Selecting and Implementing Content Management Software for Intranets and Web Sites

This paper by Martin White is based on his presentation at the 37th Annual BIALL Conference, Brighton, June 2006.

Introduction

The majority of websites and intranets are built by creating static HTML pages with software such as FrontPage and Dreamweaver. The effective use of these products requires staff with a combination of technical, design and content management skills, and these are not easy to find, even for large organisations. Over the last few years content management software has become increasingly popular as a way of being able to ensure that the content on web sites and intranets can be updated as quickly as necessary without the need for everyone who wants to publish to be trained in a software product such as Front Page.

Looking at the product literature from Content Management Software (CMS) vendors can be quite intimidating as they list out all the features of the software. Those which form the basis for the management of web content, are the following:-

• Content authoring

• Content review

• Content version management

• Content metadata tagging

• Content repurposing for specific audiences

• Comprehensive administration functions

Content authoring

One of the justifications for an organisation purchasing content management software is to enable employees who do not have skills in HTML or web authoring software to add content to a web site or to an intranet.

There are three basic approaches:-

• Using a template

• Conversion of a Word document

• Editing an existing web page

Using a content template

The CMS provides a template into which authors can write text and then leave the software to do the formatting. These templates can be just a text notepad area, or provide the author with a WYSIWYG editor that offers some Microsoft Word-like style elements using familiar icon format, such as Bold or Italic. This method is sometimes referred to as "form-based "content authoring. Spell-checking may not be easy to accomplish using this method. The term 'template' is also used to denote the way in which the content is then displayed on the web site.

Conversion of Word documents

The CMS enables authors to copy and paste in content from a Word file, or some other word processing software. However transforming a Word document is not just a process of creating a basic HTML file. The Word document itself will have a lot of styling embedded in it, ranging from sub-heading sizes to table layouts, and to transform this to HTML code is not at all a straightforward matter. It is well worth checking out just how well each CMS on the short list handles this conversion, especially if there are tables inserted in the document.

Modify the existing web page

Some CMS products allow authors to make changes to web pages already on the web site or intranet. This can work well for small changes or an update to a list of partners, but has substantial limitations when major changes need to be undertaken.

Content review

The aim of this process is to enable a piece of content to be created, and then forwarded to another employee for

review and/or for approval to publish. However the first person to review the content will be the author, and it is essential that he is able to look at the content as it will appear on the site with the absolute minimum number of clicks, ideally one! The content for review is forwarded to the reviewer as an email with an attached hyperlink to the content. This is usually done automatically by the CMS through a work-flow feature which has information about who should be the reviewer for specific categories of content.

Content versioning

Every time a piece of content is checked out of the repository even the most minor of changes (e.g. a spelling mistake) will result in a new version number being created. This is a fundamental functionality of a CMS, and the usual rule is that no piece of content can be checked out by more than one user at a time. Identifying intermediate versions can be difficult, and yet it may be that an author wishes to adapt one of these versions rather than the final version on the site. Being able to identify these versions quickly then becomes rather important, and many vendors offer some variant of the 'Track Changes' feature on MS Word.

Content tagging with metadata

Metadata is at the heart of a content management system and the way that it is implemented in a CMS will have a very significant impact on the extent to which content can be found and re-used. There is much more to metadata than allocating subject terms. Each item of content has to be tagged with information. This might be about the author (so that if he leaves it is easy to see which pages need to be allocated to someone else); the type of content (briefing, report, newsletter); or the date the content needs to be either reviewed or deleted (no point in having information about the 2005 Budget Speech once the 2006 Budget Speech has been reviewed).

Each piece of content needs to have metadata attached before it is added to the repository. There are two basic approaches to metadata addition. The first is that metadata tags are added automatically to content based on a set of rules, usually linked to a particular template. The second is that the metadata can be added by selecting from drop-down lists or radio buttons. Unless the metadata requirements are defined at the outset the CMS vendor will not be able to respond on how the product will be able to match these requirements. Adding metadata can easily double or treble the time taken for content contribution, and this is a process that is often not quantified when basic productivity metrics are developed to make the business case.

