

Effective Web Content Management: Empowering the Business User While IT Maintains Control

Prepared by: Winett Associates for Ektron Inc.
<http://www.winettassociates.com>

Published by:
Ektron, Inc.
5 Northern Blvd., Ste. 6
Amherst, NH 03031 USA
Tel +1 (603) 594-0249
Fax +1 (603) 594-0258
www.ektron.com

Copyright 2001/2002, All Rights Reserved, Ektron, Inc.
No material herein may be copied or duplicated without the permission of the copyright holder.

Effective Web Content Management: Empowering the Business User While IT Maintains Control

Abstract

More and more, a Web site is the face a business or organization presents to the world. Since 1998 business-to-business and business-to-consumer Web sites have become the single most important vehicle for communicating with customers, suppliers, partners, employees, analysts, and investors. Worldwide revenues for business-to-business and business-to-consumer are expected to be \$6.8 trillion by 2004 (Forrester).

Unfortunately, Web content quickly grows stale and becomes out-of-date. A new Internet category—Content Management (CM) solutions—allows business users across the organization to easily add or modify their own Web content without the assistance of the IT/Web staff. Additionally, CM solutions ensure that contributors adhere to company Web site standards while keeping security and navigational elements intact.

Non-technical contributors can make authorized changes to Web content without having to master HTML or complicated Web scripting languages and without having to wait for IT or the Webmaster to make the changes. CM solutions are efficient, cost effective, and easy to integrate and use.

Web content management solutions help companies maintain and manage Web sites to allow IT, Web developers, marketing, customer support, human resources, and others to add or modify content in a secure, controlled way. Content contributors are empowered to regularly update Web content without compromising Web site quality.

—**William Rogers, CEO, Ektron**

Table of Contents

- 1—Introduction
- 2—Implementing a Content Management Solution
- 3—Benefits of using a Content Management Solution
- 4—Market Overview
- 5—Keeping User Needs in Mind
- 6—Cost Considerations
- 7—Recommendations and Conclusions
- 8—Reference
- 9—Glossary
- 10—Sources

1—Introduction:

The purpose of this paper is to educate and inform all stakeholders involved with deploying content onto a Web site about effective content management processes. Individuals who will benefit from this paper are those who are responsible for creating, approving, and/or posting content to the site, plus technical staffers who are responsible for managing and supporting the updating process. Typical stakeholders include:

- **content contributors** (product managers, marketing manager, public relations, human resources, writers, editors, cross-functional administration)
- **mid- and executive-level personnel** (directors, CEOs, CIOs, CFOs, presidents, owners, middle-managers)
- **technical/creative related staff** (Web developers, webmasters, creative content developers, site administrators, IT, technical support).

This paper describes the process of implementing a CM solution at typical small and mid-sized companies and organizations, as well as the benefits derived from using CM solutions. A market overview, user needs analysis, and cost considerations will also be explored. The conclusions and recommendation section provides a list of specific features to look for when selecting a content management solution.

In the reference section, readers will find information on Ektron's CM products, a glossary of related terms used throughout this paper, and relevant sources and articles to further assist in the understanding of Web content management.

What is Web Content Management?

Often a Web site is a visitor's first and sometimes only exposure to a company or organization. If the information is incomplete, out-of-date, or just plain boring, visitors may go to a competitor's Web site.

Many Web sites have out-of-date content because it is too time-consuming, complicated, or expensive to change. Perhaps their Webmaster is too busy. Perhaps they have exhausted this year's budget. Companies need an affordable and user-friendly CM solution to be successful online.

At many companies the demand for Web content has increased exponentially. While organizations once used the Web to post basic information (i.e., brochure-ware), they are now using the Web to publish different types of content for many different types of visitors. For example, customers want product information, partners want the latest marketing information, and employees want 401k-plan information. Solutions are now available, however:

Web content management solutions help companies maintain and manage Web sites to allow IT, Web developers, marketing, customer support, human resources, and others to add or modify content in a secure, controlled way. Content contributors are empowered to regularly update Web content without compromising Web site quality.

—William Rogers, CEO, Ektron

Managing Web Sites

Managing a Web site with today's increased content demand is challenging. The fact that companies may have to rely on non-technical staff to add and update content compounds this challenge. Unfortunately most Web tools are designed for technical people, not average "Joes," reported Forrester Research in June 1999.

The problem of managing Web content will continue to escalate because of the high visibility of Web sites, the increasing numbers of Web authors, the increasing number of published Web pages, the growing number of visitors, and the growing complexity of Java and other tools that people use with the Web. Another factor is the growing need to integrate new and existing content to keep people interested in coming back. This is especially true with today's complex sites where "content" may refer not only to text but also to graphics, audio, or video. From human resource information to product information to press releases—content must be current and compelling.

Cost-effective and Affordable Solutions

Content management solutions can help companies achieve their corporate and organizational objectives for three types of networks: Internet, Intranets, and corporate portals [see glossary for definitions]. By offering timelier, and therefore more valuable content, companies increase the number of repeat visitors and ultimately increase revenues.

Affordable CM solutions that offer Web authoring, editing, and publishing capabilities to non-technical staff are now available. These CM solutions are designed to help with Web creation and to assist with planning, coordinating, and tracking site changes.

