Use and Application of Open Source Content Management Software in Modern Academic Libraries: An Overview.

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Abstract: Content Management Systems are not just a product or a technology. CMS is a generic term which refers to a wide range of processes that underpin the "next-generation" of medium to large-scale websites. Content management is a process which deals with the creation, storage, modification, retrieval and display of data or content. Website Content Management Systems (CMS) have become a popular option for producing, organizing, and maintaining online content for businesses, institutions, and even individuals. Libraries have been enthusiastic adopters of the CMS content model, employing open source software in an effort to freshen up their websites and integrate Web 2.0 features. The purpose of this paper is to inform LIS professionals about the importance, advantages and disadvantages, of using Open Source Content Management System Software. This paper is primarily concerned with the open source CMS option, and will discuss considerations for choosing an open source CMS package, some of the options available, and the potential impact on libraries, with a particular focus on Drupal, Joomla, and Wordpress, and also some of the most popular open source packages.

Keywords: Content Management Software, Open Source, Drupal, Joomla, Academic Library.

1. Introduction

Content is a king[1], Library is his Palace and Librarian is a Governor to regulate and govern the content management. Being in the digital world at hybrid library movement in web environment, content is granular information it would be text, graphics, pictures, sounds videos and data etc., Greater challenge of library and information science professionals is how to manage this granular information in the dynamic web environment. Traditional content management software does like old proverb "garbage in – garbage out". The way in which content is managed with in the overall content management life-cycle from creation to dissemination is the content management system. It is a tool that enables a variety of technical and non-technical staff to create, edit, manage and finally publish a variety of content (such as text, graphics, video and document etc.), which being constrained by a centralized set of rules, process and workflows that ensure coherent, electronic content. Implementing content management system in Library, Library website environment needs the content management strategy. The elements of content management strategy has figured by Martin White in his book entitle "The Content Management Handbook" is a road map to frame the strategy[1].

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2. Open Source Software in Academic Libraries

Open source software[2] is software that provides access to the source code, meaning that users are free to see how the product is made. Additionally, users have the right to modify the product (change the code) to their liking, experiment with different versions, and give away or resell the new product with the guarantee that they must also provide their source code, and so on. Modifying the product and redistribution are the two main components of open source software.

For many libraries, organizing their books and other media can be daunting task, especially as the library grows with more material. Years ago we had crude card catalogue systems (remember the Dewey Decimal System) that kept things organized, but were difficult to maintain. With today's computing technology, organizing our libraries has never been easier or more efficient. Gone is the card catalogue and in some libraries, it's much easier to locate a book through and internet connection and picking it up upon your arrival, rather then wasting the time scouring the aisles looking for your next read. Now just because the world has been blessed with wonderful software solutions that make everything easier to do, doesn't mean that every library in the universe is using these solutions. Many Libraries do not have huge amounts of money to burn, and any that they do get usually goes to purchasing additional resources.

In modern library and information centers are using various open source software for various purposes those are listed below.

a. Open source library automation software:

- Koha
- Evergreen
- NewGenlib
- OpenBiblio
- Abcd
- Opals
- Phpmylibrary, etc.

b. Open source Digital library/Institutional repository software:

- DSpace
- Greenstone
- Fedora
- Eprints, etc.

c. Open source learning management system software:

- Moodle
- Atutor
- ILIAS
- OLAT (Online Learning And Training)
- Dokeos, etc.

d. Open source electronics resource management system software:

- Caliber
- ERMes
- FreERMS, etc.

e. Open source content management software:

- Drupal
- Joomla
- Wordpress
- Plone
- Expression engine
- Media wiki

3. What Is Content Management?

Content management[3] refers to the system and processes whereby information is created, managed, published, and archived. Information typically passes through this lifecycle for a finite period of time. A content management system (CMS) provides the necessary infrastructure for multiple persons to effectively contribute content and collaborate throughout these lifecycles. Simply put, a CMS is a complete computer system that manages information. A CMS can be programmed in any computer language and run on any computer system. It allows data to be input, stored in a database, edited by authorized users, and displayed to the public. A good CMS handles every aspect of formatting, storing, cataloguing, and retrieving data, which means that editors and users don't need any technical expertise and don't need to use a special program. CMSs are used both professionally, by newspapers, libraries, online stores, academic journals, and non-professionally, for personal applications like online photo albums, diaries, and music collecting.

At its heart[4], the web is a tool for sharing information. To make it possible to display that information (or "content") on a variety of different machines, people devised a language (HTML) that told the machines how to display it. From the machine's perspective, this was great: it helped separate information from mere formatting. From the perspective of someone who wanted to share information, it wasn't so great: they now needed to learn HTML in order to publish their content.

CMSs were developed to resolve this dilemma. A CMS helps you create and store content in a shared repository. It then manages the relationships between content items for you (e.g. keeping track of where they fit into the site hierarchy). Finally, it ensures that each content item is connected to the right style sheet when it comes to be published. Some CMSs also provide facilities to track the status of content items through editorial processes and workflows.

4. Content Management Software in Modern Academic Libraries

4.1. Drupal: Drupal is an open source software for creating content management systems maintained and developed by a community users and developers and written in PHP. It is distributed under terms of GPL, which means any one is free to download it and share it with others, allows easily organizing, managing and publishing content with an endless variety of

communication. IT IS USED AS back end framework for at least Drupal provides easy collaboration capabilities, user authentication.

