

Comparison of Content Management System (CMS): WordPress, Joomla, Drupal, Typo3, Contao, Neos

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Abstract

A content management system (CMS) is a system used to manage the contents of a web site. CMS evolved as an alternative to such web-authoring tools. A CMS is software that helps to make websites easier, faster, browser compatible and responsive website with the powerful features. There are several CMS based on usage, functionalities, compatibility and platforms. There is no CMS that is not best suited for every user. The features of a CMS system include web-based publishing, format management, revision control, indexing search and retrieval. There is a lot of variety among the CMS options. These CMS names: Joomla, Word press, Drupal, Typo3, Serendipity, Dotclear, Impress Pages and Chamilo. These CMSs are available based on functionalities, usage and platforms. In this paper, we study to analyze these CMSs on the usage, function, available, default, integrated feature and browser compatibility with different platforms. This paper attempt to analyze the pros and cons of these CMS that user can choose the best CMS according to the application requirement.

Keywords: CMS, Wordpress, Joomla, Drupal, Typo3, Contao, Neos

1. Introduction

CMS content management system is a computer application technique. CMSs are most widely used to developed web application containing blogs, news, events and shopping. CMS can be viewed as data repositories that may also contain authoring, sequencing and content aggregation tools, with an objective to simplify the creation and administration of online content. Some of the best CMSs platforms were originally built with blogging in mind. [2] A CMS is a stand-alone application to create, manage and the store content. A CMS consists of two elements: the content management application (CMA) and the content delivery application (CDA). The CMA element allows the content manager or author, who may not know hypertext markup language (HTML) to manage the creation, modification and removal of content from a website without needing a webmaster. The CDA element uses and compiles that information to update the website.

2. Literature Survey

2.1 WordPress

Word press is a completely free open source content management system (CMS) based on PHP and MySQL .It is used to create dynamic website in a limited budget. Word press is a versatile a scalable framework that can be used to create websites ranging from small personal blogs to the multifunctional sites of large corporations. Word press was developed for creating blogging software. [6]

Humans are speaking to one another in a particular language made of words and letters the computer does not understand the words and letters when we type these. These words are translated into numbers that are understood by computer.

Some features of WordPress are

Category	- Weblog-Software
License	- GNU GPL v2+
Operating system	- Cross-platform
Supported webservers	- PHP and MySQL
Supported databases	- MySQL, MariaDB
Middleware	- PHP
Template Language	- PHP
Extension modules	- ✓
Browser- based backend	- ✓

Reporting function (i.e. for data mining)	- Only with extension
Integration of own scripts	- ✓
Current web standards	- ✓

These data are referred from CMS comparison 2020 by Digital Guide IONOS [7]

2.2 Joomla

Joomla is a free open source content management system (CMS) which enables to develop web sites, web application and online application. Joomla is so much more than a powerful content management system which connects to a MySQL; MS SQL; or Postgre SQL database in order to make easier on the site manager and visitor. Joomla keeps content in its database to provide dynamic formatting.

Some features of Joomla are

Category	- Web content management system
License	- GNU GPL v2+

Operating system - Cross-platform
 Supported webservers - Apache, NGINX, MS IIS
 Supported databases - MySQL, MS SQL Server, PostgreSQL
 Middleware - PHP
 Template Language - PHP
 Extension modules - ✓
 Browser- based backend - ✓
 Reporting function (i.e. for data mining) - ✓
 Integration of own scripts - Only with extension
 Current web standards - ✓
 These data are referred from CMS comparison 2020 by Digital Guide IONOS [7]

2.3. Drupal

Drupal is a free and open-source content management framework written in PHP and distributed under the GNU (General Public License). It is a backend framework. Although Drupal is often described as a “Content Management System”, it is also a “Content Management Framework (CMF)”. Unlike a typical CMS, it is geared towards configurability and customization.

Some features of Drupal are

Category - Web content management system
 License - GNU GPL v2+
 Operating system - Cross-platform
 Supported webservers - Web server with PHP support
 Supported databases - MySQL, Maria DB, Percona Server, PostgreSQL, SQLite
 Middleware - PHP
 Template Language - PHP
 Extension modules - ✓
 Browser- based backend - ✓
 Reporting function (i.e. for data mining) - ✓
 Integration of own scripts - ✓
 Current web standards - ✓

These data are referred from CMS comparison 2020 by Digital Guide IONOS [7]

2.4. Typo3

Typo3 is a free open source content management system written in PHP. It can run on several web servers, such as Apache or IIS, on top of many operating systems, among the Linux, Microsoft Windows, Free BSD, macOS and OS/2.

Some features of Typo3 are

Category - Enterprise content management system
 License - GNU GPL v2
 Operating system - Cross-platform
 Supported webservers - Apache, NGINX, MS IIS

Supported databases - MySQL, PostgreSQL, Oracle, Firebird, MS SQL Server
 Middleware - PHP, SQL, JavaScript
 Template Language - Typo Script
 Extension modules - ✓
 Browser- based backend - ✓
 Reporting function (i.e. for data mining) - Only with extension
 Integration of own scripts - ✓
 Current web standards - ✓
 These data are referred from CMS comparison 2020 by Digital Guide IONOS [7]

2.5. Contao

Contao is a free content management system (CMS) for medium to large websites. The program specializes in back-office (i.e. for developer) and front-office (i.e. for user) accessibility, and observes XHTML, HTML5 and CSS standards, according to W3C, WAI guidelines to generate pages.

