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Essentials for Selecting the Right Content Management Solution

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It would be hard to imagine today's Web without Content Management Systems (CMS). The volume of content on the Web is increasing at a record pace, yet businesses and consumers alike are expecting to find just the right information, in just the right place, and at just the right time. Only a mature CMS can help control these opposing trends.

Although CMS products have become a virtual commodity, a custom implementation is still a significant undertaking that must be carefully planned and executed. Therefore, it is important to understand the various applications of a CMS and the potential value they can provide in a specific business situation. The following paper will help you to understand what a CMS product should do, what it cannot do, and the key criteria to consider when evaluating and selecting a CMS for your business.

How are CMS Used Today?

Organizations use content management systems in different ways to best support the unique challenges they face in creating, maintaining and distributing content. Some examples include:

- For companies in the business of creating and selling content, the CMS is their operational backbone. Among these companies are newspapers and news outlets, publishers and researchers of any kind that want to move their printed material to the Web quickly and easily. These implementations tend to have the highest requirements in terms of content volume, frequency of change and site traffic.
- E-Commerce sites use a CMS to manage collateral content, such as technical specifications, instructional copy and product manuals. Such implementations have medium to high requirements for content volume and site traffic, but the content does not change frequently. Most important in this segment is the seamless integration with product databases and product information management (PIM) repositories, since content editors need to be able to associate content assets with catalog items.

- Companies that use the Web to complement their customer support or marketing presence provide online information about themselves, their operations and their products. Depending on the size of the company and the type of business, these sites have low to medium requirements for the amount of content supported and the frequency of change. Site traffic is typically low to moderate.

Even within each of these segments one can find a wide spectrum of sites, from small and well-contained implementations to large web sites that required multi-year and multimillion dollar development projects. In some cases, a commercial CMS is purchased and implemented to reduce operational cost. More and more, companies find that they can use the CMS to generate revenue and reduce costs by reducing time-to-market for key information, syndicating content and improving customer retention through improved site experiences. Therefore, it is clear that the value of a CMS product can vary significantly from company to company, and we can only scratch the surface when attempting to capture each and every nuance of this value.

For a business that is trying to determine what value it would get out of a CMS implementation, it can be helpful to understand what features a CMS should have and what it cannot do.

What a CMS Should Do

For companies new to content management, developing a fuller understanding of CMS can be a daunting task. Different vendors use different terms to describe the same concepts, making it difficult to compare CMS products and features. The following list outlines the out-of-the-box functionality you should expect from a major CMS vendor:

- Content can be defined as a body of text, a reference to an external document, or a media asset (image, audio, video, etc.), along with accompanying metadata that characterizes the information. A CMS should provide an infrastructure for managing the lifecycle of such content. This includes the authoring, publication, retiring, archival and deletion of the content. Some CMS also manage the delivery of content to the Web, so it can be consumed by end-users.
- A CMS should provide the option to deliver content statically, through the generation of complete HTML documents, or dynamically, through a Web application that pulls content dynamically from a content repository. Web sites can follow a mixed model, where some content, such as personalization or inventory information, is generated dynamically and other content is brought in as statically published HTML pages.
- A CMS should provide workflow support to model complex authoring and publication processes. This includes a security model that offers the ability to specify actions specific users can perform based on their role in the application. Roles such as authors, editors and approvers can be defined, and individual users will see a task queue when they log on to the system that enables them to take actions with the content asset. The system will then route it to the next step in the workflow.
- A CMS should support basic collaboration of a group of content contributors. Users need to be able to check out a content asset and lock it, so that others cannot manipulate the same document or piece of content. There should be basic versioning, as well as the ability to revert to a previous version of modified content.
- A CMS should provide the flexibility to deploy multiple instances of the system that can work together. Most installations require two, three or four instances for development, test, content staging and production, respectively. Content replication between multiple instances should be a readily available feature and not require custom code.

