistent links, custom links, Multidimensional browsing etc.

The collection in DSpace is organised into communities, collections and items. The communities in DSpace include a high-level organizational structure whose only purpose is to divide collections into related groups. Each community contains one or more collections, which are containers for related items. An item is a deposited object of any type: a published article, an image, audio, or video file, notes, a presentation, etc. DSpace is specially designed for digital preservation support for all the documents that are added into the repository in a simple fashion.

The first version of DSpace was released during November 2012. For the present study installation of 1.4.2 version was carried out and selected for evaluation study. This version was released on 11th May 2007. The latest version of DSpace is 1.5.2 which was released during March 2008. The following sections lists different observations after having installation of version 1.4.2.

CONTENT ACQUISITION

Which document types can be added in the software books, reports, journal articles, lecture notes, technical reports, thesis, images, audio/video files, data set files etc.? DSpace supports adding all types of digital documents ranging from books, reports, journal articles, lecture notes, technical reports, thesis, images, audio/video files to data sets. The table 1 represents the DSpace user Mailing List Data.

DSpace user meeting is taking place every year since 2014 as well as all over the world there are workshops held on DSpace. In India DRTC has taken a leading role in marketing DSPace at various organizations and have conducted several workshops on DSpace. DRTC has also developed a dlrg page i.e. <http://drtc.isibang.ac.in/mailman/listinfo/dlrg>. for DSpace support for the users to submit their queries on DSpace, among other discussion regarding DL research. The Table 1 represents the DSpace users mailing list Data.

Table 1: DSpace User’s Mailing List Data

| Year | Number of requests sent on Dspace User’s mailing list |
|----------------------------|---|
| 2011 | 89 |
| 2012 | 378 |
| 2013 | 336 |
| 2014 | 463 |
| 2015 | 552 |
| 2016 March 7 th | 107 |

The DSpace architecture is three-layer architecture, including storage, business, and application layers, each with a documented API to allow for future customization and enhancement. The storage layer is implemented using the file system, as managed by Postgre SQL database tables. The business layer is where the DSpace-specific functionality resides, including the workflow, content management, administration, and search and browse modules. The application layer covers the interfaces to the system: the web UI and batch loader, in particular, but also the OAI support and Handle server for resolving persistent identifiers to DSpace items. This architecture was designed during 2011. Does the architecture supports separation between different local parts and put into different machines e.g. centralized/distributed database, relational/object-oriented database management system, different components of the directory to distribute to different machines and the transport model protocols for communication between the system and the user interface or between system components. The Figure 1 Shows the DSpace Architecture system, which consist of application layer, business logic Layer and Storage layer.

