Open Source Content Management System for Content Development: A Study on Wordpress, Joomla and Drupal

*Dr. J. Vivekavardhan and **Dr Manoj Kumar Verma#

*Assistant Professor, Department of Library and Information Science, Osmania University, Hyderabad; E-mail: jvk_dn@yahoo.com

**Assistant Professor, Department of Library and Information Science, Mizoram University, Aizawl ; E-mail: manojdlis@mzu.edu.in

Corresponding author

Abstract

With the advent of the web, the mode of service delivery has changed in online from offline, and networks become a medium for quick access and delivery of services in academic libraries. Content management system is tools for managing content web page over WWW and Content management software allow online publication and manipulation of web content. Purchasing a web content management system is a technical, expensive and lengthy process for a library. At present, there are lots of open source content management systems are available in the market. As an open source content management system, it has own advantages but out of so much, only a few like Wordpress, Joomla, Drupal are popular in the market because of excellent functionality, modules, banner management, templates, and support. Open Source means you can change the code of the page layout according to your need. Content Management System enables a developer to create seamlessly, edit, review and publishes the electronic text on websites. The paper explores the historical development of Content Management System, working process of Content Management System, various Content Management Systems and their Uniform Resource Locators. The paper also describes the content management system features, comparative account of Joomla, Drupal, WordPress.

Keywords: Content Management System, Content Management Software, Joomla, Drupal, Wordpress, Website Design

1. Introduction

A system which is used to manage the content is called as Content Management System (CMS). Content Management System is the fastest way to create content and update the website. The disorder of an extensive website can be compared with a library without the Dewey decimal classification system. It is tough to classify the documents in the similar fashion disorder of a comprehensive website is tough to retrieve the information from the web. We can say that CMS is a server side program that stores web page and disseminating the every detail in a database, instead of as HTML pages.Content may be a text, multimedia files, embedded graphics,

documents, photos, music, etc. It enables a developer or coder to create effortlessly, edit, review and publishes the electronic contents on websites.

Content Management System (CMS) was programmed in C++ in early days and run on commercial databases like Oracle; those days only big-budget websites could afford using CMS. Later, with the creation of the dynamic HTML engine, PHP in 1997, CMS became stable, cheaper and easy to use for library users. Content development is based on selected criteria which include installation, platform support, browser support, themes, documentation, community support, modules, widgets, extension, user management, usage, design, plug-ins, performance, scalability, etc. A complete Website with a Content Management System has a number of futures like it keeps the site updated, change the site layout, looks from one single place or menu, post new content and easily organize the contents.

Content Management System Definition:

Content Management System is software that enables an organization to create, edit, review and publish the electronic text. (Source: **Webopedia.com)**

"A content management system (or CMS)is a system used to organize and facilitate collaborative content creation.Recently, the term has been associated almost entirely with programs for managing the content of websites. Web Content Management (WCM) is also used to refer to these programs." (Source: http://en.wikipedia.org/wiki/Content_management_system)

A content management system (*CMS*) is a computer application that supports the creation and modification of digital content using a common user interface and thus usually supporting multiple users working in a collaborative environment.(Source https://en.wikipedia.org/wiki/ Content management system) .

2. Review of Literature

Content Management System development was influenced by the advances in computer hardware and software. Depending upon the storage capacity, operating system, networking innovation in internet browsing, databases, and other changes should support the Content Management System environment for the development of websites. Content Management System history was begun from the year 1975 through the electronic publishing concept. Early CMS were developed to allow small groups of knowledgeable people to take control of an organization's content. First CMS are developed by the Roxen (1994) and Blitzen (the mid-1990s) Ingenius (1999) and Vignette. The main features were a very ordered progress environment, and you had to use code tags and system templates because there was no WYSIWYG (What You See Is What You Get) editor. Later in 1996 the websites are managed by editing the HTML files and uploading them to their web servers.

The second stage of CMS growth was led by software houses or agencies who took over the functionality and growth and started to build today's CMS. From 1996-99 CMS vendors were created highly sophisticated tools for their product development. It was created massive demand for their CMS products. CMS programmers have developed their products and offered at a lower price during 2000-2003. Previously leader RedDot and others led the development of specialists such as DotNetNuke and Mambo (later they changed to Joomla and DotNetNuke), which are still used today. Then 2003 CMS are changed their mode from free or open access development.

After that CMS had become features and more web organizations needed both the technical skills, as well as designers, to adopt each client site into the CMS frameworks. As the open source movement got going, the competencies of codes and designers designed popular templates for popular open source apps like WordPress, Joomla, Drupal, came into force. Today the industry split into Enterprise Document Management System (EDMS) and Web Content Management System (WCMS) which itself is further divided into free, open source and paid-for solutions. There are many CMS available in the web environment. There is a paradigm shift from individual's ability to code versus their skill at design. Website development has been enabled by the new third generation of web CMS tools.

