International Journal of
Emerging Research in Management &Technology
ISSN: 2278-9359 (Volume-3, Issue-4)

Research Article | **April 2014**

Web Development Using Content Management System

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Abstract-

Ever since the inception of Information Technology, everyone wants " to get global exposure" of their business by making their business details on World Wide Web (WWW) with less amount of time and money. During the past twenty years the web has brought about some radical changes in terms of content creation and maintenance for documents and other data. Content management systems (CMS) provide an optimal solution by organizing information, developing and maintaining user's data. Further, web based directory search mechanism and business intelligence tools have evolved during this period to facilitate more efficient access and search mechanisms. The large volume of content to be handed in the present-day context necessitates the visualization and conceptualization of new trends for immediate future development and deployment of Content Management Systems, especially for e-Learning environments.

Keywords- CMS, WCMS, CCMS, CDA, templates

1. INTRODUCTION TO CMS

A content management system is a computer program that allows publishing, editing and modifying content as well as maintenance from a central interface. Such systems of content management provide procedures to manage workflow in a collaborative environment. These procedures can be manual steps or an automated cascade. CMSs have been available since the late 1990s. CMSs are often used to run websites containing blogs, news, and shopping. Many corporate and marketing websites use CMSs. So end-user who does not have sufficient technical knowledge can easily develop specific element or entire page without any hand coding. Thus it saves more time and money. CMSs can support content being created once and used many times[2][5]. CMS is a system facilitating the creation, retrieval, and editing of information/knowledge in digital fashion including row, semi-processed or fully-processed content handling text, image/graphics/animation, audio/video etc. in real time or otherwise as needed[1]. The function and use of content management systems is to store and organize files, and provide version-controlled access to their data. CMS features vary widely. Most CMS include Web-based publishing, format management, revision control (version control), indexing, search, and retrieval. The CMS increments the version number when new updates are added to an already-existing file. A CMS may serve as a central repository containing documents, movies, pictures, phone numbers, and scientific data. Distinguishing between the basic concepts of user and content, the content management system (CMS) has two elements:

- Content Management Application (CMA) is the front-end user interface that allows a user, even with limited expertise, to add, modify and remove content from a Web site without the intervention of a Webmaster.
- Content Delivery Application (CDA) compiles that information and updates the Web site[2].

2. TYPES OF CMS

A CMS is mainly broken down in following three types:

- Web CMS
- Component CMS
- Enterprise CMS

- **Web CMS:**

A web content management system (Web CMS) is a bundled or stand-alone application to create, manage, store and deploy content on Web pages. Web content includes text and embedded graphics, photos, video, audio, and code (e.g., for applications) that displays content or interacts with the user. Web CMSs usually allow client control over HTML-based content, files, documents, and web hosting plans based on the system depth and the niche it serves[2].

- **Component CMS:**

A (CCMS) specializes in the creation of documents from component parts. For example, a CCMS that uses DITA XML enables users to assemble individual component topics into a map (document) structure. These components can be reused (rather than copied and pasted) within another document or across multiple documents. This ensures that content is consistent across the entire documentation set[4].

- **Enterprise CMS:**

Enterprise CMS represents an integrated approach to manage all enterprise information (paper documents, data, reports, websites and all of the digital asset). An ECMS comprehends strategies, instruments, processes and knowledge a company needs to manage its information asset independently of their format[6].

3. 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 WCMS 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 [3].

4. WORKING OF CURRENT SYSTEM

In current system, any customer have to first register in the website making company, take the appointment, and have to wait for the call for meeting.
After getting call; meeting is conducted where customer make the company person understand his/her requirements. After few days the company person will give the website prototype model to the customer.
Customer passes the prototype model or provides any changes to enhance the prototype.
Finally, Customer gets the final model of website with its domain name registered after paying too much money and time.

5. DISADVANTAGES OF CURRENT SYSTEM

- "Customer never wants what company people made".
- Time consuming activity.
- Customers have to deal with the company person for any update or change in the website.
- Investment of large amount of money.
- If customers want to expand his/her website then he/she has to follow all the previous web creation steps.

