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SYSTEM FOR A CHARITY TEAM**

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Execution of Web Content Management System for a Charity Team

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Abstract – In the early days of the World Wide Web, web content management laid entirely in the hands of the webmasters. With the evolution of the web technology and demanding business requirements, the responsibility of web contents management has shifted from webmasters to anyone without any level of web programming knowledge.

A charity organization intends to have a website to reach their online audience. They have decided to deploy a Web-based system that will allow the administrative members with basic computer skills to manage the web contents. This thesis addresses the issue by developing Web Content Management System with simple user interfaces where the administrators can manage digital contents. The system should allow end-users to register on the website, upload photos, send emails and make donations. This work evaluates three online payment systems: SMS payment, Google Checkout and PayPal. Eventually, the method that results to be most suitable for the organization is chosen and implemented for online donations.

Organizations increasingly utilize Web Content Management Systems (WCMS) to improve development speed, online flexibility and cost effectiveness for web applications. However, organizations lack the organizational processes and structure to effectively maintain WCMS. We propose a WCMS Process Framework for the operation and maintenance phase of Web Engineering. In this paper we elaborate on the construction of the framework. It encompasses the description of a generic IT Management framework and the inclusion of Web Content Management processes into a strategic, tactical, and operational level.

The framework is validated through an expert validation consisting of three industry experts and a case study at a large Dutch telecommunications services provider. The case study substantiates our vision that the WCMS Process Framework contains a set of process descriptions that effectively supports the operations and maintenance of web applications.

Businesses are using content management systems (CMS) to perform web administrative functions, manage assets, provide personalization and localization features, and much more. However, selecting an open source CMS is difficult because there are many options. This report uses trend data from independent research organizations to form evaluation criteria that can be used to further analyze CMS software. Evaluation criteria were then used to evaluate three different open source products: Alfresco, Joomla!, and Drupal to determine which products were suitable for different web requirements. Results indicate that Alfresco is suitable for websites that require advanced functionality such as detailed content analytics or document and knowledge management features. Drupal is suitable for sites that require intermediate level functionality, such as the ability to grant access of one portion of the site to a subset of users, or the ability to maintain multiple sites. Joomla! is suitable for basic sites that require some intermediate level functionality, such as blogs and forums.



INTRODUCTION

Since the dot-com boom of the late 1990s, corporate websites have become commonplace for almost any type of company, large or small, across the globe. Almost every enterprise these days needs a website to communicate with customers, partners, shareholders, and so on, providing up-to-date information on the enterprise, its products and services. Increasingly,

commercial activities and order transactions are conducted on enterprise websites.

In the early days of website maintenance, the task of uploading and updating site content usually fell to the IT department. One method for uploading web content to the server was to use file transfer programs such as FTP (file transfer protocol). Another common approach was to create an upload function within a Web interface allowing different

content owners to select appropriate files and upload them via HTTP. Both methods are common, and still used by web hosting companies and small & medium enterprises (SMEs).

To help meet these needs, businesses are using Content Management Systems (CMS) in conjunction with other products. CMS are used to perform web administrative functions, manage assets, provide personalization and localization features, and much more. There are many subcategories of CMS. A Web Content Management (WCM) system has additional features specifically tailored to manage web site content. A Digital Asset Management (DAM) system has additional features to support the ingesting, cataloguing, storing, retrieving, and annotating of digital material. An Enterprise Content Management (ECM) system is usually comprised of a WCM and DAM, and provides additional knowledge management and document management features as well.

However, the dizzying array of options can be daunting for even the most seasoned information technology (IT) administrator. CMS Matrix, an open source organization that tracks and rates content management systems, lists over 800 different open source CMS packages and, if we expand the list to include commercial packages, the list grows longer.

