THE ROCKLEY REPORT
Published by The Rockley Group

Volume 1 | Issue 1 | April 2004

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Planning: The Key to Successful CMS Implementation

So you think you need content management? The temptation is to call your Information Technology (IT) department and ask them to help you choose a content management system (CMS). Being very tool oriented, your IT department will love buying you the latest "silver bullet" without ever looking at your content requirements or your internal processes. This is the best prescription for failure.

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Why Start with Analysis and Design?

One of the most common mistakes that we see is a company picking the tool first, then trying to make their content management requirements fit the functionality of the tool. However, analysis of why projects fail identifies that one of the main reasons for failure is lack of analysis and design. This article draws on recent literature to identify the main reasons for why content management projects fail and provides some possible solutions.

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Information Architecture of Content Management

When people think about content management, they generally think about it from a systems perspective, focusing primarily on tools and technology. While it is true that content management usually requires a technological solution, it also requires that content be designed for reuse, retrieval, and delivery to meet your authors' and customers' needs. Content management requires that tools be configured to support authoring, reviewing, and publishing tasks, but first, those tasks must be designed. Designing content and the processes to create, review, and publish it is what information architecture is all about. The Information Architecture section of The Rockley Report will focus on the different aspects of information architecture for content management. This article introduces you to some of the components of information architecture that we will cover in The Rockley Report over time.

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Editorial

Welcome to *The Rockley Report*

Welcome to the first issue of *The Rockley Report*, a quarterly journal that publishes original material related to content management, including its goals, its implementation, the technology required to support it, and how it affects organizations.

The Rockley Report focuses on the business perspective of content management, drawing on both research and practice. At The Rockley Group, we are passionately committed to discovering innovations in the field of content design and management, and we are just as passionate about sharing our research and about hearing from others what they are doing. Our goal in *The Rockley Report* is to continue the work we started with our book, *Managing Enterprise Content: A Unified Content Strategy*. We wrote the book in response to being asked, time and time again, "When are you going to write that book?" *The Rockley Report* is our response to the subsequent question, "So, what's next?"

In each issue, we will focus on a particular aspect of content management, providing you with research, best practices, and case studies to assist you with your content management projects. We'll also include articles on how to gain management support, what changes in roles and processes that content management often brings about (or should bring about), and we'll explain what's going on in the world of content management tools and technology. And, we'd like to invite you to share your stories with us. Our Call for Submissions tells you how you can submit articles for publication in future issues.

Our inaugural issue focuses specifically on our credo, that good content management must always begin with analysis and design. We kick off with a feature article by Judy Glick-Smith (President/CEO of The GlickSmith Group, Inc. and a newly-named Associate Fellow of the STC), in which she advocates that a content management implementation is a system development effort and should be managed as such, including doing a through analysis of processes and content before calling your IT department. Charles Cantrell (Information Engineer with Ontario Systems) provides proof of the benefits of analysis in a case study, in which he describes an initiative to develop and manage dynamic content for Artiva, Ontario Systems' accounts receivable management application. We continue our emphasis on analysis in articles that define Information Architecture and explain its relationship to content management; explain why selecting tools must begin with analysis; provide tips on building a business case for a content management project; and advocate usability in every phase of a content management implementation.

A regular feature you'll see in every issue of *The Rockley Report* is "In the News", a survey of resources related to the theme of each particular issue. In this issue, we bring you several resources you may find valuable during the planning and analysis phases of a content management implementation.

We hope you enjoy this issue of *The Rockley Report* and welcome your feedback. Please send comments, as well as suggestions for stories in future issues to kostur@rockley.com. And now, we proudly bring you our first issue!

THE ROCKLEY REPORT

Published four times per year:

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Subscriptions
For US and international subscriptions
ubscriptions are $99 a year (four issues) or $30 for a single issue, payable in US funds.

For Canadian subscriptions
Subscriptions are $125 a year (four issues) or $40 for a single issue, payable in Canadian funds. Please add 7% GST.

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Planning: The Key to Successful CMS Implementation

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So you think you need content management? The temptation is to call your Information Technology (IT) department and ask them to help you choose a content management system (CMS). Being very tool oriented, your IT department will love buying you the latest "silver bullet" without ever looking at your content requirements or your internal processes. This is the best prescription for failure.

Implementing a CMS is a system development effort. Just like any other system implementation, planning is the key to success. Planning involves an assessment of where you are today, where you want to be in the future, and what you need to do to get there. Your assessment must cover a review of your content, an evaluation of your content development processes, and an assessment of tools available to you. This can be a daunting task, but, when you are thorough, you are much more likely to succeed.

We are living in a world where our work increasingly screams for automation. Companies are asking their knowledge workers to do more and more in less and less time. This also applies to content; after all, every organization creates content. However, we continue to generate content as if we were still working in the industrial age in a lineal, "siloed" way. As a result, organizations have commoditized the content development process. Just like manufacturing and systems development, organizations are sending content to be created offshore, where it continues to be generated in a lineal fashion. As long as organizations continue to believe that "anyone" can write, this will be the case.

According to Dr. Peter Drucker, the key to survival for an organization in the coming years is access to information that enables decision-making and facilitates innovation. [1] Those of us involved in content development instinctively know that this is our ultimate goal. We know that we could be more efficient if we had content management. We are also aware that content management would benefit the entire organization.

Where organizations often fail when implementing content management is in not realizing that the implementation is a system development effort, and should be managed as such. As Philip W. Metzger and John Boddie wrote in Managing a Programming Project: Processes and People, "Poor planning boils to the surface as a source of problems more often than any other problem [in systems development]." [2]

This article discusses the planning process that is critical to success in the implementation of content management for the enterprise.

Identifying Long-range Goals

Tying into Organizational Strategy

Most organizations have a strategy, which may or may not be written down, for moving forward. In an ideal setting, upper management develops a strategic plan for the entire organization, each department develops their strategic plan based on the corporate plan, then each group within a department develops its strategic plan based on the departmental plan, and so on. Theoretically, this approach ensures that everyone is operating from the same place and is supporting the higher-level goals.

More typically, employees have flawed perceptions of management's overall strategy. This can result in the implementation of systems that inadequately support the true vision of the organization.

Clarification of the corporate goals and strategies is absolutely necessary to the success in content management implementation.

Developing Departmental Strategy

As described above, a departmental strategy should support the corporate strategy. If a corporate goal is to reduce time-to-market from six months to four months, a departmental goal might be to automate one third of its processes, enabling it to respond more quickly. This goal could apply to any department in the corporation.

However, strategic planning at the departmental level needs to be integrated across departmental boundaries. To do otherwise fosters a "siloed" environment in which each department is working independently, often "re-inventing the wheel" again and again.

Strategic planning across departments certainly applies to the content development process because all departments in all organizations develop content, although some may have a greater need than others to manage their content. When deciding how to manage content, it is important to form a strategic integration team that holds regular meetings to ensure departments are communicating with each other, sharing best practices, and discussing content commonality in the context of supporting the corporate strategic plan.

One of the sub-groups of the strategy integration team is the content integration team. The content integration team is responsible for:

- Assessing where the corporation is today with regard to
  - Content
  - Processes
  - Resources, both human and technical
- Defining a vision for the future based on the corporate strategic plan with regard to
  - Content
  - Processes
  - Resources, both human and technical
- Developing a tactical plan for implementation
- Choosing tools to support the new vision, if required
- Implementing the new system

The remainder of this article describes these responsibilities.

Assessing Where You Are Today

Content

The temptation to skip over content analysis is almost intoxicating. Content analysis is often a daunting task, especially in environments with years of legacy documentation.

However, looking closely at what content you already have will help you identify the types of content you produce and the level of granularity you need to manage.

There are many ways to do this review. I have found the most effective is to divide your content into types and then categorize the content in each type. *Managing Enterprise Content: A Unified Content Strategy* (by Ann Rockley with Pamela Kostur and Steve Manning) details the steps for conducting a content audit. [3]

Processes

Everyone follows basically the same process for content generation and publication:

1. Create
2. Review
3. Manage
4. Deliver

When analyzing how content is created, it is important to break down each high-level process into the sub-processes that define it.

Recently, I was asked to develop release notes for the release of a new version of software. I asked how the process for developing release notes worked in the past and learned that all of the information existed in various forms in various places. Someone, never the same person, would access the information, if they could find it, and build the content for the release notes.

