

# Survey of Web Content Management System, a Collaborative Environment for Online Community

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**Abstract:** The aim of the present paper is to analyze the main models of collaboration and the use of a Web CMS, in order to develop an online community. Taking into consideration the multitude of the existing Web CMSs on the market and their diverse functionalities, we conducted a prospective study that tests the development trends in the field, with the view of finding out which are the most important Web CMSs in practice, and which are the most important functionalities they have to possess, in order to develop a collaborative online community. This study can help the entry-level web developers to get an overview of the most popular Web CMSs, and their functionalities.

**Keywords:** Collaboration, Content Management, Web content management systems, Content strategy, Document Management.

## I. INTRODUCTION

In the last years, the Internet has evolved a social creation than a technical one. He also put emphasis on the fact that he developed the Inter-greatly, monopolizing an increasingly large part of our daily life. The new technologies have created a dynamic Web that evolves continuously and adapt themselves on users' everyday life. The new types of web application reshape the models of online communication and collaboration, as well as the way in which the information is created, published and transferred. Moreover, an increasing number of people have changed their perception about using the Internet, and have started to actively participate in the new communities, using them as means of communication and collaboration, or as business platform that enables the promotion and expansion of new business models.

More and more companies focus on developing applications that allow users to socialize, to exchange opinions, views, share information, comment, and receive feedback from other members of the community.

A collaborative system is a system in which several users are engaged in a common activity, interacting and putting their efforts into pursuing a common objective. In order to aid the development of a society that is based on knowledge, a collaborative system must be oriented towards the user, providing a medium that permits efficient interaction and collaboration, without taking into consideration the location and the domain of the activity.

## II. MODELS OF COLLABORATION

The most important means of collaboration are classified in five collaborative models, which they call: 'library', 'solicitation', 'team', 'community' and 'process support'. Fig.1 illustrates the way in which each of these models relates to each other, depending on two essential factors: the size of the population involved in the process of collaboration and the levels of interaction.

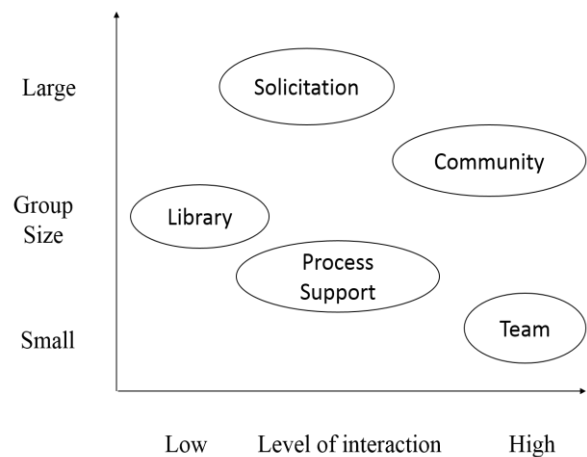


Fig.1 Models of Collaboration

As stated by Butler and Coleman [9], the most powerful model is the community one. This is used in order to facilitate the activities of the community and to ensure a high level of interaction among its members. The fundamental characteristics of the community model are:

- Members have a common interest, affinity and goal.
- Members of the community self-group themselves.
- Members seek to share information.
- Members seek to enrich their knowledge in their area of interest.
- A Community has to be relatively large in order to be self-sustaining; new information is always needed.

Moreover, for creating an online community, there are numerous applications on the market that can be used to this end, the most widespread being the Web CMSs that occupy a prime position in users' preferences.

### III. CONTENT MANAGEMENT

Content management is a process of collecting, managing and publishing information in any form or medium. When the form of content is in digital form that is accessed via computers or electronic means it is referred as digital content including audio, video, and other multimedia files. Any system that handles and manages digital content is referred as content management system. The process of handling content becomes complex as the quantity of content grows, hence many large scale and small scale software vendors started offering content management tools to control and automate the significant aspects of the content To handle the content lifecycle.

#### A. Process Of Content Management

Content management practices and goals vary by mission and by organizational governance structure. News organizations, e-commerce websites, and educational institutions all use content management, but in different ways. This leads to differences in terminology and in the names and number of steps in the process. For example, some digital content is created by one or more authors. Over time that content may be edited. One or more individuals may provide some editorial oversight, approving the content for publication. Publishing may take many forms: it may be the act of "pushing" content out to others, or simply granting digital access rights to certain content to one or more individuals.

A content management system is a set of automated processes that may support the following features:

- Import and creation of documents and multimedia material.
- Identification of all key users and their roles.
- The ability to assign roles and responsibilities to different instances of content categories or types.
- Definition of workflow tasks often coupled with messaging so that content managers are alerted to changes in content.
- The ability to track and manage multiple versions of a single instance of content.
- The ability to publish the content to a repository to support access to the content. Increasingly, the repository is an inherent part of the system, and incorporates enterprise search and retrieval.

#### B. Implementation

Content management implementations must be able to manage content distributions and digital rights in content life cycle. Content management systems are usually involved with digital rights management in order to control user access and digital rights. In this step the read-only structures of digital rights management systems force some limitations on content management implementations as they do not allow the protected contents to be changed in their life cycle. Creation of new contents using the managed ones is also an issue which will get the protected contents out of management controlling systems. There are a few content management implementations covering all these issues.