The idea of the research then came during the discussion about the important and convenience of having a website for the organization. A website that would inform its members on their activities, and even possibly to enable them to pay their monthly contribution on the website. Although, the organization had earlier had thoughts about outsourcing the development of a simple website but, because of financial and technical constraints the idea was never realized. Few years later, at the end of my studies I got the idea of me developing a website as my bachelor thesis. A proposition for the research was formed and presented to the organization and to my university. The proposition was accepted and it was decided that the development of the website would take place in close collaboration with the owner.

WEB CONTENT MANAGEMENT DEVELOPMENT

The Web Content Management Systems (WCMS) that have appeared more recently are designed to tackle these problems, and make it easier to collaboratively update a website. A WCMS is a web application that facilitates a group of collaborative users, usually from different departments across an enterprise, to maintain and organise web content in an effective and manageable way. Web content can include text, images, audio and video. A modern WCMS can also include workflow features so that the creating, storing, and updating of web pages, along with approval sub-procedures, can be streamlined. In addition, features such as versioning, check-in/check-out auditing, and

so on are useful for managing and tracking the updating of web pages.

Although content creation and management functions are critical to knowledge owners, a second function, that of the site developer, is of equal importance to the proper implementation of a WCMS.

A good WCMS will allow for componentization and reuse of technical assets to facilitate both consistency and ease of maintenance. The Lotus Web Content Management server provides numerous features to make the task of managing technical assets simpler.

A WCMS is essentially a web application supported by a backend database, with other features such as search engine, and perhaps integration with a translation engine. The general security threats applicable to web applications, such as cross-site scripting, injection flaws and/or malicious file execution, can all be applied to a WCMS.

This is model based on the idea of developing an initial implementation, presenting it to the stakeholders for feedback, development team responds to the feedback, often by refining the product until an adequate system has been developed. One of the advantages of this model is that the customers can see steady progress. One of the disadvantages is that it's impossible to know at the outset of the research how long it will take. There are two types of Evolutionary development models:

1. Exploratory development: Objective is to work with the customers to evolve a final system from an initial outline specification. Process starts with the well understood requirements.
2. Throw-away prototyping: Objective is to understand the system requirements. Process starts with the poorly understood requirements.

METHODOLOGY

A traditional software evaluation process involves approximately seven steps:

Requirements Gathering, Literature and Industry Research Review, Candidate Selection, Request for Proposal, Vendor Demonstration, Formal Evaluation, and Software Selection.

However, since the goal of this process is not to select software, but rather to determine which software can be used to support which website goals, modifications to this process have been made.

With the differences and specific nature of WCMS we developed the WCMS Process Framework. An overview of the WCMS Process Framework is visualized in Figure. We elaborated on each of the processes in and a full description is publicly available. The framework copes with the earlier

raised issues and can be used next to the ITIL, ASL and BiSL models. The WCMS Process Framework conformed to the subdivision of three managerial levels; the strategic, tactical and operational level. This also complies with the five identified issues mentioned earlier where strategy and policy issues indicate a strategic management level, coordination issues point to a tactical management level and the production and maintenance of content designate an operational level. The WCMS Process Framework is developed, based on existing web and content related literature and the results of a web management study.

Additional content management specific processes were designed for issues not covered by ASL and BiSL to complement the WCMS Process.

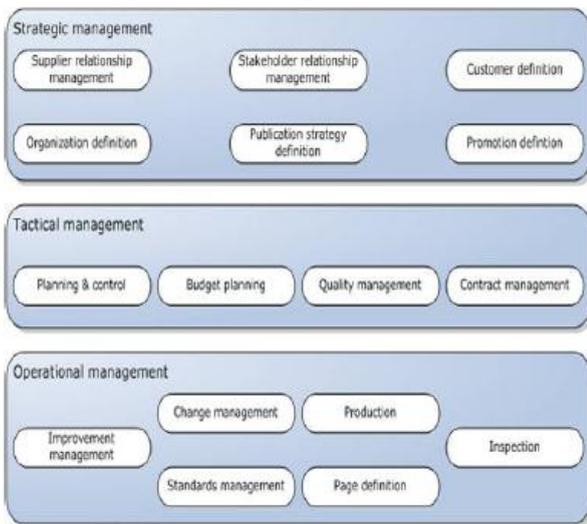


Figure. Framework Overview

One of the most important aspects of any WCMS is its ease of use for content creators and content approvers. Lotus Web Content Management software provides a variety of features and capabilities to enhance the content management experience for these groups. In this section, we will look at some of the core features designed to improve the process for managing content.