After I had identified the process and all the sources of information, it was very easy to streamline and formalize the process. Now anyone in the company can write release notes for future releases.

The Human Connection

There are three sets of people involved with content:

- People who use the content
- People who create the content
- People who own the content

We say it over and over to remind each other: Know your audience. For each content type, ask the question, "Who is using this content?" Be very thorough in your research. We all have known of instances where our content is being used by more than one audience type. This often happens because we failed to recognize that audience type in our original analysis. However, that audience often discovers that some particular content exists, and, even though it doesn't meet their exact needs, they make do with it. Here lies

a wonderful opportunity to be of service to a group of people you were unaware of previously.

Besides learning about who uses your content, you also need to determine who is creating content in your organization and why. In most organizations, everyone creates content for various reasons. It is important to open a dialog with all the groups in an organization. Only through this dialog will you learn the details about organizational content generation. This also has a side benefit of fostering an environment of inclusion, making everyone feel that content creation is a team effort. Once you know who is creating content and why, you can formalize processes to accommodate everybody.

Content ownership is another critical part of the human connection that needs addressing. In a "siloed" environment, people tend to hold information close to the vest, not wanting to share content, processes, or even end user information. As a member of the content integration team, take responsibility for assuring them that they continue to own their own content. This effort is not about taking anything away from them, but to allow the organization to better function as a team to meet the overall strategic plan.

Technical Resources

In conjunction with learning what content is being generated and who is using and creating it, ask about the tools being used. You may find that the legal department of your organization is already using a content management system to produce contracts. The marketing department may be using a completely different one to develop proposals. You may find that developers are using a tracking tool that puts content in a SQL database so that they can generate reports. You may discover that the content generated by the system design group is in XML and can also be used by quality assurance, training, and deployment.

Be nosey. Ask. Make the connections.

The "As Is" Document

Once you've done the analysis of where you are today, create an "as is" document that describes who owns and generates content for whom, how, and why within your organization. Workflow diagrams are helpful in showing the flow of content within a process. They also show duplication of effort and help to identify content that has no purpose.

Defining a vision for the future

The Vision

Identifying where you are today will enable you to present a better picture of where you want to be. Through your analysis, you will have identified who your audiences are, how they need to receive information, and you will have an understanding of who is creating content, how they are creating it, where they store it, and why the content exists.

The mandate for the content strategy team is to develop a vision for content creation and management that meets the strategic goals of the organization. The vision may require balance, especially when goals conflict. Using our example from above, consider the situation where the organization wants to reduce time-to-market and also wants to reduce capital expenses. Balance comes from finding solutions that maximize optimization of processes while minimizing the cost of new or expanded tool sets.

Gap Analysis

Identifying where you are and where you want to be allows you to see the holes in your overall content generation and management environment.

Document these deficiencies thoroughly. The workflow diagrams you developed in the "as is" document during your original analysis are excellent tools to help illustrate areas where you can improve.

A thorough gap analysis should also identify metrics that can assist the overall organization in meeting its strategic goals. Keep your gap analysis focused on the greater good rather than on the a cost/benefit analysis for your particular department.

Developing a Tactical Plan for Implementation

The Project Plan

Once you have the analysis documentation developed, you can begin developing a project plan, which includes dependencies and responsibilities.

Your gap analysis gives you the missing pieces by showing where you are and where you want to be. The content integration team will need to make busi-

ness decisions based on its new-found knowledge. One such decision might be to discontinue a duplicate document that is generated by two different departments. The decision would need to include ownership, storage location, and publication issues. Another business decision might be to standardize on tools.

The Request for Proposal

Now that you have completed your vision and your gap analysis, you know whether or not you need to acquire additional software to accomplish your goals. If this is the case, you will want to develop a request for proposal (RFP). The RFP reflects the detailed requirements for the tools you require to implement CMS.

In *Rapid Development: Taming Wild Software Schedules*, Steve McConnell wrote, "If you insist on fixed-price bids on the basis of a vague requirements statement, you'll get high bids from the competent vendors. The only low bids you'll get will be from vendors who don't understand software development well enough to know the risks involved in incompletely specified software." [4]

While Mr. McConnell was speaking of software development, this also applies to any systems development effort, including the implementation of content management. The more specific your RFP is, the better the quality of the bids will be.

Reviewing Proposals

Because the content integration team has done all its analysis, it is better equipped to make a decision on tools to support newly designed processes. Vendors will be champing at the bit to show you the new features of their products. Avoid the temptation to be drawn in on features. Stick to your requirements. To do otherwise can cause confusion in the decision making process.

The Updated Project Plan

After you decide on the tool, you can finalize your project plan to include training, implementation of the tool, re-structuring of content if necessary, population of databases, and any other tool-related tasks not already included on the plan.

Summary

On the surface, the planning process sounds simple:

- Assess where you are today.
- Envision where you want to be and develop your requirements.
- Identify gaps between where you are and where you want to be and design your system.
- Develop an implementation plan that integrates with corporate strategy.

Expect to spend thirty percent of your implementation on planning. Resist the urge to cut corners. The up front work will pay off in the long haul. Read *Managing Enterprise Content: A Unified Content Strategy* from cover to cover and let it guide you through the entire process. I use this book as the text for my Content Management class at Richland College. It is solid and breaks down the implementation process in the level of detail that you need to be successful. (No, the authors aren't paying me to say this!)

Content management is a new way of thinking about the way we deliver information to our users. Content management will be one of the ways organizations will support the new work of the next two decades. Successful implementation is critical to the success of the organization.

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Why Start with Analysis and Design?

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One of the most common mistakes that we see is a company picking the tool first, then trying to make their content management requirements fit the functionality of the tool. However, analysis of why projects fail identifies that one of the main reasons for failure is lack of analysis and design. This article draws on recent literature to identify the main reasons for why content management projects fail and provides some possible solutions.

In the late 1990s and the early part of 2000, the acquisition and implementation of content management systems was one of the most common IT projects. However, many of these projects have failed to show the expected results. A sampling of some recent quotes in the press help to identify the reasons why so many projects have failed.

According to the authors of *Making Technology Investments Profitable*, 50% of all IT projects fail [1]. This is a view supported by P.G. Bartlett, VP Marketing at Arbortext. In a recent interview, Bartlett points out that content management projects fail at the same rate as IT projects and he points out why:

> Content management projects succeed or fail at the same rate as other large IT projects. Almost invariably, the problems arise not from tools or software but from trying to obtain significant benefits from a "quick and dirty" implementation. In most unsuccessful implementations, they hoped that they could just buy some software, bolt it on to an existing process, and the benefits just roll in. The problem is that most of the benefits arise from fixing process problems, and fixing them requires not only a change in tools but also a change in behavior.
>
> In successful implementations—and we have seen many—they invest the time up front to plot out a long-term plan that addresses problems and opportunities in a comprehensive way. The knowledge to create these plans typically does not exist within the organization because the discipline is still relatively new, so they bring in experts to help. [2]

In a summary of a Feb. 2003 Jupiter Research report about why content management systems fail, atnewyork.com pointed out that many of the reasons for failure stem from lack of planning or insight into what functionality is needed from the system:

> Web content management tools often fail to live up to their promise... The report found the bulk of companies surveyed felt they overspent on content management platforms, and the tools in those platforms are underdeployed. Sixty-one percent of the surveyed companies said they still rely on manual processes to update their Web sites.
>
> One media company spent over a year and $250,000 working its content management package into its site production process. The company recently realized that its content had little structure to speak of, and that because it had not made a strict separation between content and presentation, the company's broader needs for reusing content elsewhere were effectively blocked.
>
> Another problem found is the core requirements of content management (such as support for workflow, lending structure to content, and facilitating reuse) turn out to be far from the minds of platform purchasers, the report said. [3]

Furthermore, in a recent article on managing content management system selection, Martin White points out that organizations don't always determine their workflow requirements and benefits:

> Current CMS applications have more than enough power to handle the most complex of content management processes, but how many organizations have worked through the workflows behind document preparation,

and (of even greater importance) identified where there could be benefits in re-engineering the workflow to gain the maximum benefit from the CMS application? [4]

Analysis is critical

These quotes point out that analysis is critical in successfully implementing a content management system and associated processes. It is difficult to effectively select an appropriate technology without understanding your processes and business needs. Best practices developed as a result of successful projects show that you need to figure out "what's going on" with your content, how it's being used, how it's being managed, as well as the processes you use to create, publish, and store it. During the analysis phase, you:

- Determine where it really "hurts"

  Change happens when the current content creation and management processes are no longer acceptable. The organization is "hurting" and wants to change. To discover where your organization is hurting the most, you need to understand the dangers and challenges you are facing , the opportunities you can realize through change, and the strengths you can build on to implement these changes. Without a clear understanding of the issues facing your organization it is difficult to select a tool that addresses your issues.