3. Objectives and Methodology of the Study

The other objectives of the study are to:
1. Analyze the working process of Content Management System
2. Find out the state of art report on Content Management System
3. Explore the working process of Content Management System
4. Find out the features of Wordpress, Joomla, and Drupal.

3.1 Significance of the Study

Content Management System has become an indispensable tool in our everyday life. Many CMS products have emerged today it is hard to choose the right CMS for user needs. When we seek information, we often go to the favorite website or blog and look at the returned pages. In this context, we felt it is essential to have a study of usage and impact of Content Management Systems. This study would help to assess the working process, and features of various Content Management Systems.

3.2 Methodology

The study is based on the extensive review of literature available in the print journals, online journals on the internet to explore the Content Management System and features of various Content Management Systems

3.3 Limitations of the Study

Content Management System are available globally, but the present study is confined to the development of Content Management System, working process of Content Management System, the study is limited to the features of Content Management System, Finally paper compares the Wordpress, Joomla and Drupal Content Management system functions.

4. Content Management System Working Process
Content Management System workflow follows as content contributors, content design managers, content editors, content approvers, content management hosted application Work Flow Management, Publication Management, website and site visitor.
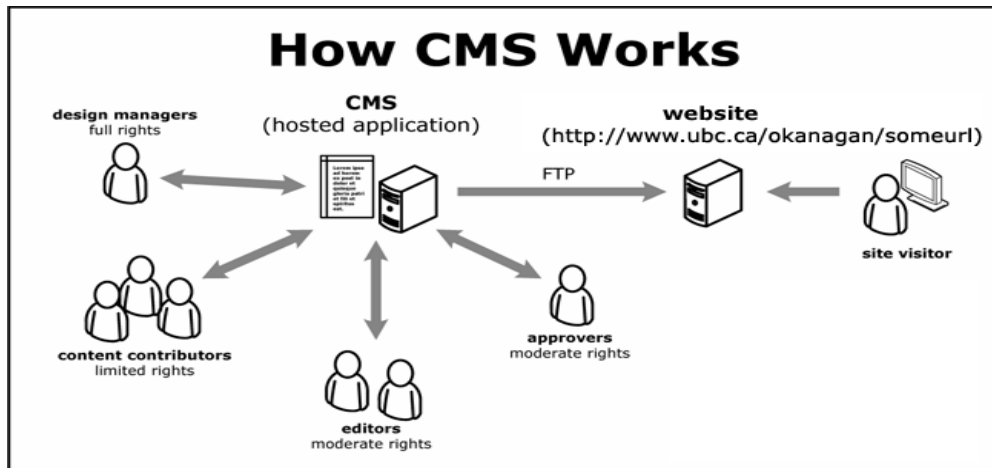
Figure-1: How Content Management System Works
(Source: http://www.opendesigns.org/4-lesser-known-cms-worth-checking-out/)

Content contributors create the content and store it in a database. A content design manager designs the layout of the content and designs the content. Content editors are responsible for planning, creating, editing and publishing information on websites. Content approvers are the managers of the content to approve the content to publish. The functionality of the hosted application is an open web application that has all of its resources stored on a web server.

Figure-2: Components of a Content Management System
(Source: http://www.vdocs.org/index.php/content-management-system)

Workflow management allows the content to monitor, adjust, and maintain the process through which the creation and publishing tasks are done. Publication Management organizes the content

with metadata and formatting. Publishing permits to merge the content data, content formatting and transfer it from the database to the website, finally site visitors visits the public internet site.

4.1 Features of Content Management System

Every Content Management System has its own features with user-friendly tools to build websites or blogs. The features are mainly

- ➢ Graphic Templates
- ➢ Easily editable content
- ➢ User Authentication
- ➢ Workflow Management
- ➢ Menu Management and Extended Functionality
- ➢ Plug-ins and Themes availability
- ➢ Extensibility and Integration
- ➢ Customization and Upgrades
- ➢ Allows multiple administrators to manage the online content.
- ➢ High performance and Scalability
- ➢ Installation time and Complexity
- ➢ Ease of use
- ➢ Advanced Security Management

Content Management System keeps websites well organized, increases the data security, and reduces the site maintenance costs. Several open source content management systems such as Wordpress, Joomla, Drupal, Plone, Magneto, Typo3, Text Pattern, DotNetNuke, etc. are available that may be of much use while designing a website.