Content publishing

There are two approaches to the way in which content is served up into a browser. The first of these serves static pages and so only requires the use of a web server. This is also referred to as static rendering. When a page is requested the CMS looks at the cache of pages and then sends the requested page to the browser for display.

The second approach is through the dynamic creation of pages. The system selects an appropriate display template and then assembles the elements of the page from tagged components in the repository before presenting the page in the browser. This ensures that the page is as current as possible, but it does require the use of an application server on top of the web server. Dynamic page creation does create problems when there is a requirement to track the number of hits or downloads on a web site.

Comprehensive administration functions

These are especially valuable in a decentralised content contribution situation so that reports can be produced about content that has not been updated, or to be able to allocate content from a specific contributor who has left the organisation to another employee. Other important aspects of the administration capabilities are the management of document security and the ability to design new templates. Most CMS products provide an almost endless array of administration capabilities, so it is important to bear in mind that only a relatively few of these will be required on a regular basis.

Site structure and design management

Although much can be accomplished with cascading style sheets (CSS) in terms of creating new designs and layouts for a web site the options within a CMS are usually more powerful. Attention still needs to be paid to information architecture issues at the outset, as the tagging of the elements needs to be carried out in order to facilitate future redesign, and in any case the CMS will publish to a design framework rather than provide a significant amount of graphic design capability within the software itself.

Web and/or intranet

There are some significant risks associated with specifying a CMS for either a web application or an intranet and then

assuming that it will be an ideal solution for the other. The only way to select a CMS that will meet the requirements of a web site and an intranet is to develop the specifications for both and then look at the tradeoffs that have to be made to accommodate the requirements of the two applications in the same CMS. The list of differences is substantially longer than the list of similarities. In most organizations, only a limited number of people will be using the web CMS to publish pages to the web site.

Because a limited number of employees need to publish using the CMS, it is very likely that they will be able to cope with a complex process and be able to manage graphics and the like because they use the system almost every day. Metadata on a web site is also probably less of an issue because the usual objective is to get a good position on a search engine site. Providing users with good search functionality within the site itself is usually (and wrongly) not seen as a priority. One other difference between a web site and an intranet is that external link management is usually less of an issue with a web site, as the last thing a web manager wants to do is to push a visitor off to another site.

From an intranet point of view even if the plans are not to make every member of staff a publisher, there will certainly be a much wider range of contributors to an intranet than to a web site. This range is not only in terms of skills but also the frequency of use. Intranet contributors may only be using the CMS on a very occasional basis, perhaps only monthly at best. They will be looking for very good Help functionality, preferably contextually generated. Accessibility will be more of an issue, because some publishers may have limited sight or poor control of a mouse. Two of the major differences are that there will almost certainly need to be good search functionality in an intranet application (either built-in or third-party), and this also means that metadata management has to be top-rate.

Getting value for money

When evaluating the options for implementation of a content management system the first question is "How much is it going to cost?" The problem is that the cost of the software licence is just one element of the total cost of implementation. High-end products are much more a set of tools than an out-of-the-box solution, and considerable effort will be required to customise the CMS for a specific organisation. The scale of the costs additional to the core software licence can be at least as much again as the software licence, and could be up to four times as much for high-end products in complex web environments.

Critical success factors

The impact of a CMS will be seen on every desk top of staff (for an intranet) and visitor (for a web site) so any failure to meet expectations on performance (not just speed!) and effectiveness will be very visible. Some of the critical success factors that should be taken into account are:-

- **Understand the implications**
  Implementing a CMS is one of the most complex and challenging enterprise projects most organisations will have to undertake. At all times the objectives, schedules and resources have to be kept in balance. Staff from a number of different departments with differing priorities will inevitably be involved and finding mutually acceptable solutions will not be easy.