Appropriate Centralization vs. Decentralization of Tasks

With the correct CM solution in place, companies can centralize tasks that need centralizing and decentralize tasks that need decentralizing by giving the Web developer, systems integrator, or Web site administrator the ability to:

- ◆ **Consolidate the storage of data (e.g., all Web site data stored in a database):** A consulting company can build a central database of best practices drawn from its global staff.
- ◆ **Decentralize the management of information:** Product development managers can easily provide their sales organization and customers with product information.
- ◆ **Restrict access to some types of knowledge/information:** Human resources can limit access to employee performance information just to those who "need to know."
- ◆ **Permit widespread access to other types of information:** All employees can have access to sick leave policies, messages from the CEO, company newsletters, and similar information.

Benefits of Using a Content Management Solution

Anytime, anywhere Web publishing: Dynamic Web sites with CM solutions let employees and other contributors change content whenever and wherever necessary, and in most cases, while using a standard Web browser. In contrast, static Web sites without

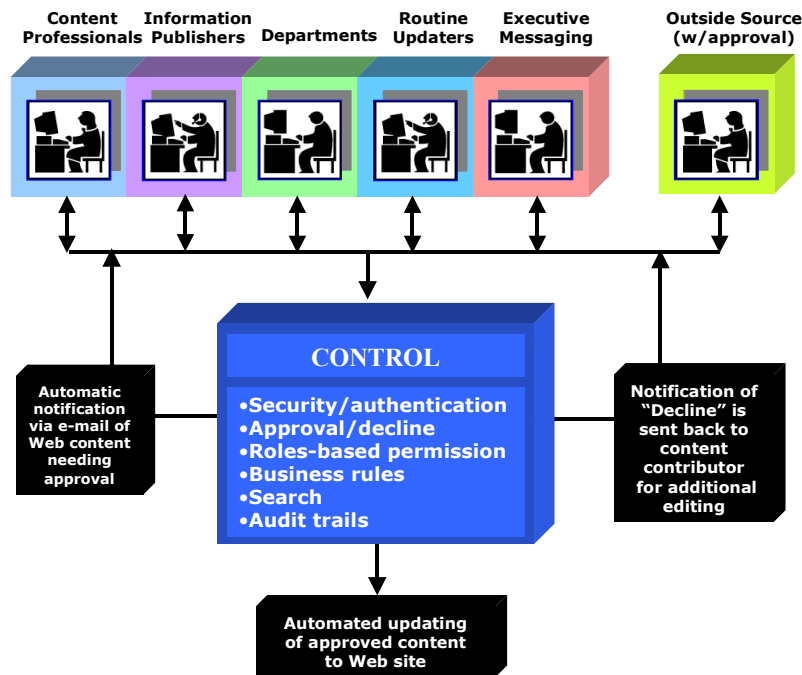
CM solutions tend to change infrequently. Coordinating a manual updating process is difficult when contributors and Web professionals work at different locations with different schedules.

Faster updating: Updating content is faster on a dynamic Web site than on a static site for two reasons: First, non-technical business users can add or modify content without waiting for “frazzled” Web professionals to get around to it. This common bottleneck disappears because employees in all departments can create new material and then update Web content themselves. Second, business users don’t have to learn HTML or other Web scripting languages. They only have to be familiar with a Windows™-like toolbar and a common Web browser interface.

Audit trail and user authentication: CM solutions should create audit trails of Web site content changes made and also include a user authentication function (e.g., restricting the editing of investor information to the finance department).

Efficient workflow management: With a CM solution in place, companies have a mechanism to control authoring, workflow, publishing, and document management functions (See Figure 1—**Process Flow of Web Content** below). New content comes from both content contributors (e.g., content professionals, information publishers, departments, routine updaters, executive messaging, outside sources) and existing corporate databases.

Figure 1: Content Management Overview



Eliminate content bottlenecks: A good content management solution extends the responsibility for updating Web site content to business users. As a result, new content is no longer piled up for Web professionals to publish, thus eliminating an often overwhelming content bottleneck.

More valuable content: Use of a CM solution encourages closer relationships with customers, partners, vendors, and especially employees. These groups find that their Web site content has become more valuable since it addresses their special needs. Section 3 discusses benefits in greater detail, while Section 6 covers cost considerations.

2—Implementing a Content Management Solution

With Web content coming from workers headquartered in Atlanta, road warriors based in Beijing, and distributors located in Barcelona, companies need new ways to automatically make authorized changes to Web content. With a CM solution, a dynamic Web site, and input from many sources, content is fresher, giving visitors a reason to linger longer and return more often to the Web site.

Static Web Sites

Changing the content of static sites is difficult since text, graphic, and multimedia content usually reside in multiple files (i.e., HTML pages), not in databases, making it cumbersome to change content on multiple Web pages at once. One company had to change the copyright message at the bottom of all 800 pages on its site! Also, attempting to change a static site Web page could lead to file overwriting or corruption of important non-content areas of the site, such as security code or navigational sections.