4.2 Types of Content Management System

Sl. No	Content Management System	URL Address
1	WordPress	http://www.wordpress.com
2	Joomla	http://www.joomla.org
3	Drupal	http://www.drupal.org
4	ExtensionEngine	http://www.extensionengine.com
5	Text Pattern	http://www.textpattern.com
6	Radiant CMS	http://www.radiantcms.org
7	SilverStripe	http://www.silverstripe.com
8	Typo3	http://www.typo3.org
9	Plone	http://www.plone.org
10	Magento	http://www.magento.com
11	Tiki	http://info.tiki.org/
12	Pligg	http://www.pligg.com
13	Xoops	http://www.xoops.org
14	MODX	http://www.modx.com
15	DotNetNuke	http://www.dnnsoftware.com

5. Comparative study of WordPress, Joomla and Drupal

Sl. No.	CMS Features	WordPress	Joomla	Drupal
1	Home Page	www.wordpress.org	www.joomla.org	www.drupal.org
2	Released by	Matt Mullenwegg	Forked from Mambo	Dries Buytaert
3	About	Easy to use blogging platform. Ever increasing of themes, plug-ins, and widgets this CMS is widely used.	It offers a middle ground between WordPress and Drupal. It builds more complex sites than Wordpress.	It is a powerful, developer-friendly tool for building complex sites. It requires some expertise and experience.
4	Release year	2003	2005	2001
5	Popularity	140Milliondownloads	>30Million downloads	>15Million downloads
6	Free themes	2000$^+$	900$^+$	1800$^+$
7	Free Plug-ins	27,000$^+$	7,000$^+$	24,000$^+$
8	Latest Stable Release version	4.3.1	3.4.4	7.39
9	UpdateFrequency	42days	36 days	51 days
10	Top sites using the platform	Forbes, CNN, SONY, NASA etc	Harvard University, MTV, City Bank, etc	Linux, White House (Washington) etc
11	Market Share	60.7%	7.6%	5.1%
12	Supported Databases	MY SQL, Maria DB	MYSQL, PostgreSQL, MSSQL, SQLite	MYSQL, PostgreSQL, Oracle,SQLite, Microsoft SQL server
13	Platform	PHP	PHP	PHP
14	Internal Search Engine	No	Yes	Yes
15	Operating system	Cross Platform	Cross Platform	Cross Platform
16	License	General Public License	General Public License	General Public License
17	Usage	It is a web software, use to create beautiful website or blog.	It is an award-winning CMS, enables to build powerful websites.	It is an open source Content Management platform powering millions of websites.
18	Powering Websites	17.6%	2.7%	2.3%
19	One click Installation availability	yes	yes	yes
20	Manual Installation time	5 Minutes	10 Minutes	10 Minutes
21	Capability	Innovative and easy-to-use for blogging platform	Capable of producing the most excellent sites.	A powerful tool for building complex sites.

22	Using complexity	No Need of Technical Experience Easy to Manage than Joomla and Drupal.	Less complex than Drupal, More complicated than WordPress	Requires more technical expertise than Joomla and WordPress
23	Most cases using for	Simple websites, daily blogging, corporate websites, etc.	Complex websites, online stores, e-commerce, social networking sites	Complex advanced and versatile sites, online stores, one size fits all.
24	Applications on the web	To start a Blog, Word Press environment is the best.	Very powerful and customizable CMS. The website remains scalable and dynamic.	High level of customization and control, limitless options of themes and plug-ins.
25	Networking Features	It provides a tutorial for non-technical users to design simple sites quickly.	It has robust social networking features (RSS Feeds)	It provides a robust taxonomy, organizes complex content for various searching Platforms.

6. Conclusion and Further Research

The web is getting more difficult day by day. Content Management System has become an indispensable tool in our daily life. WordPress, Joomla, Drupal are most efficient Content Management Systems compare to others as it shows the highest installation and better documentation support. Each Content Management System has its own pros and cons. As there are no fix criteria to select any CMS because all CMS is worked on specific criteria and librarian, have to select which is fit as per the needs of the library.

Librarian needs to select the Content Management System by Availability of Themes, Configure of Home Page, Modules, Plug-ins, Separation of Layout, Banner Management, Manage Style Sheets, and various other factors as per the needs of the library patrons. The librarians can change the page layout, Banner arrangement, Themes, Plug-ins according to the library patron needs. Whatever it may be the Content Management System the developers need to develop the Content Management Open Source Software to satisfy the library patron needs.

The further research of Content Management System allows displaying the content in Multiple Languages, Potentially allowing users to view the content in their own Native Language.