- Identify your content life cycle

  Within your organization, content is developed in many different ways, by many different people, and by many different departments. Development may follow an established process or it may not, and if so, it may differ from department to department. To implement a unified content strategy, you need unified processes so that everyone involved in developing, storing, and publishing content does it the same way, or at minimum is able to interact effectively with each other and share content. Best practices advise that before selecting tools, you need to examine your content life cycle and any issues associated with it. If you select tools without understanding how content progresses through its life cycle, chances are, your tools will not support your desired content development processes.

- Perform a content audit

  Before you can model your content—and subsequently, unify it—you need to gain an intimate understanding of its nature and structure. Best practices instruct us that performing a content audit is critical before making any technology or design decisions. During a content audit, you look at your organization's content analytically and critically, allowing you to identify opportunities for reuse and the type of reuse. Once you see how your information is being used and reused, you can make decisions about how you might unify it. Without a content audit, you will not understand the scope of the potential reuse and the type of reuse, both of which are critical when designing content models and selecting tools. For example, your content audit may illustrate that you need to manage granular reuse (small objects of content). Failure to realize this may result in the selection of a tool that does not effectively manage granular reuse.

Using your analysis as a basis for the understanding of your needs you can identify:

- Criteria for the selection of your technology
- Criteria for your business case and calculation of return on investment
- Process improvements
- Goals and vision for your project
- Content reuse and management requirements

Your findings from a solid analysis enable you to make informed decisions about your tools selection.

Design follows analysis

Design is frequently a task that is begun after tools are selected. You can neither complete the design phase without selecting your technology, nor can you effectively select your tools without an understanding of what you need the tools to support. Best practices recommend that you analyze and design first, then select technology, but to help you understand the full extent of what you want your tools to do, you can start preliminary design as soon as you are completed your analysis. During the preliminary design, you start specifying the criteria for selecting your tools.

- Preliminary content modeling

  Preliminary content modeling enables you to start identifying your content structure, reuse strategy, and granularity. The complexity of your reuse and the level of granularity required will provide valuable information for the functionality of your authoring and content management system. For

example, if you have identified that you would like to automatically populate reusable content wherever it's required (systematic reuse), you will need a tool that supports systematic reuse. Your models will identify the degree to which systematic reuse needs to be supported.

Preliminary content modeling also helps you to determine how authors will write content. The preliminary models will help to identify if existing authoring tools are sufficient for your content authoring requirements, if a structured editor is required, or if forms are appropriate.

- Preliminary workflow

  Workflow is the way in which you control your content life cycle. It is also the way in which you manage your reuse. Preliminary workflow design enables you to start defining reuse rules and the best practices for content management throughout the content life cycle. The way in which you want to manage reuse is valuable input into the required functionality of your tools.

Summary

Analysis is critical to the success of your project. Skipping analysis and moving to tools selection can compromise your business requirements. Both analysis and design are critical to success. You should always take the time to perform a thorough analysis of your corporate requirements and your content. Preliminary design will assist you in developing additional criteria for tools selection, ensuring that your tools will support what you want to do with your content, from the time authors create it to the time it's stored in your content management system.

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Information Architecture of Content Management

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When people think about content management, they generally think about it from a systems perspective, focusing primarily on tools and technology. While it is true that content management usually requires a technological solution, it also requires that content be designed for reuse, retrieval, and delivery to meet your authors' and customers' needs. Content management requires that tools be configured to support authoring, reviewing, and publishing tasks, but first, those tasks must be designed. Designing content and the processes to create, review, and publish it is what information architecture is all about. The Information Architecture section of *The Rockley Report* will focus on the different aspects of information architecture for content management. This article introduces you to some of the components of information architecture that we will cover in *The Rockley Report* over time.

Information architecture has become synonymous with information architecture for the web. However, as more organizations are adopting content management systems to manage both web and enterprise content, there is a new area of information architecture emerging—the information architecture of content management. One of the key factors for a successful content management implementation is a solid information architecture. Too often organizations implement content management without identifying the authors' needs, without looking closely at the content to determine how it could be most effectively structured to support user/customer needs, and without analyzing their current and desired content life cycle. This results in resistance to adoption, increased costs, and failure to achieve the desired results. Information architecture can make a significant contribution to the success of your content management solution.

This is a view supported by Lou Rosenfeld, (www.louisrosenfeld.com), an information architecture consultant and co-author of *Information Architecture for the World Wide Web: Designing Large-Scale Web Sites* [1]. Rosenfeld has been instrumental in establishing the industry of information architecture for the web and points out:

> When it comes to making content accessible, content management and information architecture are two sides of the same coin. Authors and end users alike benefit from intelligent design and well-organized processes. [2]

People like Lou Rosenfeld, Peter Morville, Christina Wodtke and others in the information architecture and information design industry have laid the groundwork for a move to information architecture for content management beyond the web.

The components of information architecture

There are a number of components of information architecture that are key in building a solid base for a content management implementation. They include analysis, content models, granularity, metadata, reuse and repository architectures, reuse management, and content management. We introduce you to these components in this article, and will delve into them more deeply in future issues of *The Rockley Report*.

Analysis

Good information architecture requires that you start with a thorough analysis of your organizations' needs, your current and desired content life cycle, your customers' needs, the state of your current content, and your technological requirements. During the analysis phase, you need to look at your content very closely to determine how it's put together and the types of content it contains. This will help you to determine opportunities for reuse. You also need to talk to the people who create and use the content to learn what their issues are. This will help you to determine problem areas in work processes that can be addressed in workflow.

Information Architecture

Content models

One of the most critical phases of your information architecture is building the content models on which your content management strategy is based. Content modeling involves identifying and documenting the structure of your content in detail. During the content modeling phase, you determine the elements required for each information product (or output) and how each information product will be designed for optimum usability and reuse. Content models define the structure and organization of your information products, indicating which individual elements they contain, their frequency, and their usage (e.g., is an element optional or mandatory). Models become the road map for your content and are used to develop DTDs/schemas (if you are using XML), or content frameworks and templates.

Granularity of content

Designing the granularity of your content can sometimes be problematic. Authors typically like content very granular so they know exactly what to put into an element (e.g., overview, procedure step). Very granular content usually results from more semantic models (models with tags that indicate the meaning of the element such as "overview" instead of tags with generic names such as "body" or "para"). Highly semantic models are more problematic for style sheet designers because all unique elements require an individual style. Because semantic names by their nature are unique, all semantically-named elements require their own styles.

Granularity also affects how you reuse content. Content that is too granular can be difficult to manage in your content management system, but content that is not granular enough may not be as reusable. Accordingly, CMS developers may push back on the level of granularity, opting for content that is not granular. Analysis of reusability, authoring processes, and tools is important when determining granularity and as you develop your information architecture, you will make changes to your granularity as you determine the optimum level of granularity for everyone.

Metadata

There are typically two types of metadata: categorization metadata and element metadata. Users tend to retrieve information based on categorization metadata, whereas authors tend to retrieve information based on element metadata. Categorization metadata is used extensively on web sites to categorize content for effective retrieval. It is also used extensively in document management to classify documents for storage. Authors, on the other hand, use element metadata to classify elements of content for reuse, retrieval, and tracking. Care should be taken to ensure that you can retrieve your elements once stored. Your ability to reuse information is only as good as your ability to find it. And if you employ systematic reuse (see *Reuse architecture*) your metadata must be very thorough so that the system can correctly find and populate the content into the required information products and into the required places within information products. Like granularity, metadata design also continues to develop as you refine your architecture.

