

An evaluation of most popular open source content management systems

Samer M. Barakat

Associate Professor, MIS Department Head

Management Information Systems Department, Applied Science University, Amman, Jordan
sbarakat@asu.edu.jo

Abstract. There are several Open Source Content Management Systems (CMS) available and used by organizations today. Content Management Systems evolved as a viable alternative to traditional web site authoring tools, programs and website building applications. Content management systems offers an easy and dynamic approach to manage large and small amount of content on organizational websites. There are a large number of open source CMS available online for users to download, setup and use. But, the question is how to decide on what CMS to use? This is a difficult question to answer and it depends on the organization as well as other factors to be considered by webmasters and web programmers. This study aims to evaluate three of the most popular Open Source Content Management Systems and reach a conclusion on which CMS best to be used by organizations. After installing each of these systems on an actual web server and working with the systems through their control panel and performing similar tasks on all three system we conclude that WordPress by far is the most suitable CMS for most organizations based on Usability, Adaptability, Modularity, Customizations, and Availability of reliable Updates.

1.0 Introduction

Web design and authoring tools has evolved over the past decade from using pure programming languages to content management systems. Organizations are moving to the use of content management systems to run its daily web related operations from updating the website to interacting with customers and vendors (Seadle, Michael 2006). Additionally, free open source content management systems became available for download and setup freely(OpenSourceSMS.com). In fact some web hosting services provide one click tools to setup the system easily on any website. This research aims at learning why to use a content management system and what are the major differences between the three most dominant content management systems to help organizations use the best tool that serves their needs (Sanjeev K Sunny 2008). The research concludes that WordPress and based on the five criteria's we took into consideration while testing the three open source systems (WordPress, Drupal and Joomla) is the most suitable content management system for organizations (The Drupal Cookbook 2015). Additionally, it has advanced features available for the system administrators in the control panel and a large number of themes and plugins available for free from the Wordpress.org website.

2.0 Organizational Content

Today's organizations generate a large number of content for internal use, for customers and for vendors. Organizations policies, rules and procedures are posted by the human resource department on the website (Huttenlock, Terry L.; Beaird, Jeff W.; Fordham, Ronald W. 2006). Content come in different types and format that is either generated digitally or can be transformed into digital format. Organizations websites whether it was pure informational or interactive is composed of pages that contains all types of content including textual, images, hyperlinks, graphs, video, audio and flash animation (Sanjeev K Sunny 2008). Data displayed on the organization website traditionally resides on the organization's web server or database server (Seadle, Michael 2006). This depends on the type of web system used to run the organization's website. Organizations websites are further classified as internet, extranet or internet application (Samer Barakat 2012). This depends on whether the content is used by the general public, the customers, vendors or employees.

3.0 Content Management Systems

Content management systems are a revolutionary way of building websites which enables organizations to establish its online presence easily and without the need for experienced programmers. Once the system is deployed on the company's server, it can be managed online through a control panel that can be accessed by the system administrator or webmaster to customize the website using

readymade or customized themes (Seadle, Michael 2006). Additional functionalities to the system can be added by choosing from a large number of plugins without the need to write a single line of code. These systems allow organizations to add, modify, delete content on the organizations website with simple clicks from within the control panel. The information is entered into online text editors that allow the user to add text, images, tables, links, graphics, audio, video and any static or dynamic content (Sanjeev K Sunny 2008). Content creation relies on the organizations vision, mission and objectives. Content is usually created for both internal and external visitors to the organizations website and thereby serving as internet, extranet and intranet applications (Seadle, Michael 2006). Organizations can use content management systems to cover a wide variety of applications including training materials, products catalogues, business documentations, worksheets, projects manuals.

4.0 Open Source Content Management System

Open source content management system is a software application that any person can download and have access to the source code without having to use special applications, the software source code is accessed using any text editor and can be updated and modified according to the user needs (Sanjeev K Sunny 2008). Open Source Software follows a GNU software license allowing users to make any modifications and additions to the system and adding their attribution on the updated versions of the software.

5.0 Review of Content Management Systems

Although there are many content management systems available for organizational and personal use, but there are many differences in the type, use and applications of each content management system. Additionally, organizational needs vary based on their business model (Samer Barakat 2012). Evaluating content management systems is not an easy task and organizations look for guides to help them decide on what system is best for their use (Seadle, Michael 2006). In order to decide on what is the best content management system for an organization and identification of the business requirements, process and needs is to be implemented beforehand.

Deciding on the best content management system requires studying each system based on a number of factors that are vital to organizations. There are many checklists of content management systems requirements that are available by vendor neutral evaluation sites (Sanjeev K Sunny 2008). Some build their own set of requirements and try to match the best system to their organizational needs. We have installed the three open source content management systems on publicly accessible web server and performed testing on the three systems based on the following criteria's.

5.1 Usability

Usability is related to the ease of use of an application or software system. If a content management system is user friendly and users can learn their way around as they use the system the system is considered having high usability (Sanjeev K Sunny 2008). Most content management systems are built around the usability notion. Open Source Content Management Systems are extremely tested and designed to become user friendly since users download and use the system on their own (Samer Barakat 2013). The installation and initial setup of a content management system should be easy and does not consume long time or server resources. If a content management system takes long time to install and implement it shall be a waste of organizational resources that can be invested in other tasks.

5.2 Adaptability

Adaptability is another important aspect that organizations must take into consideration when evaluating a content management system. By adaptability we mean that the content management system can be used by different organizations from different sectors for different purposes. Adaptable content management systems are used by organizations who don't have the time to test and try several systems to choose the best for its needs.