What a CMS Cannot Do

Now that you know what functionality most CMS will deliver, it is equally important to know what they won't. The following is a list of common misconceptions and false expectations about CMS features:

- A CMS will not work out-of-the box. Typical implementation tasks for any CMS require that the content to be managed is analyzed and that corresponding content structures are defined within the system. Some systems have a graphical user interface (GUI) for this task, while others parse an XML document and generate database objects and user interface components accordingly. Other typical implementation tasks include:
 - Migrating content from other sources, or creating it from scratch
 - Building and testing a web site for delivery of content to end users
 - Defining and creating publishing processes within the system
 - Training end-users of the CMS
 - Customizing and extending the content management user interface (if product functionality is insufficient)
 - Integrating the system with corporate security, single sign-on products and external applications that exchange data about users or content assets
- A CMS is not a product catalog management tool. Some commercial CMS vendors claim to have this capability, but careful consideration is important prior to implementation. There may be limitations that will reduce your flexibility for managing your catalog. You should be able to prune and graft product branches in the tree, add or modify attributes without having to rebuild the catalog, and define attributes at group levels to make metadata maintenance easier. Be sure to request a proof-of-concept implementation of a representative scenario before you buy.
- A CMS is not a Web design tool or a Web editor. The separation of content from presentation often causes frustration among content authors, as they have limited control over how the content will be presented on the Web. WYSIWYG editors can help alleviate this frustration somewhat, but not completely. Control over who can modify the presentation must be managed closely on an ongoing basis, not just during the implementation phase. Otherwise, unproductive struggles between different groups in the organization can evolve that take away from the quality of the Web presentation.

- A CMS is not a document management system. While most commercial CMS do have the capability to upload and manage documents, their user interfaces are not optimized for document search and retrieval. You will encounter productivity issues if you use your CMS as a document management system.
- A CMS cannot fix broken content management processes in an organization, it will only compound them. Make sure that you have a good handle on where and how content is created, who approves it and when its lifecycle ends.
- A CMS is not a localization tool. Most CMS support international content, but provide little support for localization. Workflow can be used to create translation processes, but it is often a work-around. Expect the need for additional products or customization of your CMS to support content localization for your target markets.
- Some CMS come bundled with a search engine, but most do not. Your content authors can probably live without the ability to do full-text searches in the management interface, although it will take longer to find a content asset. On the Web presentation side, strong search capabilities are mandatory. You will need a search engine so that your users can find the content that you are providing for them.

How to Select the Right Product: A CMS Evaluation Guide

The right CMS product is the one that requires the least amount of customization to meet your business needs. Before looking at specific products, develop clear requirements for what the CMS is expected to do. Evaluate your content, estimate future site traffic, analyze data integration needs, and understand how content is created and what its lifecycle is. There is limited value to ranking CMS products against each other in random categories if it is not known how important the categories are for the implementation.

Once such a requirements profile is available, the best product should be determined by utilizing experience from prior implementations. If your organization does not have this experience in-house, it is highly recommended to seek external help. Vendor-provided feature lists should not be your sole selection criteria, and third-party vendor evaluations do not necessarily weight and rate features in a way that mirrors your particular needs.

Price is also not a good indicator for how well a product will match your business requirements. For example, do not conclude that a free or Open Source product cannot match your requirements. While it's true that most Open Source CMS are not as feature-rich as their commercial counterparts, the absence of licensing costs may allow you to spend more on customization and implementation to make up for any missing features.

When evaluating a CMS, it is helpful to establish a set of criteria that can be used to examine a product methodically. This process makes it easier to map features against your requirements, as well as compare and rank products against each other and establish a score. The CMS Evaluation Guide on the following pages will help you to plan and structure your CMS selection process.

Conclusion

Content management systems have become imperative for converting information into more valuable assets and making it available to employees, customers and partners. Yet the first and most difficult step for any company is selecting a product that will satisfy their current and long-term business goals.

CMS implementations can go smoothly if the requirements are understood and if a product is selected that can match the requirements. Using the following set of criteria to evaluate products against your requirements will ensure your CMS implementation is risk-free and will maximize its value for your organization.