Reuse architecture

Content can be reused within an information product, across information products, and potentially across the enterprise. Traditionally, the most common form of reuse has been opportunistic, meaning that authors make a decision whether to reuse content or not. However, opportunistic reuse is also the least efficient because it requires that authors know a reusable element exists and what it is called, then find the element and reuse it in their information product. In addition, if authors are not aware that an element already exists, they may recreate it causing multiple elements to proliferate in your content management system. This also makes it difficult to know which of the multiple elements is the definitive one.

Alternatively, systematic reuse is automatic reuse. Once specific content has been identified as reusable in a specific location, it is automatically inserted (auto-populated) into the appropriate locations. Authors do not have to determine if the reusable content exists or search for, retrieve it, and insert it into the appropriate places. Systematic reuse ensures that content is automatically reused where necessary, thus reducing the burden on authors. When designing your reuse architecture, considerable analysis of information products is required to decide which elements are systematically reusable and where.

Once you've decided which elements are systematically reusable, you create content and structure reuse maps as part of your reuse architecture. The content reuse maps identify where content can and should be reused and if it should be reused identically or can be used derivatively (with change). Content reuse maps are used by your content management system to pro-

grammatically (automatically) ensure that content is reused. In addition to identifying content reuse, you need to identify structural reuse as part of your reuse architecture. Structural reuse identifies where common structures are reused. For example, you might have a product description element in a brochure, but you would also have a product description element on the web. Even though those product description elements may be structurally the same, they may contain different content. Structure reuse maps are used by DTD/template developers in creating consistent structures for authors to follow.

Repository architecture

The repository architecture defines how you will structure your repository. For example you may have "building block" directories that include content that is frequently reused (e.g., glossary, procedures, product descriptions) and the remainder of your content stored in information product directories (e.g., all brochures) that are further organized by product. Or you may decide to organize your content by product with each of the information products as a subset of the product. You need to determine what is the most effective repository structure for your needs. Note, however, that the identified structure is not a physical file structure. Content is stored in the database, not in directories. The repository structure enables your authors to easily find information.

Reuse management

An area of information architecture that is frequently overlooked is that of reuse management. If authors opportunistically reuse content and create derivatives of the content, it quickly becomes difficult to identify which element is the definitive one. Your content management system will end up looking like your current file structure and you will have no clear idea of what is source content, where content is reused, and if there are multiple versions of the same piece of content. Reuse management means creating rules to manage your reusable content. The reuse rules are formalized in your content management system through workflow and in your system configuration.

Content control

Content control, as part of your information architecture, identifies how your content should be managed. You need to determine how content should be controlled through its life cycle and what security should be applied to it. Content control is tightly integrated with your reuse management strategy and business practices and like reuse management, it is formalized in workflow.

Summary

Bob Boiko (www.metatorial.com), Director of the University of Washington's iSchool Content management system evaluation lab, content management expert, and best-selling author of *Content Management Bible* on content management [3], sums up the discussion of information architecture and content management very well:

> Content management is the dynamic organization of information architecture, business management, software and network engineering, content creation, and publications development. If you don't master each of these areas, CM will fail.
>
> If you don't get them to integrate, CM will fail. Information architecture is the structuring of information for effective management and presentation. While the discipline has focused more to date on the presentation side of structure, it is now turning solidly toward management. As it does, the tight connection between content management and information architecture is becoming crystal clear. Information architects, like the building architects before them, create structures. They lay the foundations under and the frames around information. Content managers gather and dynamically deliver masses of information. Without a solid information structure at the core, a CMS effort can't get off the ground. At best, it will be hugely inefficient and at worst it will crumble under its own weight. Information architects have the skills to structure a content domain so that information can flow in a reasoned and efficient way. It flows in according to well understood rules of relevance, segmentation and tagging, and it flows out according to well understood rules of audience interest and use.
>
> So, CM needs IA. But IA needs CM as well. CM provides a wider context for IA. It makes IA not just about the best page, or even the best site, but rather about the best system behind all the pages, sites and myriad other

outlets for information. CM centralizes IA in the organization. It upstreams IA toward the center of the organization's information systems infrastructure. It integrates IA with business management, software and network engineering, content creation, and it's old friend publications development toward a new concept of what it means to be an organization in the information age. " [4]

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What's the Best Content Management System? It Depends...

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There are a dizzying number of systems on the market that are or can be referred to as Content Management Systems. Determining which content management system is right for you starts with an understanding of the different types of systems and the range of functionality available. Analyzing your needs is critical to selecting the right system.

When I am at conferences or seminars, people like to ask me "what is the best content management system?" I usually squirm and hem and haw and then state, "depends on what you need it to do." It's not the answer that people want; they want me to name Product A or Product C and save them lots of time and effort in selecting a content management system on their own. Selecting the right content management (CM) system can be a lengthy and exhausting process, as the content management landscape is a very crowded and confusing one.

Leading the confusion is the lack of a real industry-standard definition of what a CM system is or does. I've seen one definition stated roughly as "content management describes any system that allows people to more easily change and update content, especially on their websites.." [1] Not much help, but in the absence of a clear "official" definition, many vendors appear to have adopted it as the definition by default. That is why there are hundreds os systems—ranging from Web Loggers (bloggers), to file management, to code management, to databases—that describe themselves as Content Management Systems.

Types of systems

So how do you approach your own content management evaluation? With so many systems out there, no one really has time to evaluate all possible CM offerings. To start, you can roughly categorize CM systems based on their use, then select systems to evaluate based on the type you need. The categories include:

- Enterprise Content Management (ECM)
- Web Content Management (WCM)
- Digital Asset Management (DAM)
- Learning Content Management (LCM)

There is no agreed-upon definition for ECM, although AIIM International (The Association for Information and Image Management) describes ECM as follows:

> We believe that at the center of an effective business infrastructure in the digital age is the ability to capture, manage, store, preserve and deliver enterprise content to support business processes. The requisite technologies to establish this infrastructure are an extension of AIIM's core document and content technologies. These ECM technologies are key enablers of e-Business and include: Content/Document Management, Business Process Management, Enterprise Portals, Knowledge Management, Image Management, Data Warehousing, and Data Mining. [2]

The AIIM definition is obviously broad and some CM vendors have applied an ECM label to their product offerings even though they don't directly support the full range of functionality suggested by AIIM.

WCM also carries a vague definition. The rule of thumb seems to be that if a system can manage content for the web—manage can mean the simplest of access controls (such as check-in and check-out) for text, graphics, etc.— then it is a web content management system. The one common characteristic is that they are all aimed at managing HTML and other Web content. Other than that, they come in all shapes and sizes with wide ranges of functionality.

DAM grew out of document management systems and provides the functionality needed for high-end publishing and graphics-intensive publishing. A DAM system manages the BLOBs (Binary Large

OBjects – graphics, animations, video, etc.) that are not text-based, including:

- Graphics
- Flash, audio, video, streaming media
- Animation, large video files, high-resolution images

Unlike the other types of CM systems, DAM systems support a common range of functionality, with an emphasis on metadata and searching.

LCM systems are designed to manage learning content, including text and animations. Most systems are currently SCORM-compliant, but not all. (SCORM is a standard that emphasizes the ability to share learning models among LCM systems.) The systems may or may not include Learning Management System functionality—the functionality required to deliver the course materials to students and track their progress.

And to completely muddy the waters, there are many systems that are simply referred to as Content Management systems. Obviously, you need to select your system based on what you want it to do. If your focus is learning content, then an LCMS is a clear choice, but once you've made that choice, there is still a range of functionality to assess before you make your final decision on which LCMS is best for you.

The range of functionality

What differentiates all of the different types of systems is the functionality they offer, placing added importance on your analysis of your environment, content, and processes before you select a CM system. Once you know what type of system you need, you must match your requirements against the functionality offered by the CM systems.

Access Control

The ability to control who can create, edit, read, or manipulate content is a core functionality in all CM systems. Most offer some sort of check-in/check-out control so that only one person can edit a file at a time. This is extremely important because if two people can edit the document at the same time, it's possible for one person to overwrite the other person's changes. Also, access controls govern who is allowed to edit content. Permission can be applied to individuals, based on a system login. Some systems also allow you to assign individuals to a group, and then apply specific permissions to the group.

