

**UNIVERSITÉ DE BOURGOGNE**  
**UFR Sciences et Techniques**



**Master's in Databases and Artificial  
Intelligence website**  
**Tutored project**

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# Chapter 1 - Introduction

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The Master's in Databases and Artificial Intelligence website is the internet portal for all the users are related with this course. The aim behind this project is to develop a fully integrated website for this course taking into account the different kinds of users that could surf the website. Therefore the website will be developed using a Content Management System.

In this report, I will present the M2DBAI website which is developed using Drupal. M2DBAI includes many features such as auto archiving news, Student and Teacher sections that elaborates all the needs of these users in one single place. The portal's backbone is based on the WAMP combination.

The rest of the report is organized as follows: Chapter 2 presents an overview on the available solutions and further discuss the adopted solution. Chapter 3 describes the website's structure in the conceptual point of view while detailing each role and its requirements. In Chapter 4, I explain how the conceptual requirements are implemented in the website and their reliability. Finally, I conclude in Chapter 5.

## Chapter 2 - Content Management Systems

In this chapter, I will first detail a general view of the Content Management System approach. I will then explore the options that I have when it comes to choosing the right CMS for our needs. Therefore, I detailed in-depth the key criteria's that enables us to distinguish between the top CMSs known, the best one for our needs.

### A. CMSs - An Overview

When it comes to CMSs, choosing the elite list would be long and difficult process, especially since there are a large number of content management systems available. Therefore, I divided the work into three steps. The first step is the evaluation process that consists on building up comparison clusters with CMS categories, then I will concentrate on the comparison chart between the CMS features to finally explain in-depth the top CMSs chosen.

ENTERPRISE	CONTENT-EDITING	AGENCY-TOOLS
<ul style="list-style-type: none"><li>+ really complex software with many different and powerful functions and interfaces for communication with other software.</li><li>- high amount of investment for licence and customization.</li></ul>	<ul style="list-style-type: none"><li>+ concentrates on fast and easy content-editing.</li><li>- does not take care of functions for special business-functions and workflows.</li></ul>	<ul style="list-style-type: none"><li>+ individual solution for an individual problem made by a development-company.</li><li>- solution is not scaleable und changeable.</li></ul>
<b>OPEN SOURCE</b>	<ul style="list-style-type: none"><li>+ free of charge</li><li>+ due to many different developers, new functions for the software are growing fast</li><li>- professional service and support standards are only given by a third party</li></ul>	

Figure 1: Choosing Open Source or Enterprise Editions<sup>(1)</sup>

Analyzing this chart, I can summarize that with commercial systems, the cost of license fees can add up quickly each time I add content plug-ins, software extensions, servers and databases. With the open source licensing model, there is no need to worry about licensing and buying new mandatory extensions. On the other hand, I can mention the difference between a hard-to-learn commercial CMS and a better reliable and ease of open source CMS as shown in Figure 2. Hence, I decided to go with the open-source CMSs.



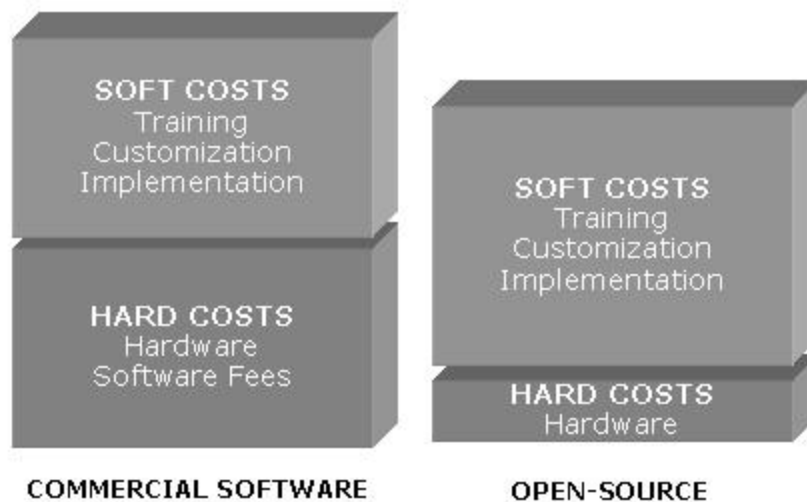


Figure 2: Commercial Software vs. Open-Source CMSs

## B. CMS Features

The selected open source CMSs are the top 5 most reliable, known, used CMSs for corporate and business solutions. TYPO3, Joomla, Wordpress, Drupal and SPIP will be compared by the following features:

1. Content Editing: The ability to copy/past from text editors directly into the web editor, Image Auto Thumbnails, Spelling checker and all other word-editing commands are held in this part.
2. Content Management: Includes the back-end functions such as custom content types.
3. Core Applications: Holds all the main components that a website can have, such as chat, event management and XML Sitemap for Search Engines.
4. Flexibility: Describes the different interactive and important components that a website can have, such as an Internationalization component to translate content to different languages.
5. Interoperability: API, RSS and Database Query Editor are the major criteria's in this part.
6. Layouts, Design and Templates: Includes all the wizards related to theming, drag and drop layouts and URL path theming.
7. Mobile Web: Criteria's such as Device Capabilities Detection and SMS Support are held here to show the strong points of the CMS interacting with the front-end part.
8. Performance: This part compares the CMSs with different core-based functions such as Bandwidth and Database Optimization.
9. Security: Points to different security-related components that a CMS could have, such as Password Encryption, SSL Support and Error Reporting.