Some features of Contao are

Category - Web content management system
 License - GNU LGPL
 Operating system - Cross-platform
 Supported webservers - Web server with PHP and MySQL support
 Supported databases - MySQL
 Middleware - PHP
 Template Language - PHP
 Extension modules - ✓
 Browser- based backend - ✓
 Reporting function (i.e. for data mining) - Only with extension
 Integration of own scripts - ✓
 Current web standards - ✓
 These data are referred from CMS comparison 2020 by Digital Guide IONOS [7]

2.6. Neos

Neos is an amazing Content Management System. Neos is all you need and much more. It's extremely powerful and well designed. It offers very fast development times while allowing elegant solutions for complex problems. In short, it allows you to add a simple to use, advanced Backend, even to highly individual Frontends.

Some features of Neos are

Category - Enterprise content management system
 License - GNU GPL v3+
 Operating system - Cross-platform
 Supported webservers - Apache & NGINX
 Supported databases - MySQL, Maria DB, PostgreSQL, Oracle, Microsoft SQL Server, SAP Sybase SQL

Anywhere, SQLite, Drizzie
 Middleware - PHP
 Template Language - Fluid, AFX
 Extension modules - ✓
 Browser- based backend - ✓
 Reporting function (i.e. for data mining) - Only with extension
 Integration of own scripts - Only with extension
 Current web standards - ✓
 These data are referred from CMS comparison 2020 by Digital Guide IONOS [7]

3. Different Functions compared with some CMS systems

3.1. User Management

All open source solutions in our CMS comparison can be used as a multiple user system. The Table 1 shows that almost all systems in our CMS comparison natively support the essential functions within the user management.

Table 1. All systems in CMS comparison

	Word Press	Typo 3	Joomla	Drupal	Contao	Neos
Multi-client capability	✓	✓	✓	✓	✓	✓
User groups	✓	✓	✓	✓	✓	✓
Inheritance of user rights	✓	✓	✓	✓	✓	✓
Restriction of user rights	✓	✓	✓	✓	✓	✓
Multi-level release control	✓	✓	✓	✓	✓	✓
Multi-level workflows	✓	✓	✓	✓	Only with extension	✓

These data are referred from CMS comparison 2020 by Digital Guide IONOS [7]

All CMS have same properties in multi-client capability, user groups, inheritance of user rights, restriction of user rights and multi-level release control. Multi-level workflows are the only area where the CMS Contao requires an extension, as it's primarily intended for medium-sized companies.

3.2. Operation and Content Creation

To provide website visitor with navigation to relevant content, CMS should have an available tagging system with which the content can be

organized according to the meaningful keywords in the following Table 2.

Table 2. Navigation to relevant content of website visitor in CMS comparison

	Word Press	TYP O3	Joomla!	Drupal	Contao	Neos
WYSIWYG editor	✓	✓	✓	✓	✓	✓
Multimedia elements(vid eo, audio, content, or flash animations)	Only with extension	✓	Only with extension	✓	✓	✓
Blog system	✓	Only with extension	Only with extension	✓	Only with extension	✓
Spellchecker	✓	✓	Only with extension	✓	✓	✓
Preview function	✓	✓	✓	✓	✓	✓
Multiple languages	Only with extension	✓	✓	✓	✓	✓
Search function	✓	✓	✓	✓	✓	Only with extension
Tagging	✓	✓	✓	Only with extension	Only with extension	✓

These data are referred from CMS comparison 2020 by Digital Guide IONOS [7]

Website operators rely on CMS systems to facilitate the creation and publication of online contact. A good CMS offers functionalities that enable their uses to create and manage website content without programming knowledge. Most criteria of navigation to relevant content can be used directly in CMS systems. However, in some areas, they need extension which means additional installation to use in CMS systems.

3.3. Search Engine Optimization and Responsive Design

High-value content is key to a successful website. Website operators who want to conquer a top spot in the search engine rankings also need to fulfill certain technical requirements.

Table 3. Search engine optimization and responsive design in CMS comparison

	Word Press	TYP O3	Joomla!	Drupal	Contao	Neos
Search engine	✓	Only with	✓	✓	✓	✓

friendly URLs		extensions				
Manual entry of meta-information	✓	✓	✓	✓	✓	✓
Responsive web design	✓	✓	✓	✓	✓	✓

These data are referred from CMS comparison 2020 by Digital Guide IONOS [7]

Manual entry of meta-information and responsive web design can be used in all CMS system. However, only in search engine friendly URLs need extension in using Typo3.

3.4. Security & Service

Security & Service are deciding factors for the selection of a CMS. In CMS comparison, a large user and developer community is concentrated in the following Table 4.

Table 4. Security and service factors in CMS comparison

	Word Press	TY PO3	Joomla!	Drupal	Contao	Neos
Documentation	✓	✓	✓	✓	✓	✓
Tutorials	✓	✓	✓	✓	✓	✓
Community	✓	✓	✓	✓	✓	✓

These data are referred from CMS comparison 2020 by Digital Guide IONOS [7]

All projects are in safe study in all CMS system according to the Table 4. Therefore, all projects can offer public release plans, regular software updates and a transparent security protocol.

4. Conclusion

The six CMSs, Wordpress, Joomla, Drupal, Typo3, Contao and Neos are the most popular content management system, free open source and built on PHP and MySQL. In this paper, we also state that to analyze these CMS on the core features, browser compatibility with different platforms. My conclusion presents no clear winner, but instead outlines the benefits and drawbacks of the different systems in regard to individual projects and their particular requirements. While Word Press is primarily intended for bloggers and needs to be upgraded with extensions before use as a CMS, a system like TYPO3 offers an extensive spectrum of functions with the basic installation through for smaller online projects. The modular CMS Drupal came from a community project, but offers today's users a wide range of web 2.0 functions. If these factors are required, another different CMS option can

be chosen, for example, Joomla. If user-friendly operation and barrier-free access to online content is the focus, Contao is a good solution. According to the pros and cons of CMS in this study, the user can choose the best CMS according to the application requirement.

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