Document Storage

All CM systems offer some form of document storage or "repository". The functionality of the repository can range from proprietary data formats, relational databases, object-oriented databases, to some combination. Some systems store content in files in the file system and then store information about that content—such as where the content is stored and any metadata associated with it— in a database. Storing the metadata in the database makes the content more readily searchable.

XML Support

XML support is another key differentiator among systems. As format-independant markup, XML makes it possible to author content that will published into different media. By applying different stylesheets to the same content, you can create outputs in a wide variety of formats, including HTML, PDF, paper-based formats, or formats required for handheld wireless devices.

XML support is also very important if you plan to manage content with fine granularity. The structural nature of XML makes it easy to identify individual elements of content and manipulate them, bringing them into different documents as required.

Bursting/Granularity/Element Access

Another important key difference to evaluate is the size of chunk that the system can manage. Some systems, although labeled content managers, are really document management tools, in that they can manage physical files, but not the content within the physical files.

Other systems have the ability to manage small chunks of information, to the paragraph, sentence, or even word level. The content is physically or logically broken (burst) into pieces in the database, allowing access to very small chunks of content.

For some systems, bursting rules must be set before you build the database. If you then change the bursting rules, you must rebuild the database, which can be cumbersome. Other systems allow you to change the granularity "on the fly."

Metadata

The ability to store and access metadata is paramount to an effective CM system. After all, if you can't find the information you need in your system, you'll need to re-create it, which leads to duplication and potential conflicts in the different versions. Therefore, it's important to assess how a CM system handles metadata, based on your criteria. All systems store some metadata as properties of the content element. They store basic metadata—such as "other, version, status"—as default properties. While some systems have limitations on extending the properties to store your metadata, others offer unlimited metadata. Defining your metadata requirements is critical before selecting your CM system.

Version Control

Version control is the ability to maintain multiple copies of a piece of content as it changes throughout its lifecycle. A good CM system must be able to save all of the versions as they are created and modified, as well as clearly identify which is the current version. The system should also be able to maintain relationships among versions when variations branch into multiple content streams.

Searching

The ability to search for and find content in your CM system is another key feature. The more content that you manage, the more important searching becomes. In a authoring environment that features significant reuse, authors may spend as much time searching for and reusing existing content as they do authoring original content. As you would probably expect by now, the searching capabilities of CM systems vary. Some offer the ability to search on metadata only. Others include full text search capability. Ideally, a system should offer users a combination of search methods (metadata and full-text, for example.)

Archiving

Content may or may not have a "shelf life". Some documents are obsolete in a short time, while others may potentially live on to infinity. As information becomes redundant, or is superseded by new information, the value in keeping it in the database may diminish. To keep your information database uncluttered, and to reduce the possibility of authors reusing obsolete information, it should be archived, or removed from the production database. But not all CM systems have archiving functions, so if your content does have a "shelf life", you'll need a CM system that supports archiving.

Format conversion

CM systems may or may not include functionality to take in files in different formats and convert them to a common storage format (usually XML). Format conversion may be important to you if your authors create their materials in a common authoring package, like MS Word. When the content is checked in, the CM system converts it to the storage format before putting it in the repository. CM systems can also convert the content in the reverse direction—from the storage format to a different format.

Authoring interfaces

When selecting a CM system, it's also critical to consider the needs of the authors who will be creating the content that the system will be managing. CM systems may or may not come with their own authoring interfaces. Some CM systems require you to author your documents in an external authoring package before checking them into the system. Some provide a rudimentary built-in interface that allows you to make minor changes to content.

On the other hand, most web content management systems include HTML or forms-based authoring interfaces and focus on collaborative authoring. Forms are very useful for hiding HTML codes from casual authors or authors who don't want or need to know HTML.

Publishing

This is an area where CM systems are usually weak. They rarely include sufficient publishing capability to satisfy the need of multi-format publishing. Most systems offer functionality to transform content to HTML, but none offer the full range of functions required for book/paper publishing. For complex publishing, you must supplement the CM system's built-in functionality with a publishing engine. Vendors will identify which publishing engines can interface with their CM system.

Summary

Given the wide range of functionality, it's important to determine which functions are important to you so you can assess how well the systems you are evaluating can handle them. It's also important to note that there isn't one CM system that is the best. They all have their strengths and weaknesses. That's why any selection of a CM system must begin with a complete and thorough analysis of your needs. You must be able to match up your CM needs against the functionality available in the systems on the market.

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Incorporating Usability into Content Management

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This article describes the importance of incorporating usability into all stages of implementing content management, including assessing your needs, assessing your users (of both the content and the content management system), and assessing your content. It questions the emphasis of technology in many of the current discussions about content management, and instead, advocates looking to the field of usability to form the basis of a content management implementation.

Back in 1990, I wrote a paper on "Incorporating Usability into the Document Development Process" [1] and it strikes me that many of the usability principles and processes that I advocated then remain relevant today, perhaps even more so with the push in many organizations to implement content management systems. In the past few years, as single sourcing and content management (as a requirement of single sourcing) have become more prevalent, so have the books and articles written about them. However, much of the current literature seems to focus more on the *technology* required to support content management than on the *content* itself, which is ironic, considering that content is what a content management system is designed to manage. Instead of focusing on a technology-driven content management implementation, those considering a content management strategy would benefit from incorporating usability into their implementation plan.

The current emphasis on technology

Look at the headlines in the professional journals/publications on content management and single sourcing. Some recent headlines in the CMSWatch newsletter's Recent Trends and Comments [2] read:

- RedDot Tips and Tricks
- CMS Vendors Down Under
- Weaving WCM into SAP

Furthermore, AIIM (The Association for Information and Image Management) hosts "the largest conference and expo focused on enterprise content management. In operation for more than 50 years, this annual event attracts business professionals seeking the latest technologies to develop, capture, manage, and store documents and digital content to support business processes, comply with governmental regulations, drive down costs, and gain a competitive advantage." [3]

While both CMSWatch and the AIIM Expo (and AIIM itself) are excellent sources of information about content management, their focus is a more technical one and they support that focus very well. AIIM promotes membership by stating that "[t]here's good reason why leading professionals and companies join AIIM, the international authority on Enterprise Content Management (ECM). AIIM is leading the way to the understanding, adoption and use of ECM technologies - the ones that help you capture, manage, store, preserve and deliver content in support of business processes." [4] Still, I find it disturbing that usability is conspicuously absent from their agendas. Other major sources of information on content management are equally focused on technology. Of the 32 articles listed on KMWorld, 29 focus on technology, while Seybold and Gartner appear to be all about technology. [5] Usability should be integral to the processes of adopting any system or technology, certainly one with the intent of managing content. After all, there's one reason that any organization creates content, in fact, there's one reason for content to exist—content exists for somebody, be it an internal user or an external one, to access, read, and use.

The usability perspective

Many usability professionals, on the other hand, see the relationship between usability and content management, or more specifically, between usability and all new product/service implementations:

- Jakob Nielson recommends Lou Rosenfeld and Peter Morville's book *Information Architecture for the World Wide Web* because the "authors' emphasis is on the structure of the site and how to facilitate users' access to the information they need the most." Nielson, along with Rosenfeld and Morville, advocates sound structure and access to information as goals of content management. [6]
- Jarod Spool writes about "The CAA: A Wicked Good Design Technique". The CAA (or Category Agreement Analysis), as Spool describes it, is a tool to help users designers arrive at a usable information architecture. [7] To Spool, it appears that usability and information architecture go hand in hand.
- Likewise, Stephanie Rosenbaum, President of TecEd, a consulting firm specializing in usability, advocates strategic usability, "embedding usability engineering in the organizational processes, culture, and product roadmaps." Rosenbaum writes that "In strategic usability, usability data contributes to corporate-wide decision-making, such as product priorities and make vs. buy decisions." [8] Usability, in this sense, would certainly be part of the implementation of a content management system.

Indeed, because usability is their "product", usability professionals incorporate usability into whatever project they are working on, whether they are evaluating a web site, working with developers on new software or hardware, creating documentation, or defining the requirements for a content management system. In fact, incorporating usability in a content management implementation makes sense, because many problems that impact the usability of information products include inconsistent content, misunderstood content, and poorly-defined information architecture, all issues that content management can and should address. Thus, content management can lead to usability and vice versa.