- 10. Side Administration: Distinguishes the back-end functions that an administrator can take advantage of, such as Workflow engine, Mass Upload and File and Document Management.
- 11. Support: This part describes the different techniques of support each CMS presents, such as community forums, Issue tracking and Online Help.
- 12. Users: Lists the different qualifications that a user can have.

I explained further, each and every one of these features individually in the tables shown in the Appendix<sup>(2,3)</sup>.

From these tables, I resumed the result of the scores and reliability of each CMS in the following comparison chart having the Computes Scores relevant with the 12 features describes earlier.

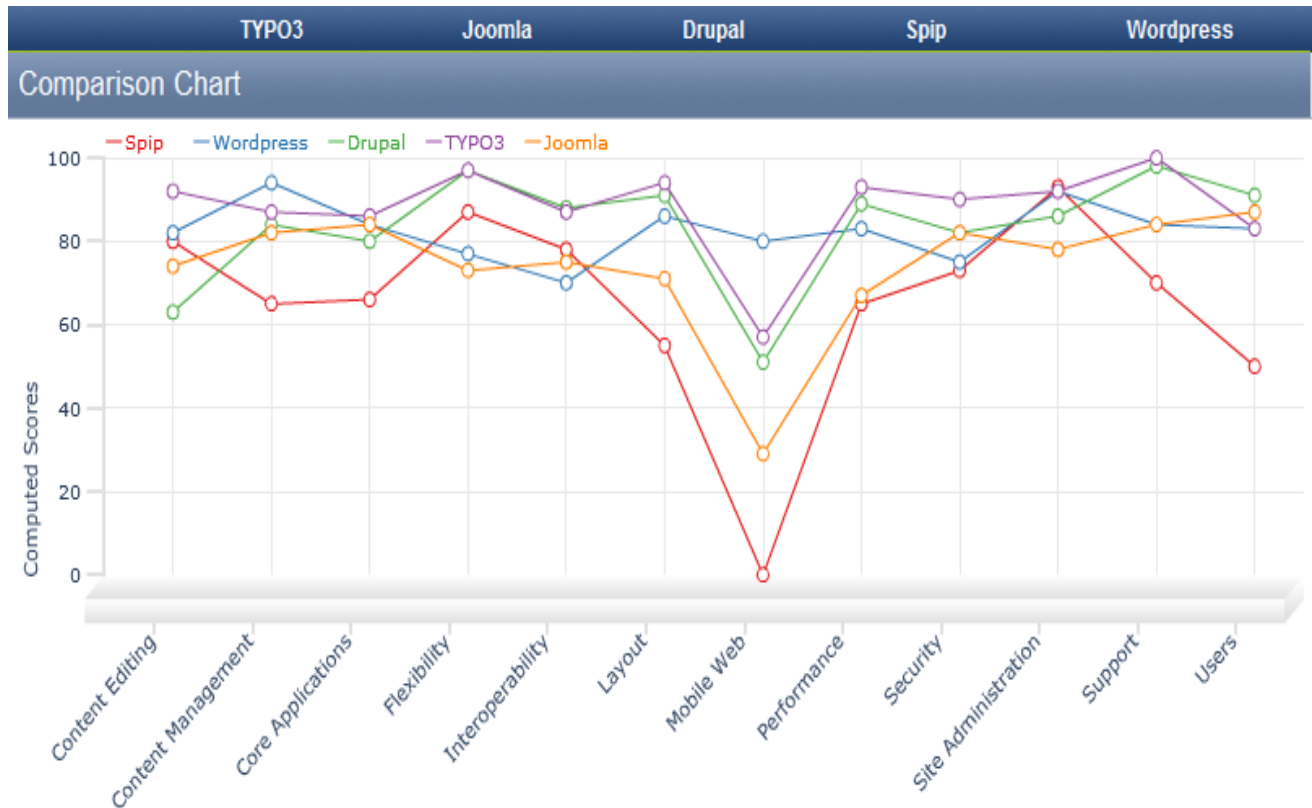


Figure 3: CMS Comparison chart

## C. Evaluation Process

There are many approaches for the purpose of using a specific type of a CMS, these approaches could range from enterprise to open source system, and from easy to hard to learn CMS knowing that this range is a typical criteria to take into consideration while looking further into the system and user requirements. Therefore I elaborated the advantages and inconvenient of each and every approach.