6. CAPABILITIES OF WEB CMS

A web content management system is used to control a dynamic collection of web material, including HTML documents, images, and other forms of media. A CMS facilitates document control, auditing, editing, and timeline management. A WCMS typically has the following features:

(1) Automated templates:
Create standard output templates (usually HTML and XML) that can be automatically applied to new and existing content, allowing the appearance of all content to be changed from one central place.

(2) Access control:
Some WCMS systems support user groups. User groups allow you to control how registered users interact with the site. A page on the site can be restricted to one or more groups. This means an anonymous user (someone not logged on), or a logged on user who is not a member of the group a page is restricted to, will be denied access to the page.

(3) Scalable expansion:
Available in most modern WCMSs is the ability to expand a single implementation (one installation on one server) across multiple domains, depending on the server's settings. WCMS sites may be able to create micro sites/web portals within a main site as well.

(4) Easily editable content:
Once content is separated from the visual presentation of a site, it usually becomes much easier and quicker to edit and manipulate. Most WCMS software includes WYSIWYG editing tools allowing non-technical users to create and edit content.

(5) Scalable feature sets:
Most WCMS software includes plug-ins or modules that can be easily installed to extend an existing site's functionality.

(6) Workflow management:
Workflow is the process of creating cycles of sequential and parallel tasks that must be accomplished in the CMS. For example, one or many content creators can submit a story, but it is not published until the copy editor cleans it up and the editor-in-chief approves it.

(7) Collaboration:
CMS software may act as a collaboration platform allowing content to be retrieved and worked on by one or many authorized users. Changes can be tracked and authorized for publication or ignored reverting to old versions. Other advanced forms of collaboration allow multiple users to modify (or comment) a page at the same time in a collaboration session.

(8) Delegation:
Some CMS software allows for various user groups to have limited privileges over specific content on the website, spreading out the responsibility of content management.

(9) Document management:
CMS software may provide a means of collaboratively managing the life cycle of a document from initial creation time, through revisions, publication, archive, and document destruction.

(10) Content virtualization:
CMS software or site may provide a means of allowing each user to work within a virtual copy of the entire web site, document set, and/or code base. This enables changes to multiple interdependent resources to be viewed and/or executed in-context prior to submission.

(11) Content syndication:
CMS software often assists in content distribution by generating RSS and Atom data feeds to other systems. They may also e-mail users when updates are available as part of the workflow process.

(12) Multilingual:
Has ability to display content in multiple languages.

(13) Versioning:
Like document management systems, CMS software may allow the process of versioning by which pages are checked in or out of the WCMS, allowing authorized editors to retrieve previous versions and to continue work from a selected point.

7. System Flow of Web CMS

Following figure show System Flow Diagram (SFD) of web CMS. First users have to register him/herself which provides his/her unique username and password through which he/she can log in the system.