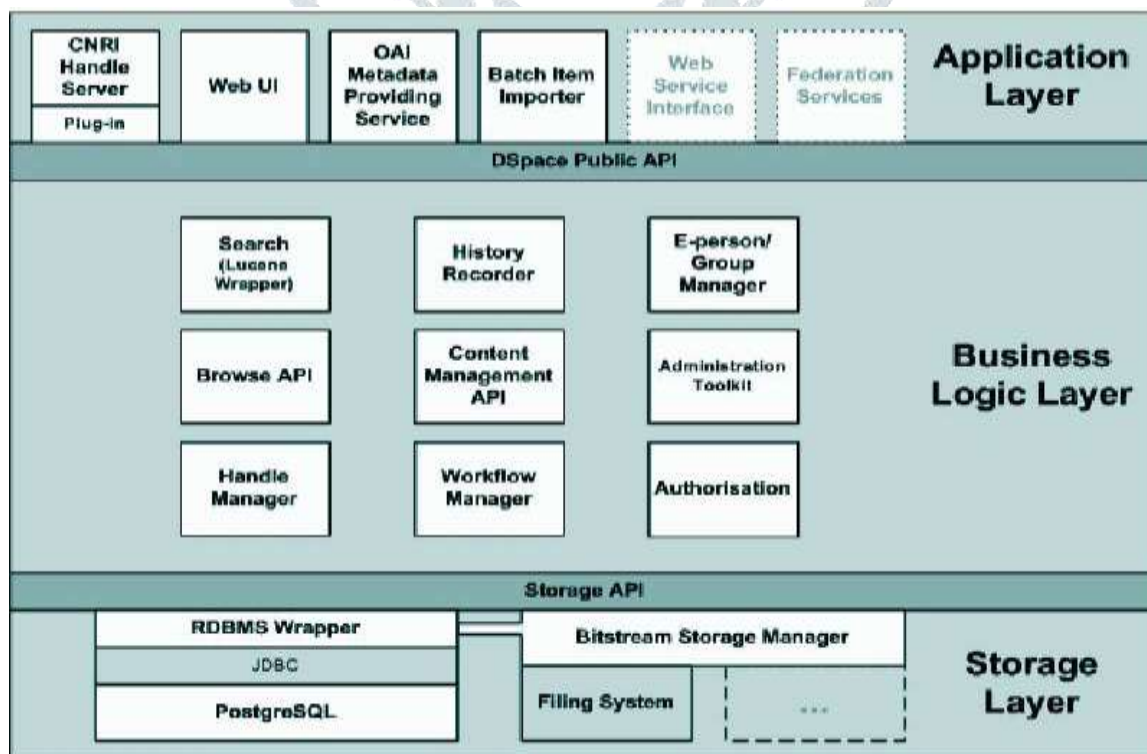


Figure 1: DSpace Architecture

DIGITAL PRESERVATION

Does the software support any digital preservation strategy and if yes, does it explicitly support any particular preservation strategy, such as described by PREMIS like, bit-level preservation, format migration, format normalization, emulation, or restrictions on submission formats?

DSpace supports bit preservation, where a digital file is carefully preserved exactly as it was created without the slightest change. While submitting documents in DSpace system keeps track of known bit stream formats and their support level. The repository provides a list of supported file formats. Supported formats include those that are documented standards e.g., TIFF, AIFF, XML or have published specifications e.g., PDF, RIFF. The other two categories of support for MIT's DSpace are "known" and "unsupported". "Known" formats are those that are common enough to be familiar and usually quite popular, but which are proprietary in that there are no published specifications on which to base functional preservation. "Unsupported" formats are those that are either unknown to the Libraries or are extremely rare e.g., a compiled program, a commercial CAD/CAM file, etc. The figure 2 represents the DoKS installation Screen.

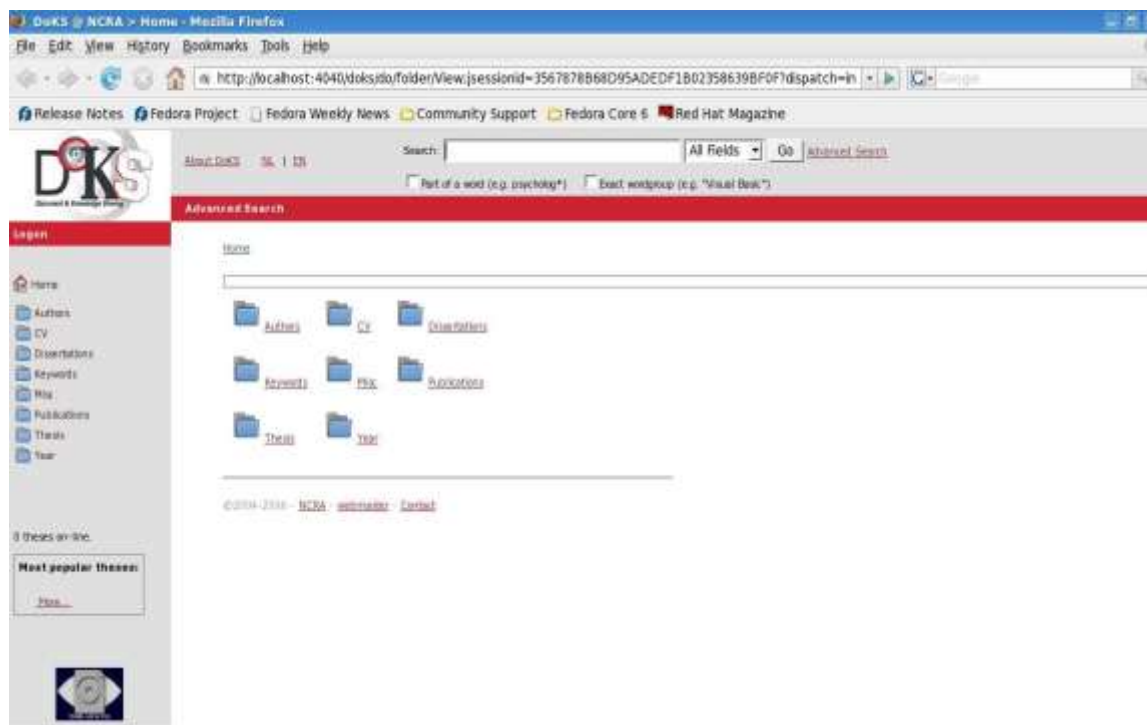


Figure 2 DoKS Installation Screen

Conclusion:

Open Repository Software that has been considered for the present study and observations/ results of evaluating each software against the defined set of evaluation criteria. DoKS software model is basically to organize electronic thesis collection for the students passing from any university. It is one of the different models as it can also be used as a recruitment tool where DoKS supports to upload curriculum vitae of the student along with his/her papers, thesis etc. This feature was supported by DoKS software as there was a continuous demand from the students of Flemish University. DoKS software has facility to automatically create a CV for all graduating students based on data from student administration files.

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