- **Adequate preparation is essential**
  The quality of the work done prior to the selection of a CMS will have a direct impact on setting realistic budgets and requirements and ensuring that the

Cost element	Comment
CMS base licence cost	A range of licensing models can make this difficult to estimate at the outset. Some CMS products are costed on a per server basis and others on a per-content author basis.
Additional modules	These might be for document management, search, collaboration etc,
Database application licence cost	There may be a need to purchase an additional licence for an SQL database
Annual support fee	This is typically 20% of the CMS base licence cost, and usually starts from the date the software was purchased
Additional hardware	There may be a need to purchase additional server and other hardware, and maybe upgrade the desktop environment
Implementation costs	These are the costs of using external consultants to customise the product to the specific requirements of the customer.
Training costs	These costs will depend on whether training is carried out on site or on the vendor's premises
Content migration costs	The volume of work may be such that this has to be contracted out, and this is very difficult to estimate at the outset of the project.
Search software costs	A range of licensing models can make this difficult to estimate at the outset

solution meets not only current requirements but anticipated future requirements. All too often the emphasis is on understanding the needs of people using the web site or intranet, and does not take into account the issues of content authoring and reviewing.

- **Understand the total cost of implementation**
As a minimum the implementation costs will be equal to the software licence, and could be two or three times as great. As a result low-cost software may well not have a significant impact on the overall Total Cost of Implementation. The extent of the non-software costs will not be determined until the contract stage, and this might give rise to some unexpected increases in the total cost.

- **CMS implementations take time**
From writing the specification for the CMS software to implementing the application could take six months at the very least, and possibly even longer. Estimating the implementation schedule is especially difficult, in particular where there is a substantial amount of content to transfer from the current site to the CMS. An initial content audit is absolutely essential, and will not only permit a lot of redundant, obsolete and trivial (ROT) content to be removed but will identify who 'owns' the content and take decisions on what needs to be carried out in the migration process.

- **Write the specification in terms of business requirements**
Set out in the specification what you want the CMS to do for your organisation, and not the functionality that you think you want. Remember that the CMS vendors also want a risk-free implementation, and if they feel that they will be working with an organisation that has not thought through the requirements, and may then change its mind during the course of the deployment then they may decide not to bid for the project.

- **Take care over vendor selection**
It is impossible to select a CMS vendor on the basis of the product literature, a demonstration by a salesman or the recommendation from another organisation. No CMS will be an exact fit to requirements, and so be prepared to compromise on those features which are of less importance. White's Rule says that all CMS products will provide 80% of the functionality you are seeking, but each CMS product will offer a different 80%.

- **Treat the implementation as a project**
There needs to be a full-time project manager from the selection to the end of the implementation supported by a project board which includes users, the vendor, the sponsor and the project manager. As a general rule the intranet manager/web manager will be far too busy and involved emotionally in the project to make a good project manager.

- **Manage expectations and culture/process change**
Manage the expectations of authors, reviewers, users and managers and recognise and plan for the fact that there will be some significant change management issues.

- **Manage process change**
Just content managing existing processes may not provide any visible benefits. Processes will need to be changed, and will that be done prior to, during or after the CMS implementation?

- **Communicate the progress of the implementation**
It is very likely that the implementation process will be disruptive, and that the full benefits may not be seen immediately. It is important to keep staff fully aware of progress and make them feel involved with the entire process, even if it is for a web site.

Appendix – Books and Web Sites on Content Management

Content Management Bible. Bob Boiko. Hungry Minds, New York. 2004. ISBN 0-7645-4862-X.

This massive 1200 page book was one of the first books to be published on content management, and remains a definitive textbook. It covers both the principles of content management and how to implement a content management system, based on the author's ten years of experience in this area. There is a companion web site at http://www.metatorial.com. Even a small business will benefit from the expertise in this book.

Enterprise Content Management: Taming Content Chaos Anne Rockley, with Pamela Kostur and Steve Manning. New Riders, http://www.newriders.com. ISBN 0-7357-1306-5.

The focus of this 565 page book is on the development and implementation of an enterprise content management strategy. There is a very good section on tools and technologies which sets out very clearly the questions that need to be asked of any commercial content management software vendor. The human aspects of implementing a content management strategy are not overlooked either, with good chapters on implementation and managing change. This book is more relevant to the requirements of a large organization.

Information Architecture for the World Wide Web. Louis Rosenfeld and Peter Morville. O'Reilly and Associates Inc. 2002. ISBN 0-596-00035-9.