Web professionals are usually the only people who can format and control the content on static sites. If business users were allowed to make changes, they might accidentally use a format that was inconsistent with the Web site's standard format.

Finally, "workflow delays" often occur on static sites while content contributors wait for help from technical staff.

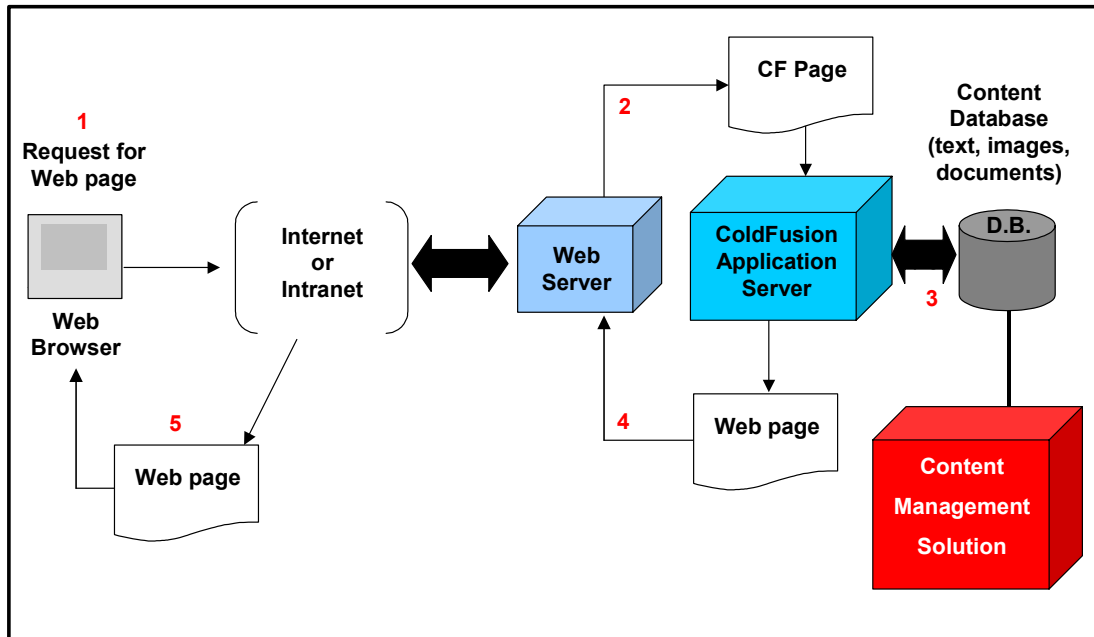
Dynamic Web Sites

A dynamic Web site is somewhat like a traditional newspaper. Once a graphic artist has designed the newspaper's logo and its general look and feel, printing a different edition once a day is relatively simple. (Writing the stories is another matter, of course!) Similarly, once a dynamic Web site format is created, content contributors can change text, graphics, audio, or video content. Companies must first separate the look and feel (or structure) from the actual content. However, companies accomplish this by storing the content in a database and by using a Web application server to generate Web pages "on the fly." See Figure 2.

The combination of a CM solution with a dynamic Web site empowers business users by putting a workflow and publishing process in place using standard network components. They can see and evaluate changes as they make them. Web site administrators assign user privileges (e.g., create, edit, delete, restore, view, publish) across sections of the site, while enforcing a standard Web site look and feel.

The transition from a static site to a dynamic site involves a one-time integration process with a systems integrator or a Web developer managing the process. After the transition is made, ongoing maintenance will be necessary.

Figure 2: Dynamic Web site deployed with Allaire's ColdFusion application server



The dynamic Web site process in Figure 2 above begins with making a request through a Web browser (1) for a Web page through a network—Internet or Intranet. The request is passed through the Web server (2) with a ColdFusion (template) page being sent to the CF application server. The database (3) content is queried. Next, the CF application server generates a Web page (4) essentially by merging the CF template page with the content and sending it back to the Web server. The system then sends the modified CF page back through the network, serving it as an HTML page (5) to the person who requested the Web page.

The “Accidental” Web Publisher

Four or five years ago, it was sufficient enough for companies to create brochure-ware Web sites—company location and directions, brief product descriptions, and occasionally an e-mail address for reaching a real person. As sites have grown larger and more complex, companies have become “accidental” Web publishers—with unanticipated extra responsibilities.

Traditional publishers have always planned for the next edition long before the ink was dry. Similarly, having constructed a Web site, organizations find they must continually publish new material to keep the site up-to-date. Acquiring affordable CM solutions helps facilitate this process.

Articulating a Content Management Strategy

Before integrating and implementing a CM solution, companies should answer several questions:

- What is our Internet strategy?
- What are we trying to accomplish with our Web site?
- Which type of Web site best suits our needs—a static site (i.e., very low cost; content doesn't change much) or a dynamic site (i.e., more expensive; content changes frequently; developer involvement is needed)?
- What are the “costs” of leaving the content updating process status quo instead of implementing a CM solution?
- How soon would our company reach pay back after investing in a solution? What would the ROI be?
- Do we have a well-developed and articulated process for content management? If not, are we willing to create one before integrating a solution?