Even though content management can greatly enhance the usability of many information products, it appears that we have to look outside of the content management community for information on how usability fits within a content management implementation. Yet, content management and usability seem a perfect fit. After all, usability, according to the Usability Professional's Association (UPA) is "a quality or characteristic of products—software, hardware or anything else—that are easy to use and a good fit for the people who use them." [9]

And, in spite of the focus on technology in many of the publications on content management, it appears that more usability practitioners and professional communicators are forging the relationship between usability and content management. A search through the Society for Technical Communication's (STC's) web site for presentations on "single sourcing", "content management", "information architecture", and "information models" that will be given at their annual conference shows a pretty even split between presentations in the Tools and Technology stream and presentations in the Usability and Interface Design Stream. [10] The STC is a primary source of information for technical communicators and as such, has been key in promoting and publishing information on single sourcing and content management over the past few years. While much of the emphasis is still on the technological aspects of content management, it's encouraging to see more information on content management and information architecture in relation to usability, writing, and editing.

Also encouraging is that the UPA lists a number of different resources for related disciplines to usability, and among them are a number of resources for Information Architecture, the backbone of content management. [11] It's the information architecture, after all, that defines the structure of your information products, and also dictates how they will be managed in the content management system. It makes sense, then, that usability should be a key part of defining the information architecture on which a content management system is based.

What does "managing" content mean?

To bring usability into your content management implementation, it's critical that you first define what content management means to you. Ideally, the purpose of content management is to unify content so that it is consistent wherever it appears (e.g., on the web, in the brochure, in the user guide) and is maintained in one place instead of several. Remember that the goal is to "manage" the content; the system is just the tool that allows you to manage it in the way that best suits your needs. Managing content can mean many different things, in varying degrees of detail, including:

- writing and structuring content consistently (considering that applying a consistent structure is, in itself, a way of managing content)
- customizing content for different uses/users
- customizing content for different media

- delivering content dynamically
- storing content and accessing it in a central place
- reusing content (either opportunistically or systematically)
- retrieving a piece of content you've already written for use later on
- automatically updating reusable components
- notifying other users of content when updates are available

Content management may also include all of the above. So, to manage content, you first need to understand your particular needs. It's only after you come to an understanding of what it is that you want to accomplish that you can decide how you are going to accomplish it. In fact, there are many ways to improve how you manage content, short of implementing a new system, especially considering that the "system" in "content management system" does not necessarily refer to the tools. "System" also refers to the way in which authors create content (their writing and editing processes, not just their authoring tools) and to the way in which users access and use it.

Implementing a content management system with an emphasis on usability

Content management does not begin with choosing the technology; rather, it begins with a solid analysis of your needs, your users, and your content. Accordingly, the phases of implementing content management should look something like this, and at each phase, you develop usability criteria against which you analyze all your content management decisions:

- Needs assessment
- User assessment
- Content assessment

Needs assessment

Why do you need content management? What are you hoping it will do for you? During the needs assessment you assess both your own needs for content management and the organizations' so you can determine what content management will mean for you. Will it include dynamic delivery, or will it mean simply reusing similar content elements within your department? Will it include designing a standard authoring process for creating reusable elements? Once you define what your implementation of content management will include, you can assign usability criteria to your definition. For example, if your content management implementation means reusing content elements within your department, then what criteria will make reusing content elements a usable process? Having reusable content elements auto-populated into document templates?

User assessment

How will your users benefit from content management? What are you hoping it will do for them? In this phase, you will need to assess users (both internal and external) of your information products, as well as potential users of the content management system. When doing user assessment, it's useful to create a user/task matrix to identify your users and the tasks they want to accomplish. Then, your content management strategy can be designed to support those tasks, for each of the user groups. Just as you create usability criteria for your own content management needs, you should create usability criteria for the users of content, as well as usability criteria for the users of the content management system. For example, usability criteria for content users may be that procedures are always structured the same way, so that users always see similar types of information presented in similar ways. And, usability criteria for users of the content management system may be that they have a template that guides them through the correct way to write a procedure.

Content assessment

How will your content benefit from content management? It's critical to assess what constitutes usable content, because reusing content does not necessarily make it usable. Implementing a unified content strategy is an ideal time to examine your content for usability, then to create usability criteria that defines what makes content usable for each of its intended audiences.

When designing new structures for content, you base structured on usability criteria (i.e., on how your users access and use information, as determined in your user assessment), and when you reuse content you further enhance its usability simply by reusing it. After all, when content is reused, it is consistent, eliminating the issue of "do I have the right content?" For example, when designing a new structure for a product description, you design the description based on the usability criteria for its intended audiences. Usability criteria may inform you that users prefer to know the product's function (i.e., what it does), then

its price, followed by its availability. Accordingly, you would design its structure in that way. And, by reusing the product description, you ensure the structure is always the same, so users get used to seeing information presented in the same way--function, price, then availability.

However, usability goes beyond structure. When you are writing the content that goes into the product description, you also need to make sure that the content itself is usable. Simply reusing content ensures its consistency, which can facilitate usability, but if that content is poorly-written or is open to interpretation, it is not usable, regardless of how well it conforms to the structure or how frequently it is reused. In this case, unusable content is being reused--consistently structured, but unusable. Therefore, in addition to determining which content is usable and defining consistent structures for it, it's critical to look at the content itself to ensure it is accurate, readable, and not open to interpretation. That, combined with consistent structure and reuse will greatly enhance the usability of your content.

Summary

So where does usability fit? Usability fits in every phase of your content management project, from the time you determine your needs, up to when you implement your strategy, including selecting tools that support what you want your organization and authors to be able to do with content and defining what your content should "look like", what information it should contain, and how it should read. I'd like to see more emphasis on establishing usability criteria for every component of the content management system—certainly on the content itself—so that every decision related to content management, including how to write a *usable* reusable content component, is informed by usability. Usability criteria, by its nature, defines what makes "stuff" usable. Let's step up to the challenge and start shifting the focus from the technology to incorporating "strategic usability [and] gathering usability data [that] contributes to corporate-wide decision-making". [12]

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Identifying the Components of your ROI

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Identifying ROI (return on investment) for your content management business case begins with a thorough analysis. This article reviews the information you need to gather to identify ROI for an effective business case for content management.

We are frequently asked to calculate return on investment for organizations wanting to implement content management. This task is made very difficult if you haven't done an analysis of your current costs, needs, and goals. Putting together an ROI requires that you analyze the issues you are currently facing, identify the opportunities you could realize by implementing a content management strategy, identify the goals that content management can help you to meet, then gather metrics that compare your current costs against the costs of implementing a CMS and the savings a CMS can help you to realize.

Analyze the issues

Analyzing the issues means taking a hard look at your organization. Identifying your issues helps you to determine the costs to your organization resulting from problems with your technology or processes. Every organization has issues. As tasks evolve, as workload increases, or as the market changes, processes that used to work no longer work. For example, one organization we worked with, we'll call them Corp ABC, learned that their marketing group maintained one set of content for traditional marketing delivery (e.g., newspaper and direct mail), the web team maintained another set, and customer support maintained a third. This came to light when during a recent information campaign, customer support had insufficient information, sales staff were confused, and because of inconsistent pricing information, costs were excessive for some contracts. They estimated the costs of the inconsistent and confusing information and extrapolated it across the previous year and upcoming year's planned product releases. Quantifying the cost of issues in this way is extremely helpful in determining your ROI.

Identifying goals

Unless you can clearly state how a unified content strategy and content management will help your organization reduce time-to-market, reduce costs, increase productivity, or whatever specific goals you have defined, you cannot effectively justify it. What are the goals in your organization? Can you quantify them? Your goals may be related to your opportunities; in fact, many of your opportunities can help you to create specific goal statements. Determine goals by examining strategic plans, and by asking key people what their specific goals are for the coming year. It is important to have long-term goals as well. You can also look at two-year, three-year or even five-year goals. In fact, many organizations have five-year strategic plans, broken down into what they hope to accomplish each year. For example, for their first year's goal, Corp ABC decided to unify the content between the web site and customer support to ensure that it is consistent, accurate, and equally available to customers and customer support. In two years, they expanded their goal to unify the web and customer support with product documentation and training materials. Corp ABC can now identify the value of the goals by estimating the value of the opportunities.