### IV. WEB CONTENT MANAGEMENT SYSTEM

A web content management system (WCMS) is a software system that provides website authoring, collaboration, and administration tools designed to allow users with little knowledge of web programming languages or markup languages to create and manage website content with relative ease. A robust Web Content Management System provides the foundation for collaboration, offering users the ability to manage documents and output for multiple author editing and participation.

Most systems use a content repository or a database to store page content, metadata, and other information assets that might be needed by the system. A presentation layer (template engine) displays the content to website visitors based on a set of templates, which are sometimes XSLT files. Most systems use server side caching to improve performance. This works best when the WCMS is not changed often but visits happen regularly. Administration is also typically done through browser-based interfaces, but some systems require the use of a fat client.

A WCMS allows non-technical users to make changes to a website with little training. A WCMS typically requires a systems administrator and/or a web developer to set up and add features, but it is primarily a website maintenance tool for non-technical staff.

### V. RELATED WORKS

Ramon O'Callaghan and Martin Smits [2] defined content management (CM) and Enterprise content management (ECM) and developed a framework and a method to select content objects to be put under ECM. Applied and tested the method and framework in a large firm and showed that content objects can be listed per business (sub) process and then selected based on their added value and specific costs. Added value can be determined using five dimensions: 'easy to find', 'easy to distribute', 'easy to re-use', 'easy to track', and 'easy to associate'. Specific costs of bringing content objects under ECM can be determined using 'costs of structuring the content', 'costs of adding metadata', and 'costs of updating taxonomies'. Added value and specific costs per content object can be used to decide on a content portfolio to be put under ECM, resulting in optimal content values. An ECM strategy aims at reducing the costs of creating, managing, and distributing content, and ensuring that content effectively supports organizational needs. Daisy Mwanza and Yrjö Engeström [4] describes that techniques used to manage educational content in web-based systems cannot be confined to official specifications of metadata standards. Confining metadata abstraction to defined boundaries of official standards can hinder progress in the enhancement of the usefulness of objects discovered following their search. In the Lab@Future project, They exploited these perspectives by introducing an activity-centered approach to abstracting theory-based extensions to the LOM Educational category. Their method does not include schematic recommendations for implementing new vocabularies instead, they put emphasis on the fact that activity theory-based vocabularies may be used to semantically describe various features of the data that

form learning objects. Richard Vidgen, Steve Goodwin and Stuart Barnes [5] argued that Web content management (WCM) is a significant business issue for any organization that maintains a Web site that has a large number of pages or has frequently changing content provided by multiple providers. WCM technologies are emerging with background in document management, customer relationship management, and software configuration management. The WCM market is currently crowded and confused and it is likely that there will be a fall-out of suppliers as the market matures and WCM concepts are clarified. They have presented a framework for WCM in which a number of themes are identified, including content lifecycle management, repository and data/metadata management, the combination of UML/RDF/XML is a promising approach to enterprise wide datamanagement. Lisa Welchman [3] defines some basic criteria that should be used to help us to determine which web content management products and strategies may be a good match for our business. The process of migration content from an existing website into a WCMS can be expensive. For a medium sized business, a WCMS solution can cost from 30k-300k. For a larger enterprise, that solution can run into the millions. There are three basic issues any business should explore when beginning the search for a WCMS which includes types of website, web production demographic and level of business commitment to the web.

## VI. CONCLUSION

Open Source CMS are an alternative that facilitate the development of online collaborative communities. Moreover, we reviewed the main types of Web CMS, programming languages and facilities provided by them. The results have shown that the frequency of use is very high. We also noticed that the programming languages used by most of the users are: PHP, ASP and Java. Consequently, the most important functionalities are: the existence of an editor that allows the editing of the source code, organization facility for content with the help of tags, import functionalities from different formats as well as the WYSIWYG editor, restricted access and the existence of a back-up system. Similarly, we should consider other functionalities such as: the personalization of user interfaces and content, accessibility from mobile phones, addition of the ping and track-back option, automatic optimization, as well as dynamic pages for search engines.

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Features	WordPress	Joomla	Drupal	Plone
Ease of Hosting and Installation	▲	▲	▲	■
Ease of Setup: Simple Site	▲	●	●	■
Ease of Setup: Complex Site	▲	▲	●	●
Ease of Use: Content Editors	▲	●	●	▲
Ease of Use: Site Administrator	▲	●	●	●
Graphical Flexibility	▲	▲	▲	▲
Accessibility and Search Engine Optimization	●	▲	■	▲
Structural Flexibility	●	●	▲	▲
User Roles and Workflow	■	▲	●	▲
Community/Web 2.0 Functionality	▲	●	▲	●
Extending and Integrating	▲	▲	▲	▲
Security	■	●	●	▲
Support/Community Strength	▲	▲	▲	▲

● None   ■ Fair   ● Solid   ▲ Excellent

Table.1 Comparison of Features of Top Four Web CMS