Integrating a Content Management Solution

Here is an overview of the process to follow when integrating a CM solution:

1. Determine what new features and functionality are needed on the Web site.
2. Map your existing Web site.
3. Determine where CM is needed on the Web site.
4. Establish a site policy for format, layout, and overall style.
5. Define user groups and roles.
6. Map workflow and approval process.
7. Install CM solution and add “starter” content (i.e., may be real, but could be placeholder text and graphics)
8. Test system with “starter” content.
9. Make necessary changes to system and workflow.
10. Train staff on using the system, including content contributors, approvers, and Web site administrators.
11. Load system with real content.
12. Conduct final QC/QA test with real content.
13. Go live and closely monitor users' actions.
14. Hold feedback improvement sessions on a regular basis with key team members.

3—Benefits of using a Content Management Solution

From dental practices to colleges, community sites to corporations—organizations that purchase CM solutions find that all constituencies benefit: the organization, the people responsible for the content, the manager of the system, the Web developer, and the site visitors.

Company Benefits:

- Increased involvement in Web site publishing throughout the company.
- Reduced risk of losing customers or disengaging staff because of dated Web content.

- Smaller number of time-consuming and costly phone calls to marketing and HR and other departments to answer common questions not answered on the site.
- Increased productivity resulting from employees' quicker access to essential information and documents.
- Increased collaboration and teamwork from providing an effective mechanism for presenting multiple points of view.
- Easier access to latest information 24x7 (especially important to off-site employees).
- Increased savings by empowering non-technical, lesser-paid business users to self-publish.

Business User Benefits:

- **Zero learning curve:** Allows update of content using familiar Windows™-like toolbar and standard Web browser interface (e.g., Internet Explorer or Netscape Navigator).
- **Access to instant self-publishing:** Empowers people from marketing, sales, and human resources departments to make their own changes and publish live within minutes or hours, instead of the typical turnaround of days or weeks.
- **Site consistency:** Enforces compliance with corporate publishing standards (e.g., layout, font size, background color).

IT/Webmaster/Web Developer Benefits:

- Enforces controlled changes (i.e., in accordance with pre-determined procedures and roles-based security).
- Eliminates workflow bottleneck by shifting responsibility from overworked IT staff to non-technical people.
- Simplifies integration since some vendors offer the option of “no client software to install or upgrade.”
- Provides “anytime anywhere” access for administration of content management solution.
- Reduces time and cost for the training content contributors to almost nothing.

Web Site Visitor Benefits:

- Gives visitors access to more timely and valuable content because it can be changed quickly and easily.
- Encourages repeat site visits because of fresh content (e.g., current product selection, pricing).
- Encourages longer site visits because of more in-depth and useful content (e.g., FAQs, non-product content).

4—Market Overview

Web content management solutions have become necessary because of the proliferation of Web sites and the explosive growth in Web pages. In 1992, just 1,000 pages were on the Web (Digital4sightCorp.). However, as of June 2000, over 2 billion Web pages were posted on the Internet (Cyveillance). In addition to Internet sites, corporate Intranets are also causing massive demand for up-to-date Web content. By 2001 over 133 million

people worldwide will be using corporate Intranets, according to an International Data Corporation 1999 projection.

Market Trends

Many companies are now starting to realize that using the Internet can save them money even though they will need to add new categories of staff, CM solutions, and Web editing tools. Additionally, many companies now face the daunting challenge of making their Web sites suitable for international non-English speaking visitors.

Web migration increases profitability: Companies using the Internet have benefited from improved operations and better customer service. In fact, migrating to the Internet will save companies worldwide \$1.25 trillion by 2002. In putting business applications online, Cisco alone saves more than \$800 million per year. By moving supply chain management to the Web, IBM has improved on-time delivery by 95% (Giga Information Group).

“Accidental” Web publishers lack the right tools: Growth in the CM solution field is largely a function of the sharp increase in demand for published digital content. As Web sites become permanently linked to operations, corporations become “accidental publishers.” Besides lacking publishing experience, many organizations and corporations also lack the software tools for streamlining the process.

Future demand for multi-language Web sites: In the future a growing percentage of Internet users will be non-English speaking users living outside the United States. Of the estimated one billion users expected in 2005, more than two-thirds (700 million) will live outside the United States. Currently more than three-quarters (78%) of all Web sites are written in English, but only about half of all users consider English their native language. International content is sure to proliferate and challenge already overburdened Web developers.

Move toward more affordable CM solutions for small and mid-sized companies: When companies search for appropriate tools, according to Forrester Research, they are discovering the number of available Web tools increases along with a Web site’s complexity. Furthermore, as an increasing number of business users become empowered to publish on the Web, content management becomes a bigger problem, especially since there is a shortage of technical people to take on these responsibilities. In the past, most content management solutions were clearly targeted for big companies, but today tools are available for small and mid-size companies.

Real World Examples

The following are examples of how three companies and organizations, each with unique requirements, are currently using CM solutions and Web editing tools to manage content on their Web sites:

- **Large university based in the U.S.—**The Web developer for this university’s Community Affairs department recently integrated a content management solution into the department’s Web site to allow local businesses and neighborhood associations to publish on the Web site. Linked together via their Web contributions, the various constituencies are beginning to coalesce as a community.