Identify your opportunities

As you analyze your business issues and needs, you can identify the opportunities your organization could realize if you are able to change the way you do business. Opportunities can include everything from streamlining authoring and review processes, thereby getting your product to market faster, to enhancing the usability of your web site, thereby increasing customer satisfaction, and potentially, your market share. For example, Corp ABC identified opportunities to reduce support costs (consistent effective content results in reduced support costs), reduce contract costs (correct, consistent information would be used), and increase customer satisfaction (a little harder to quantify, but they used a figure to indicated increased sales). Once you identify your opportunities, you need to determine what your opportunities are worth.

Hard cost savings

The easiest costs to calculate are "hard" costs. If you translate your content, how much does it cost you to translate now and how much do you think you could save (based on the percentage of content reuse)? How many people are responsible for creating content now? What is the average cost of their salaries? What percentage of their time could you free up to essentially create new resources? Could you save on contractors? How much would those savings be? Look for any costs you already have quantified and determine how to include them in calculating your ROI. For example, Corp ABC knew the costs of customer support. They calculated a 10% reduction in those costs as part of their ROI.

Gathering metrics

Most organizations know their hard costs like the cost of translation, cost of printing etc., but we frequently find that organizations don't actually know how much it costs to perform a task. For example, one company we worked with wanted to reduce the time it takes to produce content for new product releases by 30%. However, when asked how long it currently took them to create the content, they had a general timeframe, but were unable to identify specifically how long each task within that timeframe took. While you can use "guesstimates", your guesstimated figures may not be valid. When building a business case that shows potential ROI, it is preferable to be both as accurate and conservative as possible. You do not want to create unrealistic expectations.

If you don't have metrics, consider using an existing project and tracking the time it takes to perform all the tasks related to it. That way, you can actually quantify the time it takes to perform tasks.

Determining the investment costs

Once you know what your costs are for creating, managing, delivering, and translating your content you need to calculate the investment costs. Investment costs include:

- Authoring tools

  If you are moving to structured content you will need to buy new tools, upgrade your existing tools to a structured version (e.g., Word 2003 or FrameMaker 7.0), or create forms for your authors to complete.

- Content management system

  What is your content management system going to cost? If you are looking at different systems with varying costs, pick the most expensive cost to use in your ROI. It's better to overestimate costs than to underestimate them.

- Training

  Training the people who will use the system or maintain the system is critical to the success of your project. Make sure you calculate the costs of training as part of your investment costs.

- Consulting

  There is a good possibility that you may need consultants to assist you with content analysis, modeling, information architecture, DTDs and style sheets, forms creation, system configuration, etc. Include some consulting dollars in your calculation.

- Lost productivity

  Don't forget lost productivity. You will need to devote some of your existing staff to the project itself to help with all the analysis, design, and implementation, which will reduce their current productivity. In addition, users will be slower using the new processes and technology until they become familiar with the system. This will also affect your productivity.

Calculating ROI

Return on investment is potential savings minus potential investment costs. Once you've gathered all your information and done the math, you can determine if your figures justify a move to content management and a unified content strategy. Be conservative. While you may in fact realize a high return on investment, when you are building your business case it is better to be conservative so that you do not create unrealistic expectations. Management appreciates a realist ROI rather than an unrealistic one.

Summary

Gaining management support for content management often means being able to show the potential ROI and to put together an ROI, you need to do some solid analysis up front. Analysis includes identifying

the issues you are currently facing, the opportunities you could realize by implementing a content management strategy, as well as the goals that content management can help you to meet. Once you've identified issues, opportunities and goals, you can gather metrics that compare your current costs against the costs of implementing a CMS and the savings a CMS can help you to realize.

ROI is the anticipated savings after subtracting the investment costs. While it's critical to perform a thorough analysis of your current costs and potential savings, remember to include technology as well as human investment costs (training, lost productivity) to ensure that you reflect the whole cost of investment. Be conservative with your potential savings to ensure that you create a realistic ROI.

A Case Study in Developing Dynamic Content at Ontario Systems

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Charles Cantrell, an Information Engineer, describes Ontario System' process for delivering dynamically assembled and populated documentation for Artiva, its "highly customizable" accounts receivable management application.

Background

Ontario Systems provides receivables management solutions to organizations that manage large volumes of accounts receivables. Our tools allow clients to automate workflow for collectors and account managers who may not be experienced in accounts. This automation provides clients with a competitive edge. Clients define their own workflows, based on their company's standards and practices.

When the Artiva project began, FACS, Ontario Systems' flagship product, had a character-based user interface (CHUI). Many industry experts considered FACS to be the industry's best, but the interface looked antiquated and the underlying code was difficult to modify.

The company determined that the best way to deal with both problems was to develop a completely new product that incorporated our understanding of our clients' business processes and eliminated the difficulties in modifying the existing code.One of the key objectives in the new product was to incorporate modularized functionality, allowing us to build products for each niche market comprising our primary market. Modularized functionality would allow us to assemble core functional models to meet specific needs in each niche.

A second key objective was to allow clients to tailor the user interface and workflow of their application to their individual business requirements. Our clients would use our underlying code to modify their application to their exact needs.

Danger/Issues

There were several risks to this proposal. One was the scope of work, and the resources this would take from continuing development of FACS. However, based on my responsibilities in Technical Communication, I was more concerned about how our team would provide documentation for a product that would have no fixed user interface and no fixed workflow processes.

Goals and Opportunities

Based on the company's plans, it was imperative that the Technical Communication team step up with new ideas for delivering documentation to our clients. Because of the modularized, customizable software, our goal was to create documentation that could be assembled based on how clients modified the software. Preliminary work showed that it was possible to attach components of documentation to various elements of the application. Further, it would be possible to assemble these individual "documentation units" into conceptual and procedural material. However, it was my opinion that this could be supported only if the content was written and stored as XML.

What We Did and Why

At the project's inception, our Technical Communication team was writing nearly all documentation in FrameMaker. We began by considering FrameMaker+SGML, but my research led me to believe that we needed a native XML application. I wanted tools as close to the XML standard as possible, and the ability to use a range of XML tools.

During this period, I wrote a small "proof of concept" XML system that displayed documentation from the new application in a web browser, integrating custom settings in the product into the topic. When these settings were changed, the documentation reflected these changes.

Based on this proof of concept, Ontario Systems developed a plan to provide dynamically assembled documentation by storing components of documentation attached to various application elements, along

with code to "populate" the topics with the settings and options specified in the application. When requested, document components would be assembled and "fleshed out" with these application settings, options, and other information from the application. Once the requested information was assembled, it would be formatted with XSL and delivered to a web browser.

Challenges

One of the primary challenges that faced Ontario Systems was a lack of experience with XML. A second challenge was that our new application was only partially complete. However, Ontario Systems concluded that XML was the appropriate technology. To alleviate risk from the unknowns in XML, Ontario Systems contracted DTD design services from The Rockley Group, whose work I knew from STC. TRG worked with the entire team to develop the document analysis.

In addition, we licensed Epic Editor from ArborText, because of their rich tool set and reputation for high quality service. It was also decided that I would take all of the classes from Arbortext needed to become a certified XML Application Developer. As a part of our tools, Ontario Systems selected Astoria for our content management system (CMS). While both Epic and Astoria provided substantial challenges for our writers, purchased training helped our writing team get up to speed.

In addition to learning to manipulate the tools, the entire writing team needed to write with one voice, so that assembled components could be merged to form a cohesive whole. Forming a writing standards committee to produce extensive and detailed writing standards helped to achieve this. Having worked with Epic and Astoria now for about four years, we are pleased with the products and our progress.

Benefits & Outcome

This project benefits both Ontario Systems and our customers. In the past, it was difficult for everyone who needed documentation to get access to the printed manuals. With our new process, we can deliver documentation to anyone who uses the application. Furthermore, the documentation can be accurate to an application that is "highly customizable." This should reduce calls to our product support center.

We have completed our first installations of the new product, and have delivered our documentation with the application. It is also encouraging that the sales staff has requested our IT department to make sure their laptops will activate the documentation. Dynamic documentation has become a key part of sales demonstrations.