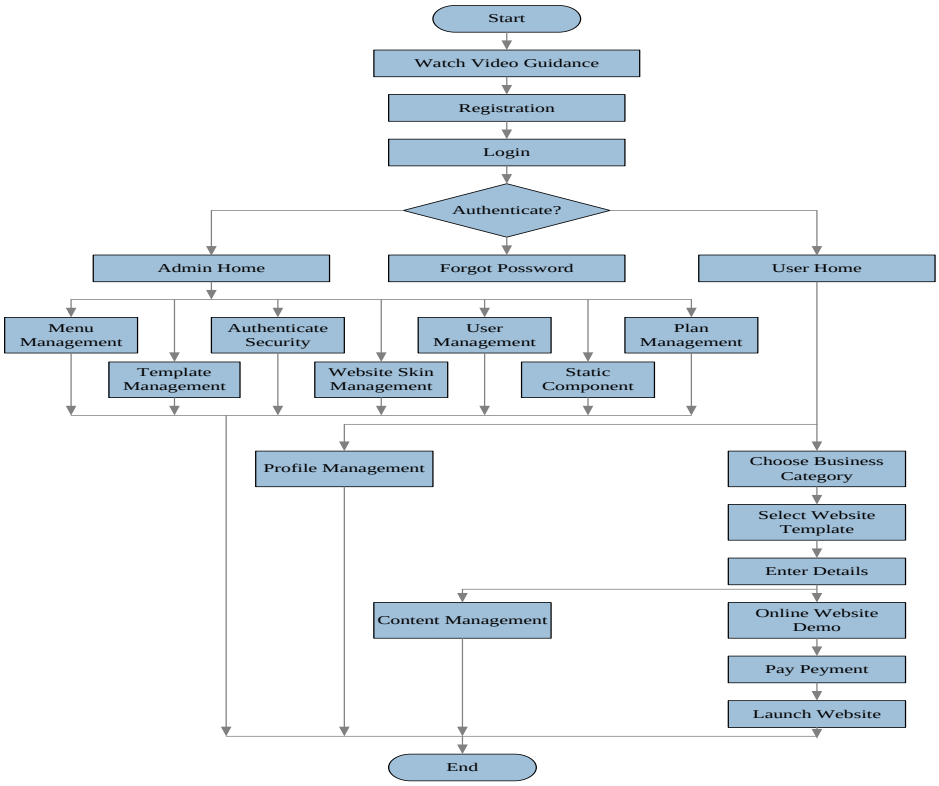

Figure: System Flow Diagram Of Web Bakers

Mainly the system contains two types of user one is Admin and other is User himself. Admin can perform menu management, template management, authorization security, website skin management, user management, plan management, and static component management. Menu management contains addition, updating, and deletion of website menu like Home, About Us, Contact Us etc, template management contains management of new templates and new template categories. Admin can give site authorization security to the user of the system. Website skin management is associated with changing of color and font style of the system. Through user management and plan management admin can manage system users as well as revises membership plan for the user. System users can maintain their profile up to date through profile management feature. System Flow Diagram also gives a sequential flow of how a system user can completely develop their website as well as launch their website. Users first have to choose their business category then after they have to select their likely website templates. Enter details regarding their website content. They can also update their website content through content management feature. After completing this procedure, their website is ready for the online demo. Before launching the website users have to pay payment as per their selected membership plan. Finally users are ready for launching their website.

8. FLOW OF DATA IN WEB CMS

Following figure show context or 0-level data flow diagram of Web Bakers:

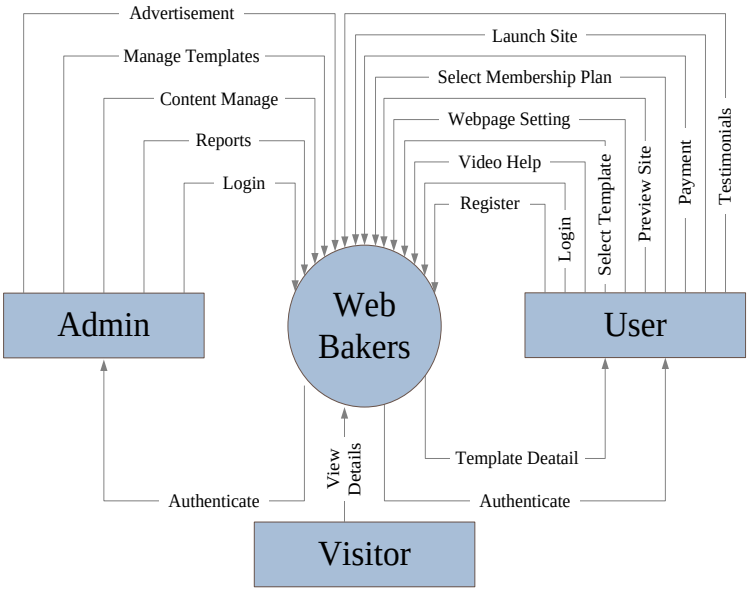

Figure: A Context level Data Flow Diagram

9. HOW CMS IS COMPARED TO TRADITIONAL ONLINE INFORMATION UPDATING?

A CMS represents a revolutionary way to manage information online when compared to traditional methods. The business processes and necessary personnel are streamlined considerably as many of the technical team members are no longer needed for day-to-day online information updating [4].