- **Accounting association**—Needing a more fluid Web site, a national accounting association in the United Kingdom is adding a content management solution so headquarters can publish a regular column on the site.
- **New England law firm**—This well-known law firm needed to increase the number of contributors to its Web site. The Web developer installed a CM solution and encouraged attorneys, paralegals, and other office staff to modify the site as necessary. The firm's de facto Webmaster could concentrate once again on his primary job responsibilities.

5—Keeping User Needs in Mind

When choosing a content management solution, it is critical to select one that meets the needs of both business users and Web professionals. It is equally important to choose a CM solution that can handle workflow and security/authentication issues.

Webmasters/Web Developers: Web professionals install or set up the CM solution before Web authoring or management begins. The CM solution should give Web professionals an easy way to create Web page templates that govern layout and format (e.g., typeface, font size, overall style). Once they have created the templates, anyone within the company should be able to easily update content within the templates.

Web Site Administrators: Administrators—who can be technical (e.g., Webmasters, Web developers) or non-technical (e.g., marketing communications managers, office managers)—establish and continually update user privilege information for the content contributors. They should have access to a browser-based tool that makes it easy to set up and manage the Web content workflow.

Content Contributors: Non-technical business users need a CM solution that is both easy-to-learn and easy-to-use. Rather than having to master HTML or install DreamWeaver, FrontPage, FTP, or similar Web publishing client software, business users should be able to update content using a familiar business application toolbar (e.g., Windows™-like) via a Web browser interface.

6—Cost Considerations

Pricing for purchasing and integrating a content management solution varies depending on the number of and size of Web pages needing to be updated, as well as on the complexity and frequency of updating. For example, a small 30-page Web site, with ten business users updating content on a weekly basis could cost between \$10K and \$50K. A mid-size site with 150 pages and 50 employees making daily updates may require a \$100K to \$200K solution. However, an enterprise level Web operation, with thousands of pages, hundreds of content contributors, and very sophisticated needs may require a \$250K to \$500K CM solution.

As more and more CM solution vendors enter the marketplace, prices may soon become more affordable for small and mid-sized companies. However, there are some very good CM solution providers which have built their businesses on offering solutions priced in the \$3K to \$25K range.

Labor Savings

When organizations create a Web site, the investment in personnel far outweighs what they spend on hardware and software. Included in personnel costs are application development costs, which are a one-time expenditure, and maintenance costs, which are ongoing. According to International Data Corp, personnel costs associated with maintaining an Intranet stretch the resources of many small and medium-sized companies.

In order to calculate the labor saving potential of using a CM solution, U.S. median salaries in October, 2000, were compared across several typical job titles within Web development/IT and non-technical staff. (See Figure 3)

The savings in cost if using non-technical staff instead of IT staff for basic content Web site updating averages \$6.84 per hour (i.e., \$23.91 less \$17.07). However, because the originating content contributor still needs to approve the content, and revise if needed, an estimated 10% of the contributor's salary (i.e., \$1.71) should be added yielding a total average savings of \$8.55 per hour.

With a CM solution in place, the potential annual savings ranges from just under \$18K for a small Web site with one person (full-time) to more than \$175K for a large Web operation with ten full-time people responsible for updating Web content on a daily basis.

Figure 3: Projected Annual Savings

Number of full-time* people responsible for updating Web content	Savings per hour using non-technical staff instead of IT/Web staff	Projected total annual savings with Content Management solution deployed
1	\$ 8.55	\$ 17,784
3	\$ 8.55	\$ 53,352
7	\$ 8.55	\$124,488
10	\$ 8.55	\$177,840

Source: Salary.com salary wizard using data as of October, 2000.

Non-technical staff average median hourly pay = \$17.07 Estimate includes the following titles: Human Resources (\$15.65/hour); Office Manager (\$17.77/hour); PR Specialist I (\$17.33/hour); Marketing Assistant (\$17.54/hour);

IT/Web staff average median hourly pay = \$23.91 Estimate includes the following titles: Web Copy Editor (\$26.15/hour); Web Designer (\$24.20/hour); Webmaster (\$24.99/hour); Web Content Specialist (\$20.30/hour)

Calculation: \$23.91 – 17.07 = \$6.84, plus 10% of non-technical staff salary needed for approval and revision to content = \$8.55 x 2080 hours/ year for a full-time person responsible for updating Web content (e.g., text, graphics, documents, audio files, video files).

* "Full-time" assumes 40 hours/week with 100% of time spent updating Web content

The Old Way — without a content management solution

- Higher cost per hour for Webmaster, IT, and/or Web developers to do the work.
- Hidden operational costs, such as the cost of *not* publishing current material on the Web site resulting in more calls to customer service and lost revenue from missed sales opportunities.

The New Way — with a content management solution

- Lower cost per hour for business users (e.g., sales, marketing, customer support, public relations, human resources) to update their own content instead of higher-paid Web professionals (e.g., Webmaster, IT, Web developer).
- Surprisingly low training costs (i.e., almost zero) with CM solutions that incorporate a familiar and easy-to-use interface. This is especially important in large organizations where many people must receive training or when upper management or distant employees must receive training. (From Examining Return on Investment for Web Projects, Part I-Intranets)
- Other savings: reduced office waste and lower publishing expenses from replacing hardcopy versions of human resource department policies and other frequently updated documents with online versions.