Lessons Learned

1. Allowing the entire Technical Communication team to participate in the document analysis process was very effective, and led to a high level of acceptance for the new processes.
2. Having a consultant lead initial document analysis and DTD design was effective.
3. Learning to produce modular document components has been a challenge for our Technical Communicators. Consistent language style is key.
4. Having the certified application developer training for Epic makes it much easier to extend our document development functionality.
5. Selecting good tools makes the work go better.
6. Purchasing training was a wise decision.

In the News

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If you're looking to improve the way you manage content, it's best to start with analysis, then build a solid plan of attack. In this issue of *The Rockley Report*, we provide you with several resources you may find valuable during the planning and analysis phases.

Planning and Analysis Articles and Surveys

Planning For Legacy Content Conversion

Software tools exist to help convert legacy content to structured XML. Unfortunately, these conversion products work best on highly structured documents that are consistently formatted. Even the best-of-breed conversion tools cannot address the multiple ways authors use word processing tools in the real world. In an article for CMSWatch.com entitled, *Planning for problems when converting legacy content*, Michael Gross, Chief Information Technology Officer for Data Conversion Laboratories examines "5 ways to break your conversion engine". The problems discussed in this article are focused on issues caused by inappropriate and inconsistent use of Microsoft Word.

Common problems include:

- improperly formatted paragraphs
- absolute positioning of text boxes
- simulated tables (using spaces and tabs to align text)
- misaligned table column separators
- improper table/row separation
- fonts not mapped to ISO character set
- use of implicit links (cross-references)

Find it at http://www.cmswatch.com/Features/TopicWatch/FeaturedTopic/?feature_id=98.

Analyzing Content Management Needs: Users and Content Authors

In *Losing Site of the Content in a Content Management System*, James Robertson provides an excellent checklist of some of the many planning and analysis issues you'll face when tackling a content management project. Robertson focuses on providing high-level guidance on issues including:

- content creators and authoring environments
- business needs
- user analysis
- content structure
- developing new processes

Find it at http://www.steptwo.com.au/papers/kmc_content/index.html.

Planning for Scanning

If your content management needs require you to manage scanned documents, Arthur Gingrande has a few tips to assist you. In *Document Preparation*, an article for e-Doc magazine, Gingrande provides guidance designed to help you plan for both physical preparation and batch processing.

Find it at http://www.edocmagazine.com/article_new.asp?ID=27461.

Survey Results: Problems With Content Management Systems

The Asilomar Institute for Information Architecture (AIFIA) is a global non-profit trade association that focuses on issues of importance to information architects and other content management professionals. The AIFIA web site maintains an excellent resource for those considering the adoption of a content management system. It's called *Problems With CMS*, and is the result of a survey of content management and information architecture professionals. The survey data presented, while anecdotal and lacking in statistical value, nevertheless pinpoints some of the pains associated with content management tools and technologies. Use the data presented to increase your knowledge of potential issues you may encounter, and plan for them in advance.

Find it at http://www.aifia.org/pg/the_problems_with_cms.php>survey results.

Contributors

Scott Abel

Scott Abel is a freelance technical writing specialist and content management strategist whose strengths lie in helping organizations improve the way they author, maintain, publish and archive their information assets.

Charles Cantrell

Charles Cantrell is an Information Engineer for Ontario Systems. In that capacity, he manages their XML single source database, and maintains their suite of custom DTDs and formatting stylesheets. He also chairs the DTD Change Control Board. Employed there since 1990, he was previously their Manager of Technical Communications. Previously, he earned a degree in Computer Science and worked as a programmer. A Senior Member of STC, Mr. Cantrell has been interested in SGML and XML for communication since 1993.

Judy Glick-Smith

Judy Glick-Smith is a Requirements Analyst for T-System Technologies, Inc. and President/CEO of The GlickSmith Group, Inc., a consulting firm that focuses on assisting organizations develop models that describe their enterprise architecture. Judy has a BBA in Accounting and a minor in Information Systems from Georgia State University. She is an Associate Fellow and past president of the Society for Technical Communication. She is also an instructor in the Technical Writing Certificate Program at Richland College in Dallas, Texas.

Pamela Kostur

Pamela Kostur is a Principal for The Rockley Group, specializing in information analysis, information modeling, and structured writing to support a unified content strategy. Pamela has been working in the technical communication field for over 18 years and during that time has completed many projects and presented papers at numerous conferences on topics including iterative usability, miscommunication, structured writing, editorial “magic”, building and managing intranets, creating usable online documentation, unified strategies for web-based learning, information modeling and analysis. Pamela is a co-author of *Managing Enterprise Content: A Unified Content Strategy* with Ann Rockley and Steve Manning.

Steve Manning

Steve Manning is a Principal with The Rockley Group and has over 16 years experience in the documentation field. He is a skilled developer of online documentation (WinHelp, HTML Help, Web sites, XML, and Lotus Notes) and has created single source production methodologies using key online tools. Steve has extensive experience in project management and has managed a number of multiple media, single source projects. Steve teaches "Enterprise Content Management" at the University of Toronto, and is a frequent speaker at conferences (ASIS, AUGI, STC, ACM SIGDOC, DIA) on the subject of XML and Content Management. Steve is a co-author of *Managing Enterprise Content: A Unified Content Strategy* with Ann Rockley and Pamela Kostur.

Ann Rockley

Ann Rockley is President of The Rockley Group, established to assist organizations in adopting content management, unified content strategies, and information architecture for content management. Ann has been instrumental in establishing the field of online documentation, single sourcing (content reuse), enterprise content management, and information architecture of content management. She is a frequent contributor to trade and industry publications and a featured speaker at numerous conferences in North America and Europe. Ann is the author of *Managing Enterprise Content: A Unified Content Strategy* with TRG Senior Consultants Pamela Kostur and Steve Manning.

Call for Submissions

The Rockley Report publishes original material related to content management, including its goals, its implementation, the technology required to support it, and its affect on organizations. If you're interested in submitting to *The Rockley Report* , we'd like to hear from you. Please send us your ideas for articles in the following categories:

- Best Practices — Articles in this category describe content management in the "ideal" world and suggest how to put those ideals into practice in the "real" world.
- Information Architecture — Articles in this category explore the relationship between information architecture and content management, including topics such as building a blueprint for a content management strategy and content modeling.
- Tools and Technology — Articles in this category investigate the technology required to support content management.
- People, Processes, and Change — Articles in this category discuss management issues related to content management, such as changing roles and how to write in a content management environment.
- Gaining Management Support — Articles in this category provide strategies for helping management understand the benefits of content management, focusing on topics such as building a business case for content management and calculating ROI.
- Case Studies — Case studies explore how companies are implementing content management and focus on what they did and why, their benefits, and their lessons learned.

If you have an story you'd like to submit, please write a 250–word description of your topic, the category you think it best fits, then send it, along with a 100–word bio, to Pamela Kostur at kostur@rockley.com.

Next Issue

The next issue of *The Rockley Report* focuses specifically on Information Architecture and we're pleased to feature an interview with Lou Rosenfeld, information architecture "guru" and co–author of *Information Architecture for the World Wide Web*, now in its second edition. Other highlights include:

- Best practices on creating modular content
- Granular content: how granular is granular enough
- How to implement the granularity reflected in the models
- Understanding some of the issues related to Information Architecture
- A discussion with Patrick Waychoff from Hewlett-Packard, Network Storage Solutions, who shares his success story on developing a single sourcing architecture for 17 different content module types, writing the content for consistency, reuse, and repurposing, then moving everything to XML.

The next issue will be available to subscribers in late June.

Subscription Information

For US and international subscriptions

Subscriptions are $99 a year (four issues) or $30 for a single issue, payable in US funds. To subscribe, visit www.rockleyreport.com, and select Subscription Info from the menu at the left.

For Canadian subscriptions

Subscriptions are $125 a year (four issues) or $40 for a single issue, payable in Canadian funds. Please add 7% GST. To subscribe, visit www.rockleyreport.com, and select Subscription Info from the menu at the left.

Call Us!

We'd love to hear from you. What do you think of the first issue? What would you like to see in the future?

If you have any questions, comments or suggestions, please feel free to let us know. The easiest way to reach us is via email. Our Editor, Pamela Kostur, can be reached at kostur@rockley.com.

Visit our corporate website at www.rockley.com, or the website for our book, *Managing Enterprise Content: A Unified Content Strategy* at www.managingenterprisecontent.com.

We hope you enjoyed this issue, and hope to hear from you soon.