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Although not strictly about content management systems this book is essential reading on the subjects of information architecture, navigation design, search systems, thesauri and metadata. The book is illustrated with many examples of good practice and is written by two of the leading practitioners in information architecture. It is often referred to as 'The polar bear book' from the design on the cover. A third edition is in preparation for publication in 2007.

Content Management Requirements Toolkit. James Robertson, Step Two Designs, Sydney, Australia. http://www.step-two.com.au/

James Robertson has been involved in content management projects for some time, and writes from practical experience. This toolkit is designed to assist organizations prepare a Statement of Requirements for a content management system. The 64 page Toolkit comes as a pdf file and also as a set of Word templates. The sections of the Toolkit deal with Content Creation, Content Management, Publishing, Presentation, and Contract and Business.

Content Management Handbook. Martin White. Facet Publishing Ltd, London. 2005. ISBN: 1-85604-533-1.

This book provides step-by-step guidance on how to develop a content management strategy, sets out the elements of a content management system and provides advice on the specification, selection, implementation and management of content management software. The emphasis throughout the book is on treating the selection and implementation of a CMS as a project with clearly defined objectives and the appropriate allocation of financial and personnel resources.

Web Resources

The following web sites are a selection of the many hundreds of sites that provide information and advice on content management, and between them provide links to just about every web resource there is on content management topics.

CMS Review

http://www.cmsreview.com/

The mission of the site is to give the resources needed choose a content management system. Over the last year this site has grown into probably the most comprehensive resource there is on content management systems, including news aggregation software, and software for blogs and wikis. There is a news aggregation feature, an excellent glossary and a list of related sites.

CMS Watch

http://www.cmswatch.com/

This site is compiled by Tony Byrne, a leading independent CMS consultant based in Washington DC. He is the author of the CMS Watch report which contains reviews of all the leading CMS products and also provides excellent practical advice on selecting a CMS. Byrne also publishes similar reports on records management, enterprise search and enterprise portals.

Findability

http://findability.org/

This site is the work of Peter Morville, the co-author of Information Architecture for the World Wide Web. Findability is a concept that Peter has developed to encompass all aspects of content navigation and retrieval. The site provides a valuable set of links to core resources on this subject.

Gilbane Report

http://www.gilbane.com/

The Gilbane Report is a widely read newsletter covering content management technologies and was founded by Frank Gilbane in 1993. Last year much of the previously subscription-only content was opened up to public access. The site contains good lists of other sites, and a wide range of white papers sponsored by industry vendors.

StepTwo

http://www.steptwo.com.au

This site has been established by James Robertson, a leading Australian consultant on content management and knowledge management. James publishes excellent 'white papers' on a wide range of CMS-related topics and the site provides a comprehensive list of CMS vendors. James also publishes a very useful blog at http://www.steptwo.com.au/columntwo/index.html

Intranet Focus Ltd

http://www.intranetfocus.com

In conclusion

The 1662 Book of Common Prayer says that marriage should not be undertaken unadvisedly, lightly or wantonly. The same is true of the implementation of a CMS. Divorce proceedings can be very costly and embarrassing. The more work that is undertaken prior to sending out the requirements to potential CMS vendors, the less is the risk that requirements and expectations will not be met. This paper has not covered the selection of search software but the same principles apply. The major difference is that it is even more important to test how the software handles typical documents created by the organisation than it is with content management software.

Biography

Martin White is Managing Director of Intranet Focus Ltd., which he established in 1999. He has over 30 years experience in information management, electronic publishing, market research and management consulting. Martin consults on the design and management of intranets, enterprise web strategy, and the specification, selection and implementation of content management systems and enterprise search applications.

He is the author of The Content Management Handbook (Facet Publishing, 2005), the only book to set out a methodology for selecting a CMS. He is currently writing The Enterprise Search Handbook for publication in early 2007. He has presented a wide range of public workshops on CMS selection, including a series of workshops in Australia in August 2005 and at the Nielsen Norman User Experience Workshops in Boston and London in 2005.

Martin has been Chairman of the Online Information Conference, London since 1999. He is a Visiting Professor at the Department of Information Studies, University of Sheffield.

http://www.intranetfocus.com