“Build” versus “Buy” argument for content management solutions

Does it make sense for small and medium-sized companies to use in-house IT and Web professionals to build their own CM solutions? Or, is trying to select an affordable ready-to-configure CM solution a better path?

Consider both the fixed and hidden costs of “building your own” should be considered when making the “build vs. buy” decision. The following explores several critical issues to consider when making this decision.

Develop your own internally built CM solution:

- **Developing a custom build is a major commitment in time and resources.** It may be appropriate for extremely large sites (e.g., Disney.com, CNN.com, IBM.com) with hundreds of staffers available for development and support and the luxury of a long project time frame. However, it is not appropriate for small and medium-sized Web operations with limited resources trying to get a workable solution up and running quickly.
- **Extra learning time for IT/Web teams may be needed.** Internal IT staff may need to learn new programming languages and/or techniques before undertaking a custom build.
- **Additional IT investment may be needed** to retain temporary technical talent to help existing the IT/Web team with the custom build.
- **Testing and fixing of reported bugs** may take IT resources away from higher-priority projects.
- **Software documentation may be weak or non-existent.** Updating documentation is critical to maintaining a successful CM solution. However, creating and updating documentation for an internally built solution can become a “back-burner” item for the already overworked IT/Web department.

- **Training of employees must be supported.** All users (existing and new) of a custom-built CM solution, as well as those responsible for upgrading and maintaining it will need to be trained on an on-going basis.
- **Consistent support may not be possible because of a constantly changing IT/Web staff.** Since IT staff turnover in many organizations today is high, having a core staff knowledgeable on all aspects of an internal solution will be difficult.
- **In-house developers must plan for and integrate future user functionality** and address major organizational changes with future internal releases. The custom-built CM solution must keep pace with the needs of its users in order to be useful and successful.

Purchase of a commercially available CM solution:

- **Leave the lion's share of the "development" work to CM solution vendors.** Companies creating Web sites tend to focus on their core business, not usually on becoming a software development house. As IT departments struggle to keep pace with new hardware and software upgrades as well as training new and existing staff, do they have time to create a mini-software development company focusing on all aspects related to developing and supporting a software product?
- **Company-specific needs can be met with customization** of an existing application without the major commitment in time and resources needed to develop a "complete from scratch" CM solution.
- **Quicker time-to-implementation** can be realized with ready-to-configure CM solutions pre-tested and designed for ease-of-implementation.
- **Training and support becomes the responsibility of the application vendor**, not the overworked internal IT staff. Training can be minimized by vendors using familiar Windows-like tool bars and creating easy-to-use interfaces, as well as with update and complete documentation.
- **Documentation is consistent and constant**, which means that users of a system always get the latest documentation matching the latest software release.
- **CM solutions can be affordable** (i.e., less than \$25K), making the "internal build" decision that much harder to make.
- **Access to ever-expanding CM feature sets.** Providers of CM solutions add many new features with each software release. A particular new feature may not be anything an internal IT/Web department ever considered, but the result is that all customers using a purchased solution can benefit from this increased functionality.

7—Recommendations and Conclusions

In summary, this paper: “Effective Web Content Management: Empowering the Business User While IT Maintains Control” has presented the:

1. Process of implementing a CM solution
2. Benefits offered from CM solutions.
3. CM Market overview
4. User needs
5. Cost considerations

This section outlines critical questions to ask and features to look for in an effective CM solution for small and mid-sized companies and organizations.

Critical questions companies considering a CM solution should ask:

- Who will be the content contributors?
- Who will be the content approver(s)?
- Who will be the release manager?
- What type of workflow is needed?
- What security measures are needed?
- What are the Web publishing requirements?
- What are the one-time implementation and on-going costs?
- What format does the organization prefer (e.g., layout, font, size, color)?
- What are the guidelines and rules for making changes?

Recommended “must-have” features for a CM solution:

- Versatile Web application platform, such as Allaire’s ColdFusion™.
- Content authoring/management is separate from format/style.
- Version control to allow roll back of specific Web pages to previous versions.
- “Anywhere anytime” access through a Web browser interface.
- Easy-to-use, familiar Windows™-like toolbar.
- Workflow and document management functions (see figure 4).
- Security and authentication (see figure 4).
- Workgroup creation (see figure 4).