When the concepts for the research were initiated a plan was drafted and presented to the stakeholders in order to reach an agreement on the research plan and outcome. Different technologies are explored and compared in order to pick the more suitable for the research purposes. A software development process methodology is also chosen in order to follow an efficient software development work-flow and thus make sure that the requirements are fulfilled. Moreover, this methodology allows non-technical stakeholders to easily follow the development progress.

Once technologies are chosen as well as a development process, a requirements specification is agreed with the stakeholders and modeled through state-of-the-practice techniques, such as scenario-driven and use-case-driven. The system is modeled from architectural and behavioral perspectives too. Before starting with the actual implementation, the modeled system is presented to the stakeholders for eventual modifications before starting with the actual implementation. Once the implementation phase is completed, the application is tested and evaluated by both the developers and the stakeholders in order to finalize and eventually tune features for achieving the final product.

CONCLUSION

The developer defined system specifications and selected the ASP.NET technology for the implementation of the WCMS together with the stakeholders and modeled the system following the state-of-the-practice techniques, e.g., scenario-driven description together with Use Case diagrams.

The modeled system was presented to the stakeholders and some modifications were done at modeling level before starting with the implementation. Once the implementation phase was completed, the application was tested and evaluated by both the developers and the stakeholders who resulted satisfied by the final product hence not demanding any change in the running WCMS.

We used fragments from existing models and combined them into our model. The framework consists of a set of guidelines and process descriptions separated over three managerial levels: strategic, tactical and operation. Each process is described by means of Process Delivery Diagrams and descriptive tables. We validated the model through an expert review and a second case study. Based on the two case studies we are even more convinced that the WCMS Process Framework could act as a useful set of guidelines for organizations to organize WCM processes. Some remarks were made however of the absence of secondary processes and three processes in non-profit organizations. We trust that we have made a step forwards in developing a method for the implementation and maintenance of WCM systems.

Furthermore, we think that the framework of WCM processes is useful beyond the scope of Web Content Management and could be applicable in other content driven areas (e.g. publishers). We are currently researching the influence of user generated content and community technologies on existing organizational processes, especially the implications on information control and security. We also continue our research to extend WEM with a modeling

language to model the processes in the Web Application itself.

There are many vendors in the Web content management system space. Although each one has its own strengths, we believe that none can match the overall package offered by Lotus Web Content Management software.

Today, businesses are using content management systems (CMS) to help them deliver targeted information for visitors interested in their products and services. There are many software packages available, however selecting a CMS is sometimes difficult because trend and evaluation data does not always coexist in the same reports. Using a process that incorporates trend analysis conducted by independent researchers and feature analysis conducted by open source organizations can often facilitate decision making.

The results of this report indicate Alfresco, Joomla!, and Drupal have various strengths and weaknesses. Alfresco provides advanced functionality, but may require more expertise to administer since user support is somewhat lacking. Joomla! provides good basic functionality and is very easy to use, but is missing some key features. Drupal is a good solution for basic and intermediate websites and can be easily administered (although some features are a bit cumbersome). Ultimately, the best path for business owners is to use trend data, coupled with their own requirements to choose a CMS that will support their web strategy, both today and in the future.

While a good WCMS can facilitate businesses to better control their web content, making it more responsive in today's dynamic business environment, end-users should also be aware of the possible security impact on the enterprise if inappropriate material was published on the site.

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