

## Content Management Software: A Comparative Study

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**Abstract:** *This paper deals with a brief overview of Content Management Systems (CMSs). There are many open source and proprietary CMSs in the domain like Atex, Polopoly web CMS, IBM Enterprise Content Management system, Drupal, Joomla!, Mambo, PhpWebSite, Scoop, Plone etc. A comparative study is carried out through this study on the basis of some selection criteria. The selection criteria are installation base, OS platform, companion software environment, module and extensibility, web 2.0 compatibility, License and application in library setup. This paper has tried to find the most comprehensive CMS among four initially selected CMS (Drupal, Joomla!, Mambo and PhpWebSite) open source software and concluded that Drupal's performance is most comprehensive one.*

**Keywords:** *Content Management Software, Drupal, Joomla Mambo, PhpWebSite*

### 0. Introduction

The span of electronic data is increasing immensely. In this age of information explosion, searching a web document is like searching a needle in haystack. To solve this problem, creating and organising the content of document are becoming necessary and is difficult too. A system or set of procedure is needed to create, to manage, to produce and to distribute different form/types of content. In this respect, Content Management System (CMS) can help us a lot.

### 1. Overview of Content Management System

The definition of Content Management System varies in different fields. Still then we can discuss a general definition of Content Management System.

“Content management is a tool that enables a variety of (centralised) technical and (decentralised) non-technical staff to create, edit, manage, and finally published (in a number of formats) a variety of contents (such as text, graphics, vedio, documents etc.). Whilst being continued by a centralised set of rules, process and workflows that ensure coherent, validated electronic context.” ([www.contentmanager.eu.com/cms.htm](http://www.contentmanager.eu.com/cms.htm)).

As per wikipedia A **content management system (CMS)** is a computer program that allows publishing, editing and modifying content as well as maintenance from a central interface to facilitate the procedure of managing workflow in a collaborative environment.( Content management system. (2014, February 14). In *Wikipedia, The Free Encyclopedia*. Retrieved 17:30, February 17, 2014, from [http://en.wikipedia.org/w/index.php?title=Content\\_management\\_system&oldid=595411016](http://en.wikipedia.org/w/index.php?title=Content_management_system&oldid=595411016)).

In view of the foregoing, we can say that CMS is the collection of procedures which can create, process, manage various types of content by a preset of workflow in an orderly fashion.

### **1.1 Types of Content Management System:-**

The term Content Management System originated and developed in the mid 1990's. There are several types of CMS:

- ✦ Web Content Management System: Allowing content creators to create, submit and manage contents without requiring technical knowledge of any programming language or Markup Languages such as HTML or the uploading of files.
- ✦ Digital Content Management System: Handle rich media asset, often including digital, audio and video clips, for retrieval and repurposing in media production environments.
- ✦ Enterprise Content Management: Manage corporate documents and other types of unorganized information of commercial organisation.
- ✦ Learning Content Management System: It gives authors, instructional designers and subject matter experts, means to create e-learning content more efficiently.
- ✦ Publication Content Management System: Assist in managing the publication (manuals, books, help, guidelines, references) content life cycles.
- ✦ Transactional Content Management system: Managing e-commerce transactions.
- ✦ Document imaging systems are also generally considered under the family of general content management.

### **1.2. CMSs: Functions and features:**

There is not a single list of selective criteria for most comprehensive CMS. Still then at the time of choosing a most popular/ full- featured CMS we have to look over about these matters as follows,

- ✓ **Metadata creation:** This task is required by the content creators (authors). Without an efficient and effective process of fetching metadata it is too much critical to manage large content repository.
- ✓ **Asset storage:** Creator can store the content in disk drive. On-line and off-line storage option must be available in CMS.
- ✓ **Workflow:** A powerful workflow model is to be needed to customise all data.
- ✓ **Search & Browse:** Accesibility, usability, cross- browser support, effective navigation and most of all an effective inverted text index is required.
- ✓ **Distribution:** In case of distribution some feature are to be noted that how a CMS may improve information accuracy, flexibility and a dynamic system management system in a cost-effective manner.

### 1.3 Why CMS?

Now the questions arises that why CMSs are required. Based on a survey on CIO's of TOP 500 American Enterprises in 2002(Vincent & 林崇偉, 2004) (“Ranking List of Content Management Problems in TOP500 U.S. 2002”. CMS Market Analysis, Forrester Research and Infopark AG, Berlin, 2002.), a famous American market research Institute “Forrester Research” concludes a “content management problem ranking list” with 15 detailed described annoying (web) content management problems that disturb CIO's the most, as followed:

#### Ranking List of Content Management Problems in TOP 500 U.S. Enterprises in 2002

- Content bottlenecks with a webmaster, IT department, or some other related gatekeepers in company.
- Site visitors have difficulty finding what they need.
- Content contributors have difficulty finding what they need.
- Some content is inaccurate / outdated / redundant / unauthorized.
- The home page does not provide a full, up-to-date portal information into the rest of the company internal/external web site.
- The web-site exhibits inconsistent design and navigation schemes.
- Contributors occasionally overwrite content / files accidentally.
- Web managers need to “roll back” the site to a previous version – perhaps for legal or regulatory reasons – but cannot.
- Content contributors are unable to pre-publish content to appear at a specified later date or time.
- Web-site managers cannot associate the company’s products and services to articles or news on the site (or vice-versa).
- Content has feet of clay: web managers cannot easily reuse / share / distribute /import it.
- An inability to protect or control access to content keeps good material offline.
- Marketing and product managers cannot customize content for customers, partners, and other important visitors.
- Internal company staff is not invested in web communications.
- Company staff lament, “Our web-site is not as good as we are.” (**“Ranking List of Content Management Problems in TOP500 U.S. 2002”. CMS Market Analysis, Forrester Research and Infopark AG, Berlin, 2002. )**