Figure 4: Functions that CM software performs

Workflow and document management functions		Security and authentication functions		Workgroup creation	
✓	Check in and check out document control	✓	Username and password access	✓	Create as many groups as needed
✓	E-mail notification of changes made and/or changes to be implemented	✓	Non-technical staff cannot change or delete security features	✓	Assign different roles to different managers, departments, and workgroups, including viewing, editing, approving, and publishing authority
✓	Rollback of pages within a site to previous versions (history)				
✓	View of changes made compared with changes waiting for approval and publishing				
✓	Content scheduling (e.g., press releases or merger information automatically released at the right time)				

Recommend specific features to look for when selecting a content management solution:

- Robust Web content management:**
 - Check-in/check-out feature which eliminates editing conflicts
 - Flexible content approval process
 - Customized work area giving content contributors and content approvers a unique view of their work in process
 - Document version control enabling recovery of previous edits
 - Scheduling of content using “go live” and “expire” dates allowing for posting of date-sensitive content which appears only when relevant
- Workflow control:**
 - Creation of user and group roles
 - Authorization of user and group permission/security levels
 - Creation of content groups for limiting contributor access to appropriate pages
 - Change notification via e-mail (if desired) with optional HTML attachment of Web page
- Control and consistency:**
 - Enforcement of Web site standards (e.g., fonts, colors, navigation, graphics, layout) through use of pre-designed templates
 - Image and file upload (e.g., .PDF, .DOC, .PPT, .XLS, .AVI)
 - Hyperlink pull-down menu system
 - Built-in content editor toolbar with customization ability

- Minimized support and training issues:**
 - Transparent installation and upgrade of software via Web browser
 - Automatic assignment of document date, author, and status
 - Reduction in time to train business users
 - Prior version restoring functionality
 - Virtual staging server capability eliminating the need for separate production and staging servers
- Increased flexibility:**
 - Partial or full-site integration ability
 - XHTML compliant (i.e., well-formed HTML)
 - XML tag support (allows insertion of tag via JavaScript pop-up box or by copying and pasting)
 - User-programmable meta data support
- Ease of integration and implementation:**
 - No client software for business users to load
 - Sample page layout templates
 - Automatic installation utility for quick server installation
- Simplified Web authoring and publishing as part of the CM solution:**
 - Built-in HTML editor accessed via Web browser interface allows for worldwide Web authoring and publishing
 - Full HTML table support including creation of nested tables
 - Image support (upload images, preview images, image library)
 - Copy and paste with formatting from any Windows[™]-based application
 - Hyperlinks and bookmarks, hyperlink validation
 - Produces well-formed HTML or XHTML
 - Helpful content editing with “spell check as you type” feature
 - Familiar Windows[™]-like editing toolbar to minimize training

Conclusion

Businesses and organizations currently using a dynamic Web site (or planning to upgrade their static site to dynamic) should consider implementing a CM solution. With an appropriate solution in place, employees (and sometimes vendors) are empowered to contribute content while IT and Web professionals maintain control over a site’s look and feel.

The ultimate objective is to provide a process whereby timely and engaging Web site content encourages site visitors to stay longer and make frequent repeat visits. When up-to-date and relevant Web content becomes a reality, the customer experience is greatly improved—translating into increased customer (or employee) satisfaction and loyalty.

Always remember... on the Web, a good customer experience brings higher revenues, more customer retention, and better branding.

– Mark Hurst, Creative Good, Inc.

Whatever revenue model a site is based upon, companies and organization can directly increase their bottom-line metrics with an affordable and simple Web content management solution in place.

8-Reference

As a provider of content management solutions, Ektron Inc., can help your organization cope with the content management demands you now face or soon may face. This reference section provides you with information about Ektron's content management and authoring products.

WYSIWYG Editors for IE and Netscape

At the core of the Ektron family of products is **Ektron eWebEditPro**, a word processor in a Web page—empowering business users to easily author and maintain Web content. Web developers can easily integrate eWebEditPro into a database-driven Web site running on any Web application server platform. eWebEditPro is frequently integrated into content management systems (both custom and off-the-shelf), as well as applications for e-learning applications, discussion forums, HTML e-mail and more.

Learn more at: <http://www.ektron.com/ewebeditpro>

Ektron eWebEditPro+XML (New!) empowers business users to apply XML to human-authored content.

Learn more at: <http://www.ektron.com/XML>

Authoring and publishing applications, extending Ektron eWebEditPro

Ektron CMS100, Ektron CMS200, and Ektron eMPower are authoring and publishing applications built around eWebEditPro. They are designed to be quickly and easily integrated into your existing site by a Web developer in just a few hours, and empower everyone in your organization to author Web content in a word processor-like environment.

Entry-level CM solutions:

Ektron CMS100 offers basic yet powerful content management functionality. This extremely affordable solution is perfect for companies with Web sites or intranets not needing a complex permission set or a complex workflow process.

Learn more at: <http://www.ektron.com/cms100>

Advanced CM solutions:

Ektron CMS200 and Ektron eMPower have the same functionality as Ektron CMS100, plus more advanced features. Still affordably-priced, these two solutions scale to handle any size Web site or intranet. Both have advanced permission sets and a multi-step workflow process to ensure Web site integrity.

Learn more at: <http://www.ektron.com/cms200>

Learn more at: <http://www.ektron.com/empower>

Ektron, Inc. 5 Northern Blvd., Suite 6 Amherst, NH 03031 USA Tel +1 (603) 594-0249
Fax +1 (603) 594-0258 Internet: www.ektron.com. E-mail: sales@ektron.com.