	With CMS	Without CMS
New Page Creation	A new page is created based on a pre-defined default. All navigation links are automatically updated and a full audit trail is available.	A new page is created as a copy of an existing one. The site map and context navigation links must be updated by hand and standards enforced in an adhoc manner.
Content Consistency	Templates are separated from page content, strictly maintaining consistency throughout the site. Display consistency is enforced by the CMS.	Content and template are inextricably tied together, making it difficult to update changes site-wide. Display consistency is determined by the developers.
Workflow Processes	Workflows are built to mirror designated business processes. The CMS workflow engine records an audit with comments on each step. Upon final approval, content is automatically published online.	Workflow is typically done via email in an ad-hoc fashion. Emails are sent to different persons in the organization and upon subsequent approvals, manually published online.
Publishing Times	Content is published immediately once necessary approvals have been made.	Content is published when the webmaster has available time, which could take several days and

		incur reconfiguration errors.
Legal Compliance	Compliance is enforced by the system maintaining records of content changes and content publication.	Compliance is left up to the team members. Changes to the content must be manually backed up and a log kept of when content was published.

10. ADVANTAGES

(1) Low cost:
Some content management systems are free, such as Drupal, eZ Publish, TYPO3, Joomla, and WordPress. Others may be affordable based on size subscriptions. Although subscriptions can be expensive, overall the cost of not having to hire full-time developers can lower the total costs. Plus software can be bought based on need for many CMSs.

(2) Easy customization:
A universal layout is created, making pages have a similar theme and design without much code. Many CMS tools use a drag and drop AJAX system for their design modes. It makes it easy for beginner users to create custom front-ends.

(3) Easy to use:
CMSs are designed with non-technical people in mind. Simplicity in design of the admin UI allows website content managers and other users to update content without much training in coding or technical aspects of system maintenance.

(4) Workflow management:
CMSs provide the facility to control how content is published, when it is published, and who publishes it. Some WCMSs allow administrators to set up rules for workflow management, guiding content managers through a series of steps required for each of their tasks.

(5) Good for SEO:
CMS websites are also good for SEO. Freshness of content is one factor that helps, as it is believed that some search engines give preference to website with new and updated content than websites with stale and outdated content. Usage of social media plug-ins helps in weaving a community around your blog. RSS feeds which are automatically generated by blogs or CMS websites can increase the number of subscribers and readers to your site. URL rewriting can be implemented easily which produces clean URLs without parameters which further help in SEO. There is plug-ins available that specifically help with website SEO.

11. DISADVANTAGES

(1) Cost of implementations:
Larger scale implementations may require training, planning, and certifications. Certain CMSs may require hardware installations. Commitment to the software is required on bigger investments. Commitment to training, developing, and upkeep are all costs that will be incurred for enterprise systems.

(2) Cost of maintenance:
Maintaining CMSs may require license updates, upgrades, and hardware maintenance.

(3) Latency issues:
Larger CMSs can experience latency if hardware infrastructure is not up to date, if databases are not being utilized correctly, and if web cache files that have to be reloaded every time data is updated grow large. Load balancing issues may also impair caching files.

(4) Tool mixing:
Because the URLs of many CMSs are dynamically generated with internal parameters and reference information, they are often not table enough for static pages and other web tools, particularly search engines, to rely on them.

(5) Security:
CMS's are often forgotten about when hardware, software, and operating systems are patched for security threats. Due to lack of patching by the user, a hacker can use unpatched CMS software to exploit vulnerabilities to enter an otherwise secure environment. CMS's should be part of an overall, holistic security patch management program to maintain the highest possible security standards.

12. CONCLUSION

Content management systems consist of programs designed to manage vast amounts of accumulated content. Organizations implement these systems to simplify the process of retrieving, updating, publishing, and archiving documents of all sorts. CMS allow organizations to enjoy the benefits of greater efficiency while their customers serve

themselves on a 24/7 basis. Concerns over security have slowed the proliferation of CMS systems but several measures can be taken at multiple levels to make document access control procedures perfectly sound.

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