References

1. A (brief) history of CMS development - Contegro. (n.d.). Retrieved June 19, 2016 from http://www.contegro.com/info-center/designers-blog/blog-article/_thread_/a-brief

2. Bhirud, V. S. (2014). Review Paper on an Open Source Content Management System: Joomla CMS. International Journal of Recent Research in Mathematics Computer Science and Information Technology, 1(2), 95-97. Retrieved June 19, 2016, from http://www.paperpublications.org/journalss/IJRRMCSIT/Issue-2-October-2014-March-2015/0

3. BUILDING A WEB CONTENT MANAGEMENT SYSTEM. (n.d.). Retrieved June 19, 2016, from http://sdsu-dspace.calstate.edu/bitstream/handle/10211.10/3228/Shah_Rima.pdf?seq

4. BUILDING A WEB CONTENT MANAGEMENT SYSTEM. (n.d.). Retrieved June 19, 2016 from http://sdsu-dspace.calstate.edu/bitstream/handle/10211.10/3228/Shah_Rima .pdf?seq

5. Comentum (2010). Drupal vs JoomlavsWordPress. (Accessed on dated 26.11.2015 from http://www.comentum.com/drupal-vs-joomla-cms-comparison)

6. Frieze Design (2012). Content management systems (CMS). (Accessed on 25.09.2015 from http://www.friezedesign.co.uk/website_ content_management_system.html)

7. Ghorecha, V., & Bhatt, C. (2013). A guide for Selecting Content Management System for Web Application Development. International Journal of Advance Research in Computer Science and Management Studies, 13-17. Retrieved June 19, 2016, from http://www.ijarcsms.com/docs/paper/volume1/issue3/V1I3-0007.pdf

8. http://code.tutsplus.com/articles/top-10-most-usable-content-management-systems-net-6493, accessed on 05[th]March, 2015.

9. http://code.tutsplus.com/articles/top-10-most-usable-content-management-systems--net-6493 accessed on 29-1-2016.

10. http://whichcmstochoose.com/drupal.html, accessed on 16 September 2015.

11. http://www.rackspace.com/knowledge_center/article/cms-comparison-drupal-joomla-and-wordpress, accessed on 20 September 2015.

12. http://www.webopedia.com/TERM/C/contentmanagementsystem accessed on21-11-2015

13. https://www.drupal.org/about-joomla.html,accessed on 16[th]February 2015.

14. https://www.joomla.org/about-joomla.html, accessed on 16th November 2015.

15. https://www.wordpress. org/about-joomla.html, accessed on 6[th]January2015.

16. IJCA - Performance Analysis of Content Management Systems ... (n.d.). Retrieved June 19, 2016 from http://www.ijcaonline.org/archives/volume21/number4/2496-3373

17. Jan Pascal. Advantages of Joomal Content Management System". (Available: http://ezinearticles.com/Advantages of -joomla- Content Management System & id =3854563)

18. "Joomla! 3.4 is Here". *Joomla.org*accessed on 12 February 2016.

19. K.Patel, S., V.R.Rathod, & Prajapati, J. B. (2011). Performance Analysis of Content Management Systems- Joomla, Drupal and WordPress. International Journal of Computer Applications (0975–8887), 21, 39-43. Retrieved June 19, 2016, from http://www.ijcaonline.org/volume21/number4/pxc3873373.pdf

20. Kapse, Aditi & [et al.] (2014). Web Content Management System and its Application. (Accessed on 29-09-2015 from http://www.ijarcsms.com, SiteLeads.net).

21. Library Web Site Development. (n.d.). Retrieved June 19, 2016, from https://library.educause.edu/~/media/files/library/2004/1/edu04170-pdf.pdf

22. Performance Analysis of Content Management Systems- Joomla (n.d.). Retrieved June 19, 2016, from http://www.ijcaonline.org/volume21/number4/pxc3873373.pdf

23.   S. K. Patel, V. R. Rathod & S. Parikh (2011) .Joomla, Drupal and WordPress – A Statistical comparison of open source CMS 2011. (Accessed on 25.09.2015 from http://ieeexplore.ieee.org/stamp/ stamp.jsparnumber=06169111&tag=1http)

24.   Verma Nitesh Kumar & Verma, Manoj Kumar (2014). Open Source Library Software: Issue & Challenges. Paper published in edited volume on- Current Trends of Libraries in the ICT Era edited by V. Parashar and M.L. Vishwakarma; RIP Research India Publication, New Delhi, 203-210.

25.   Vyomeshbhai Shah Rima (2012). Building Web content Management System. (Accessed on   28.09.2015   from https://sdsudspace.calstate.edu/bitstream/handle/10211.10/3228/ShahRima.pdf?sequence=1)

26.   Wikipedia (2015). Web content management system, 2015. (Accessed on 28.09.2015 from http://en.wikipedia.org/wiki/ Web_content_management_system)

27.   WordPress 4.3.1 Security and Maintenance Release".Accessed on 13March, 2016.

■ ■■