The author of this white paper is Winett Associates, 10 Berkeley Road, Framingham, MA 01701
Tel. 508-877-1938; Fax 508-877-9409 mail to: ruth@winettassociates.com
<http://www.winettassociates.com>

9- GLOSSARY

ColdFusion™: A product created by Allaire Corporation of Cambridge, Massachusetts. that includes a server and a development toolset designed to integrate databases and Web pages. With ColdFusion, a user can enter a zip code on a Web page, and the server will query a database for information on the nearest movie theaters and present the results in HTML form. ColdFusion Web pages include tags written in Cold Fusion Markup Language (CFML) that simplify integration with databases and avoid the use of more complex languages like C++ to create translating programs.

Content Management (CM) Solutions: A solution or tool (i.e., usually browser-based software running on a server) permitting business users throughout an organization to contribute Web content while a Web site administrator keeps control of the format and style of the web site and the approval process. In most cases, a dynamically generated Web site is needed in order to take advantage of a CM solution.

Extranet: Usually associated with a Web site, or group of Web sites, allowing suppliers, customers, and/or business partners to access a corporate Web site.

Intranet: Usually an internal Web site used by an organization or business, not typically accessed by non-employees.

GIF (Graphics Interface Format): A format for encoding images into computer readable bits.

HTML (HyperText Markup Language): An authoring language used to create pages for the World Wide Web.

HTML Tag (HyperText Markup Language Tag): Symbols used in HTML to point out type, format, structure, and other page elements.

Java: Sun Microsystems software that lets software run on any machine to “write once and run anywhere.” In other words, programs could be anywhere on the Web and run anywhere. Traditionally, programs have resided on one computer and are intended for use on just that computer.

JPEG (Joint Photographic Experts Group): A compression and decompression standard used for transmitting and receiving still color images. JPEG converts a color image into rows of pixels or picture elements, which consist of “dots of color image each with numerical value.” The image is further reduced by the subtraction of every other pixel. On the receiving end, the process is reversed.

PDF (Portable Document Format): A standardized file format developed for Internet documents.

Portal: An Internet gateway or content aggregator that gives visitors access to a variety of information from a single well-planned Web site. Visitors have access to data in data warehouses, on ERP (Enterprise Resource Planning) and CRM (Customer Retention Management) systems. They may also have access to weather, stock, news, and other information from third-party online sources.

SGML (Standard Generalized Markup Language): A text-based language that was developed in 1986 to describe the content and structure of digital documents for use on otherwise incompatible platforms. SGML describes information and structure separately. (See HTML, which is a descendent of SGML)

XHTML: Extensible Hypertext Markup Language is a hybrid between HTML and XML specifically designed for Net device displays.

XHTML is a markup language written in XML; therefore, it is an XML application. XHTML uses three XML namespaces (used to qualify element and attributes names by associating them with namespaces identified by URI references. Namespaces prevent identically custom-named tags that may be used in different XML documents from being read the same way), which correspond to three HTML 4.0 DTDs: Strict, Transitional, and Frameset. XHTML markup must conform to the markup standards defined in a HTML DTD.

When applied to Net devices, XHTML must go through a modularization process. This enables XHTML pages to be read by many different platforms. A device designer, using standard building blocks, will specify which elements are supported. Content creators will then target these building blocks--or modules. Because these modules conform to certain standards, XHTML's extensibility ensures that layout and presentation stay true-to-form over any platform.

XML: (extensible Markup Language): A new specification developed for the Web and based on SGML. It allows Web designers to use special tags to obtain new functionality. When Web designers use XML, Web servers can communicate with each other, permitting smoother information exchanges between vendors and customers and vendors and partners.

Web Application Server: A program run on a mid-sized machine that handles all application operations between browser-based computers and a company's back-end business applications or databases. Because many databases cannot interpret commands written in HTML, the application server works as a translator, allowing, for example, a customer with a browser to search an online retailer's database for pricing information.

WYSIWYG: An acronym for "What You See Is What You Get": What is on the monitor is what will be on the page.

Sources: *Newton's Telecom Dictionary*, 16th and 15th editions; Webopedia.com).

10- Sources

“Anywhere and Everywhere,” David Ticolli, *tele.com*, October, 2000.

ColdFusion 4.5 White Paper (Allaire Corporation, 1999).

“Content – The Foundation of Successful E-commerce,” N-Compass Labs, 2000.

“Content Management: The Collaborative E-Business,” Brian Ploskina, www.entmag.com/displayarticle, December 1999.

“Creation Tool Strategies,” (Forrester Research, June, 1999).

“Do You Need An Internet?” (1999, <http://www.Mindbridge.com>)

“Examining Return on Investment for Web Projects, Part I-Intranets” (1999, <http://www.Mindbridge.com>). Quotes International Data Corp concerning Intranet costs.

State of the Internet 2000: United States Council & ITTA Inc. (<http://usic.wslogic.com/intro.html>).

“The Interactive 500”, Interactive Week, 11/13/00.

“The Intranet Opportunity,” Mike Comiskey, Amie White, and Ian Campbell (IDC April, 1999).

Newton’s Telecom Dictionary, Harry Newton (CMP Media, Inc., 1999).

Salary.com salary calculator (October, 2000, <http://www.salary.com>).

Mark Hurst, founder and president of Creative Good, Inc. (as quoted in “Creative Good”, November 2000 newsletter).