4.2. Joomla: Joomla[5] is a free and open-source content management system (CMS) for publishing web content. It is built on a model–view–controller web application framework that can be used independently of the CMS. Joomla is written in PHP, uses object-oriented programming (OOP) techniques and software design patterns, stores data in a MySQL, MS SQL, or PostgreSQL database, and includes features such as page caching, RSS feeds, printable versions of pages, news flashes, blogs, polls, search, and support for language internationalization.

4.3. WordPress: WordPress[6] is an open source software and known as the most successful content management system and blogging software written in PHP and based on MySQL database for creating blogs and websites for all kinds of organizations, companies and millions of individuals. The WordPress software is also the origin of the service **WordPress.com** and is available to download for free under the terms of GNU GPL. In the **contest of Best CMS** which was held in 2007, **WordPress got 1st place** in the category of "**Best Open Source Social Networking Content Management System**".

4.4. Plone: Plone[7] is a content management system (CMS) which you can use to build a web site. With Plone, ordinary people can contribute content to a web site without the help of a computer geek. Plone runs over the Web, too, so you don't need to install any special software on your computer. The word *content* is meant to be general, because you can publish so many types of information, including text, photos, and images. These can exist in many forms: documents, news items, events, videos, and audio files, any types of file and data that can be uploaded or created on a web site. Content can also be uploaded from your local computer.

4.5. Expression Engine: Expression Engine, or "EE," is a multi-purpose content management system developed by American software company Ellis Lab. It is a modular web platform that offers three tiers of licenses: Freelancer, Non-Commercial, and Commercial.

One of EE's proclaimed benefits is its ease of use. Practically, this means that anyone can use it, without having to know PHP, the programming language EE is built in. The user interface is designed to make website and content management as simple and friendly as possible, without sacrificing the dynamic power of the platform in any way.

5. Why are free software CMSs important?

The dotcom boom focused a lot of attention[8] on the proprietary vendors. It also gave them the investment to rapidly develop their systems. However, many aspects of content management are well suited to free software. In particular:

- **The web thrives on openness and collaboration.** This is well matched to the free software model: free software systems are developed collaboratively, so their developers have a vested interest in getting it right. This means that free software CMSs may be particularly apt for supporting collaborative content creation and sharing on community-driven websites.

- **CMSs help technical people do their jobs.** Library information officers need to document their information sources. They need to collaborate with each other on projects. They are often called on to maintain websites. Good content management tools help them do all these things, so they have an incentive to develop and improve these tools. Many information managers are happy to share the tools they've developed, especially if this means they can benefit from user's tools.
- **Many small and cost conscious organisations need to manage content.** Websites are no longer the domain of large and well-funded organisations. There are a large number of organisations, and individuals, who find the low initial license costs of free software very attractive.
- **There is no dominant incumbent vendor for web CMSs.** Even the first wave of vendors is relatively young, and none dominates the market in the same way that a small number of vendors do in other areas (e.g. for ERP or CRM systems). Thus many organisations see free software CMSs as no more risky than proprietary ones.

6. Advantages of Open Source Content Management Software

The advantages[9] of using a CMS to build a library website include:

- Ability to add or edit pages on your website yourself

  It is nice to have control over your investment; the feeling of empowerment to control your website is a good one. In particular for library that is dynamic and needs things to happen fast.

- Not have to pay your developer monthly maintenance or hourly rate for changes

  Why pay someone to do something you can do yourself right?

- Useful in library's, with many content contributors, that perhaps need to audit additions and changes to content being made

  Many CMSs offer the ability to delegate roles and cascade these throughout the organization with some people writing content and others giving the OK. A CMS can be ideal for this type of workflow.

- Separation of content, logic, and data
- Ability for multiple content providers (many staff members can edit the website, rather than just one expert)
- Easier or automatic integration with Web 2.0 tools (built in RSS for instance)
- Many cool add-ons that provide added functionality to the website (an Events Calendar for instance)

7. Disadvantages of Content Management Software

- **Potential to break your websites look and feel if not used properly:** So many things can go wrong, formatting errors, incorrect preparation of images, no image compression, inconsistent resizing resulting in out of proporation photographs, breaking away from the 'style guide' of your website that you may have paid a designer a lot of money to create for you, thereby effecting the consistency of your brand. Most of this can be mitigated by proper training or indeed good advice on which CMS to use and as they say time heals all things. After some initial teething trouble most of these issues can be ironed out eventually.
- **You may not have the resource to update website regularly:** (By resource I mean the trained, motivated staff with time in the day, on top of all their other duties, Note: do you plan to pay them more to take on this extra responsibility or if you plan to do it yourself are you aware of the time involved to do it properly) , there is no point paying for a CMS to be implemented, that you don't intend to use very often and more importantly one that you don't have the resources; time, staff and skills to use effectively.
- **Using a CSM effectively can require certain computer skills that you or your staff may not have:** Training will cost money so think about offsetting this against a retainer on your developer. Both options are well worth consideration.

8. Conclusion

The adoption of CMSs to manage academic libraries' websites is increasing, but not all CMSs are created equal. When given input into switching website management tools, library staffs have many factors to take into consideration. These include, but are not limited to, in-house technical expertise, desirability of open source solutions, satisfaction of peer libraries with considered systems, and library specific needs, such as workflow management and customization requirements.

Ideally, libraries would always be partners at the table when campus-wide CMS decisions are being made, but the article explains that this does not happen in most cases. If a library suspects that it is likely to be required to move to a campus-selected system, its staff should be alert for news of impending changes so that they can work to be involved at the beginning of the process to be able to provide input. A transition to a bad CMS can have long-term negative effects on the library, its users, and staff. A library's website is its virtual "branch" and vitally important to the functioning of the library. The management of such an important component of the library should not be left to chance.

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