## D. Highlights on TYPO3, Drupal, WordPress, Joomla and SPIP

### 1. TYPO3

TYPO3 is an enterprise-level solution as it delivers its own framework as a content management system. Whether it was about managing content for a large corporation, university, non-profit organization or a small business, TYPO3 offers a lot of essential features such as templating, ease-of-use, open architecture, simultaneous installation and many more<sup>(1)</sup>.

#### **Advantages**

- For administrators, TYPO3 offers a wizard for creating a site based on an HTML template or series of templates. The developer defines where he wants the dynamic content or menus to appear. He can further extend the templates through a well-documented scripting language called Typoscript.
- For content editors, they have few limits on what editors can use to edit the site, enterprises can easily integrate TYPO3 into their multi-platform environment.

#### **Disadvantages<sup>(4)</sup>**

- High learning curve: TYPO3 is hard to learn. This is both true and false. TYPO3 can be used by three types of users: editors, administrators and programmers as described earlier. Learning becomes harder with each advanced group. It is easy for content editors to learn TYPO3. Not as easy as WordPress (because WordPress is a very simple blogging-only tool) but still easy.
- Size: TYPO3 is large, it needs a good hosting; TYPO3 can run on a shared hosting too, though it is not the best hosting case for it.

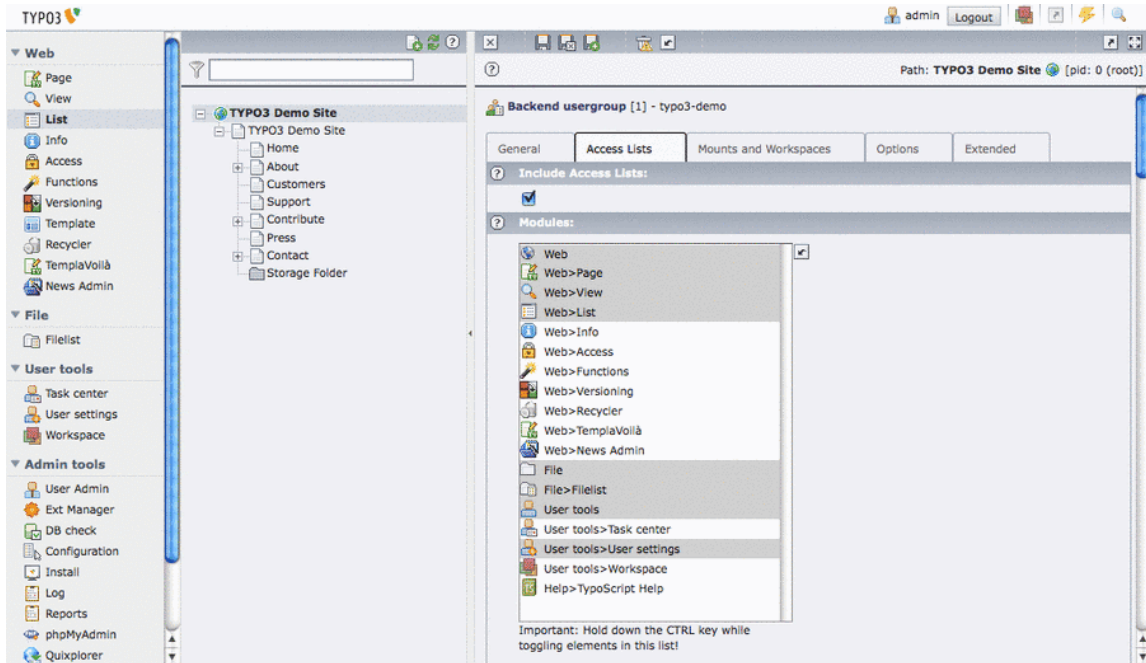


Figure 3: Screenshot on TYPO3 backend.

## 2. Drupal

Drupal is a software package that allows anyone to easily publish, manage and organize a wide variety of content on a website. It delivers many functionalities and plug-ins that are more and more developed by collaborators to provide them to worldwide users.

### Advantages<sup>(5)</sup>

- Administer, create and design: Drupal permits to create fine-grained permissions allowing users to view and create what the administrator permits. It also allows to create and design our content with an easy-to-use web interface without needing to know HTML or CSS in-depth.
- Connect, organize and extend: Drupal makes it easy to connect your website to other sites and services across the web via the extension of RSS (feeds), RDF (semantic web) and XML (search engines). It also helps us organize, structure and re-use our content no matter how much content we have.

### Disadvantages

- Usability: Some aspects of Drupal's administration interface can be confusing and intimidating, particularly for new administrators. Drupal lacks an intuitive, easy



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