Molecular, a technology consulting firm, designs and builds Internet-based solutions to help companies increase revenues and decrease operating costs. Since 1994, Molecular has directed successful Web initiatives for the nation's top companies, including Blue Cross Blue Shield of Massachusetts, Fidelity Investments, MFS Investment Management, Hewlett-Packard and Talbots. For more information, contact Molecular at <http://www.molecular.com> or at 617.218.6500. Molecular is located in Watertown, Massachusetts.

CMS Evaluation Guide

Category	Criteria
Application history and architecture	The application architecture of the CMS will let you draw conclusions about the customization effort. The cleaner and better-designed an application, the easier it will be to customize and integrate it with your existing infrastructure. Learning the architecture will also give you an idea whether your content can be represented accurately and effectively in the CMS, and whether the product is suitable for static or dynamic delivery.
Content delivery capabilities & scalability	Most CMS can render content dynamically upon request into an HTML stream or statically into HTML files upon publication. A preference for either way of delivery depends on a site's requirements for personalized, real-time content, traffic volume, and other parameters. Dynamic delivery support for larger sites requires caching capabilities and an API for the programming language that you want to use. A static approach does not require such tight integration with the Web delivery infrastructure. It can be helpful to look at how pages and presentation templates are being managed in the CMS, if page components can be defined and reused, and how well content is separated from presentation.
Security model	The CMS must support integration with an existing security infrastructure. Windows NTLM authentication, LDAP integration and Active Directory are some of the choices. This integration will be limited to the management side. Security on the delivery side is generally not a feature of the CMS.
Customization capabilities	All CMS require customization, except for the simplest applications. For example, it may be necessary to extend the content data model to include relationships with external data, add additional fields for content meta data, change the user interface to integrate with external components, change the workflow or content publication process, etc. The effort required to implement such customization varies widely and depends on whether the product's architecture is customization-friendly or not. A set of poorly documented Perl scripts, for instance, is more difficult to customize than a hierarchical collection of well-structured JSP page components.
Content management features, user interface	To ensure organizational adoption of the CMS by content managers, the user interface must be intuitive and allow knowledge workers to create, edit, maintain and present content in ways that satisfy business goals. Examples of evaluation criteria in this category include: <ul style="list-style-type: none"> • Flexibility and tool support for creating content assets • Flexibility and tool support for modifying content assets • Management of relationships between content assets • Support of lists and ordered collections of content assets • Workflow support • Content publishing – selective publishing support • Version control features • Search and content navigation

Category	Criteria
Content import and export	Understand how well the CMS supports exporting and importing of content from and into its repository. XML export and import should be supported out-of-the-box. How difficult will it be to integrate a feed so that new content assets can be associated with external entities, e.g. products in a product catalog, categories from a taxonomy, etc.?
Ease of installation	Not every CMS comes with a setup program that will install and configure the product with minimal interaction. Even with a setup program, the process of installing a CMS with its required software stack and connecting it to the database can be a task that requires several attempts before it is successful. Ask someone who has gone through the process.
Application deployment	Deploying a custom solution on top of a CMS product is very different from installing the product. If your organization has strong requirements around configuration management and process, take a close look if deployments can be automated and if they are repeatable, if there is any tool support, and if there is logging and auditing capabilities. Having to manually deploy 500 data and configuration files from a development server to staging and production servers as part of a weekly release cycle can be draining on your staff.
Search engine integration	On large installations, the ability to quickly find an existing content asset can make or break the acceptance of the CMS product among content contributors. A simple database search is not smart enough to try variations of a word form and can frustrate a user who does not remember the exact title of a piece of content. On the other hand, the integration of a full-text search engine can be quite complex and time-consuming. Make sure that your product supports your requirements in this regard.
Quality of customer support	Asking existing customers and product integrators about their support experience can be helpful in gauging how quickly and reliably you will get support cases resolved.
Sample sites	Find out on what real-life sites the CMS is used and understand how its features are utilized, whether delivery is static or dynamic, whether there is personalization and real-time content, and how much traffic the site can handle (e.g. via http://www.alexacom.com).