After critical analysis of above mentioned problems (which are identified by Forester Research and Infopark AG, Berlin) we can identify the basic needs for a CMS and these are - a) explosion of data volume; and b) management of content quality and integration. Content may include a variety of file types such as text, images, audio and video files. A typical CMS helps to create, manage, store, distribute and publish those content in a systematic process. To create a website or homepage we need a dynamic CMS, it doesn't need an extensive knowledge of coding or HTML. CMS acts like a bridge between the seasoned coder and the weekend blogger, that both can modify the site as they want instead of both have different levels of technical knowledge (Giri & Nirgude, 2009).

#### 1.4 CMS: Workflow

Main workflow of a good content management system as follows:

Allow for a large number of people to contribute to and share stored data;

- Control access to data, based on user roles (defining which information users or user groups can view, edit, publish, etc.);
- Aid in easy storage and retrieval of data;
- Reduce repetitive duplicate input;
- Improve the ease of report writing; and
- Improve communication between users.

There are various types of open source and proprietary based CMSs in the market with there dynamic package. Most of these CMSs are build on the LAMP (Linux-Apache-MySQL-PHP) architecture and distributed as open source software. Proprietary CMSs are Atex, Polopoly web CMS, Core Media WCM, IBM Enterprise Content Management system, Contegro etc. Some open source CMSs are Drupal, Joomla, Mambo, phpWebSite, Scoop, Plone, PHPNuke etc. This paper is trying to evaluate critically four open source CMSs i.e, Drupal, Joomla, Mambo, and phpWebSite. The comparative study is presented below in a tabular form.

Sl. No	Evaluation Criteria	Content Management Software			
		Drupal	Joomla!	Mambo	PhpWebSite
1	<b>Installation</b>	Precise and straightforward	Long and complex	Long and complex	Long and complex
2	<b>Operating System</b>	Cross Platform	Cross Platform	Cross Platform, PHP-compatible Linux Preferred	Cross Platform
3	<b>Companion software requirement</b>	LAMP (Linux Apache MySQL PHP)	LAMP (Linux Apache MySQL PHP-OOP)	LAMP (Linux Apache MySQL PHP)	LAMP (Linux Apache MySQL PHP)
4	<b>Module &amp; Extention</b>	Modular design & Plug-in extendability.	Simple modules and commercial extension	10 modules built	15 Feature-rich module
5	<b>Web 2.0 Compatibility</b>	RSS feed, Blog, Internet forum,	RSS feed, Blog, News flashes, Opinion polls,	RSS feed, Web indexing of static pages, Blogs ,	Wiki, Web pages, FAQ, RSS feed, Blog, google analytics

		Caching	Caching, Support for language internationalization	Opinion polls Forum, language internationalization, News flashes, Caching,	
6	<b>License</b>	GPLv2/GPLv3	GNU General Public License	GNU General Public License v2	GNU GPL and GNU LGPL.
7	<b>Document support</b>	Web page, Handbook	Wiki, standard webpage, Handbook for beginners	Web page	Web page
8	<b>Web Site</b>	Drupal.org	Joomla.org	Mambo-foundation.org	<a href="http://phpwebsite.appstate.edu/">http://phpwebsite.appstate.edu/</a>
9	<b>Library applications</b>	Simple remote search module, Z39.50, OAI-PMH module, SOPAC	Collection, BookLibrary,	Managing contents	Managing contents,
10	<b>Multilingual content management</b>	Unicode compliant and provides different language interfaces with API for developing required language interface	Unicode compliant but no ready non-roman language packs are available	Unicode compliant but not compatible with Unicode version 5.1	Able to process Roman script

*Table 1: Comparative study of CMS's*

Drupal, Joomla!, Mambo and phpWebSite have many features in common. They share common features as far as operating system, companion software, web 2.0 facilities and to some extent enhanced services are concerned. But there are some complexities in Joomla's installation process where the other CMSs have no such difficulties. Now, on the basis of dataset as given in table 1, this study shows that Drupal is slightly ahead in comparison with other selected CMSs for the areas like installation easeness, functionalities, web 2.0 supports and universal character set management facilities.

## 2. Impact on Library services:-

Libraries are going through a revolutionary phase due to the advent of web and information explosion. Reference services, Selective Dissemination & Information Services (SDI), Current Awareness Services are in a new direction with web 2.0 tools. So it is now essential for libraries to manage the contents in a proper way that can help users. In this context CMS may help the librarian to facilitate a better service to users. Dataset given in table1 shows that Drupal facilitates simple remote search module, Z39.50, OAI-PMH module, SOPAC and Joomla facilitates Collection and BookLibrary specifically. Every CMS can help librarians and users by managing collected documents. The following snapshot (Fig 1) stated that CMS Joomla can facilitate customization of FLOSS based Library Management Software KOHA.



**Fig I: Application of Joomla! in Library setup**

**3. Conclusion:-** This study may finally conclude that CMS's helps to create a website without an extensive knowledge of coding or HTML by offering a variety of modules. Drupal performed most comprehensively among Drupal, Joomla!, Mambo and PhpWebSite. A dynamic and efficient CMS can improve library services through structured organization of contents as well as by developing participative system architecture.

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