5.3 Modularity

Content management system modularity is related to the original design of the system which enable it to be split into smaller modules. Content management systems are usually divided into three modules: themes, plugins and system core functions (Sanjeev K Sunny 2008). Modularity help save time and resources from the time the system is installed and throughout the life of the content management system. Modular content management systems must offer a large library of resources that help users to expand and customize the system based on the organization needs.

5.4 Updates availability

Open source content management systems are free by nature. They follow the General Public License Agreement (GPL), therefore all updates of the CMS systems are also available for free. But updates usually require going through a series of steps to ensure that the existing system is not affected by the upgrade process (Sanjeev K Sunny 2008). This requires updating the MySQL database and all files uploaded to the server. Maintenance and upgrade continuity is a major factor that organizations take into account when choosing the right CMS system to implement.

5.5 Customization

CMS is designed to be installed as a readymade solution for organizations to customize based on its needs. There are plenty of available themes for download and installation by the CMS system. Most are free of charge. If organizations has the capability to design its own themes then it can implement the theme it sees fit and the one that serve its organization mission (Sanjeev K Sunny 2008). Additionally, there are also an abundance of plugins that extend the functionalities of the deployed CMS. The more the availability of free themes and plugins the better the CMS is views by organizations IT managers. Customization cost is usually very low in CMS platforms but usually vary from one CMS to another.

6.0 CMS Software Analysis

Starting with the installation process and ending with the customization of features available on the CMS we experienced the following issues with each of the following Content Management Systems:

6.1 Drupal

The Installation of Drupal was not very user friendly process and it requires some advance technical expertise and knowledge. The modification of the script also requires advanced programming knowledge. Using the system needs some time to learn how to navigate and use the systems control panel (The Drupal Cookbook 2015). Drupal is not exactly that easy to customize. Drupal caused large load on the server therefore it is not an ideal system to use in large organizations websites. Drupal does not provide an easy to use and reliable WYSWYG editor and its control panel is not user friendly and confusing some times. Although Drupal is good CMS system with several functionalities by installing many plugins which needs to be programmed and requires advanced knowledge of PHP, HTML and CSS. Using Drupal on sites with larger amount of traffic shall increase the CPU usage of your web server and if you are using a shared web server then expect that the web hosting company may shut down your site due to too heavy server load and CPU usage (The Drupal Cookbook 2015). Drupal does not provide several features that every website needs such as Product, Services and Category pages. It is more of a tedious and time-consuming process to implement a site requiring many unique branding features using Drupal CMS.

6.2 Joomla

Joomla installation was relatively easy and a straight forward process. It was easy to define the basic features of the website but it is missing many of the advanced options users look for in a CMS. The modification of the script also requires advanced programming knowledge. The administrative control panel is not user friendly but has some good functionalities. It has a strong WYSIWYG editor and a large number of themes and plugings but it needs a thorough research to find what you need. Joomla is not friendly to search engines and needs tweaking to make it work and be visible online and additional meta tags cannot be configurable. compared to other CMS, Joomla's platform is not flexible or dynamic. Although it provides basic functionality, it needs advanced programming for customizations. Joomla does not support multiple site installations or communication between different components. Comparing Joomla to WordPress, it's not as intuitive as WordPress. Joomla needs more server resources if we need to use plugins and added modules to the core system. Another disadvantage is that some of the plugins in Joomla are paid for installation and deployment on a production website. Compatibility is always an issue when installing plugins in Joomla. Which may need additional PHP work.

6.3 WordPress

Wordpress was first launched as a blogging system, it later evolved as a full features CMS application. The installation if wordpress was very easy and with letter interaction from the user. The administration section of WordPress is very easy to understand and to use by novice users. WordPress has a much better and very intuitive administration design. 'If Joomla! is Linux, then WordPress is Mac OS X. WordPress might offer only 90% of the features of Joomla!, but in most cases WordPress is both easier to use and faster to get up and running.'

Wordpress sites management and customization does not require advanced knowledge of PHP or HTML as other CMS needs. Installing plugins is eaier since all the functions are pre installed within the core system, it is a click and install procedure. Thousands of free plugins and themes are available on the organizations website and categorises in a logical way for users to find event within the CMS control panel. The system also alerts the user when a new update for the system core files or plugins, themes is available for install. Customization of the system is very easy and user friendly. Menus can be modified to include pages, posts and categories. It has a large support community, discussion board and online help.

7.0 Conclusion

After going through the installation, customization and actual testing of the three CMS systems (WordPress, Joomla, Drupal), we reached a conclusion that WordPress is the preferred content management system to be used by organizations of all sizes. WordPress has several advantages over its competitors in terms of simplicity and content management. It is also a winner in terms of usability. It has an intuitive user interface for novice users to understand and use with no actual need of knowledge of PHP or HTML.

Although we vote for using WordPrss as an organizational CMS but the real factor that needs to be taken into consideration is what organizations are really looking for in a website. Our preferred Content Management System is WordPress. The system usability and user friendliness allows users to be in control right from the start without having to worry about learning how to customize or amended the source code. Site management and updating the system core, plugin and themes is a simple click and run procedure. WordPress platform is secure, fast and is updated more rapidly than Drupal or Joomla.

ACKNOWLEDGEMENT

The author is grateful to the Applied Science Private University, Amman, Jordan, for the full financial support granted to this research project (Grant No. DRGS-2014-2015-58).

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