

THE 10 CRITICAL ELEMENTS
IN CHOOSING A CONTENT
MANAGEMENT PLATFORM

Abstract

Content management is a white-hot topic. It is expected that within the next few years, the leaders in every industry segment will have a formal content management strategy in place. The excitement surrounding the market is resulting in an avalanche of analyst research, press articles and vendor hype regarding content management. This paper was written with the intent to condense all that information into an easily digested summary of the most important aspects of the content management market and solutions, enabling you to make a more informed choice regarding a content management platform.

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Content Management is Imperative to Success

With the proliferation of websites as critical business assets, enterprises are facing both policy-level and technology imperatives as they optimize their ability to launch and maintain a presence on the Web.

Time to web is one such crucial imperative. Companies and IT departments cannot spend months establishing their website infrastructure, integrating it with the rest of their business systems and assets, and developing mechanisms for keeping content fresh.

Another imperative is the need to enable content contribution from across the enterprise, regardless of the contributor's platform, authoring tool or level of web technology skill.

Change is also a challenge. Web content shares with traditional development the need to accommodate and, in fact, facilitate change. Yet the pace of change, the many directions from which it comes, and the diversity of content make web change management difficult without an automated system.

Finally, the whole process must deliver ROI quickly, without long-term dependence on consultants and outside parties.

Content Volume, Complexity, Variety and More Contributors Flooding Webmasters and IT

As the Web has transformed enterprise computing, the amount of content on corporate websites has mushroomed.

Not only is the volume of content exploding, but the variety of content is multiplying as well—with file types such as GIF, sound and streaming video joining the predominant text and html files. An additional challenge is that the number of content contributors has exploded, spanning departments across the enterprise. Moreover, contributors tend to be non-technical and unaccustomed to standard software development practices. These factors result in a huge capacity demand for corporate webmasters, as the IT department tries to keep up with the flood of changes and new content.

Customers Expect It All: Interaction, Personalization, Timeliness

Organizing all this information and all these contributors to maintain all those pages is a daunting task. On top of that, the website is now at the heart of business interaction. Static pages and "brochureware" are no longer enough to satisfy the customer. A website must be a sophisticated and interactive application designed to reach targeted users with timely and accurate content.

A content management system can also address the need for delivering content to targeted users by providing a means to establish the content metadata that enables personalization and search capabilities.

IT Skills are Too Valuable for Repetitive Tasks

The key to managing all this change is to put control of content publishing back into the hands of lines of business. IT is the wrong set of workers to manage content, wasting valuable skills on basic tasks. At the same time, IT is ultimately responsible for the website. A content management system can help strike a balance between empowering business users and maintaining control. It allows non-technical contributors to put content into production without having to go through the webmaster bottleneck—freeing up scarce IT staff resources.

IT Skills are Best Focused on Infrastructure, Templates and the "Container" into Which People Publish

Where IT excels is in building up the infrastructure for technology to enable effective business processes. Any web content management system should provide the templates, tools and workflow management to create the foundation for deployment and change and asset management. This assures control for IT, freedom for contributors and cost effectiveness for the business bottom line.

While many commercial content management products focus on making it easier for end users to publish, the fact is that end users can't publish until a stable and flexible, integrated infrastructure for the enterprise web is in place. A good content management product can dramatically reduce the time it takes to set up the web infrastructure, deploy the templates, and import the existing sitework.

Creators Need to Control Their Own Content

The primary benefit is that the corporation and lines of business gain control of the content. When a corporate center or business unit wants to post web content, they value control of the content creation process and rapid deployment of that content. A content management system ensures that posted content has been through workflow and version control processes, so that only the latest version is seen by content approvers and only the approved version is posted to the website.

Also contributing to smooth change management, content management solutions facilitate communications among managers, developers and authors (even across departments)—who now have access to the same, up-to-date information about each change—even as the solution manages workflow and controls the change authority granted to each user.

In summary, content management is critical because it puts control of the content back in the hands of the people who have the domain expertise, raises staff productivity, improves website quality, and reduces the complexity of interactions among departments.

Content Management Promises Better ROI

While return on investment for a content management system will vary greatly depending upon the system chosen and type of website deployed, some general expectations can be established. In brief, content management of any kind is bound to deliver better

ROI on enterprise web initiatives than relying on repetitive, manual methods or homegrown systems.

Giga Information Group's May 2001 report, "Justifying IT Investments: Web Content Management" (May 2001), lists several ROI expectations including reducing web design and setup labor costs by half, reducing web publishing IT operation costs by half, reducing the business risk of publishing incorrect or out of date content, and increasing revenues and profits through increased sales as a result of a more timely, accurate corporate web presence. Of course, another key benefit is putting content authoring and deployment back into the hands of the area specialists, without tying up scarce IT resources.

Templates Reduce Rework

Content authoring and design costs are reduced because centrally stored, easily accessible content can be reused. Templating enables reuse of a single page layout and design for multiple pages across a site. IT operational costs are reduced because of the webmaster's decreased role in the publishing process.

Improved Workflow Can Reduce the Costs of Unnecessary Rework

While allowing the content owners to contribute content directly, the workflow and approval process prevents erroneous content from getting published.

By empowering end-users to create and manage content, and through automated publishing, the load on a webmaster can decrease significantly. Business risk of erroneous content is harder to quantify, but costs of poor web content management can include angry customers or partners and subsequent efforts to placate them ... even legal action.

Personalization, Dynamic Content Can Stimulate Sales

The personalized and dynamic content made possible with a content management system enables cross-selling and up-selling that can significantly impact sales.

Although numbers will vary in each unique situation, the outcomes above deliver the ROI in a content management system.

Homegrown is Not the Best Option

Many organizations developed content management systems in-house because they needed a system before products were available or mature. Many enterprises have now outgrown their homegrown solutions, finding them difficult to expand or integrate with other systems. Giga Information Group's report "Best Practices in Web Content Management" (February 2001), cites development of custom content management systems as one of the "worst" practices.

Commercial Solutions are Better in the Long Term

Today, in-house content management is no longer the only viable solution. Commercial,

off-the-shelf content management products have matured. They now offer a range of feature levels at varying price points, making the homegrown solution much less necessary and compelling. Compared with a custom system, well-thought-out commercial solutions scale better and provide a wider range of features, making the commercial solution more cost-effective in both the short and long term.

IT Burdened with Maintenance, Enhancements of In-House System

With the availability of quality commercial solutions, it no longer makes sense to dedicate typically limited IT department resources to developing or expanding an in-house content management system. The in-house system ties up valuable resources and incurs costs in maintenance and enhancement. It is unlikely that any competitive advantage gained through an in-house system would be sustained over time. Commercial content management vendors, however, can focus their resources on rapidly developing content management functionality.

Commercial Solutions Offer Easier Integration with Existing Systems

In addition to the effort and costs saved by avoiding maintenance and enhancement of in-house custom code, a good commercial solution will also likely integrate more easily with existing systems, an important consideration.

Content Contributors Need Easy Interfaces and Integration

Universal Access Via Browser

At the most basic level, a content management system must provide universal access to content and features through a browser interface. Content contributors across the enterprise range in profession, resources and skill. Therefore, anything other than browser access is a significant barrier to use of the system.

Support for Market-Leading Authoring Applications

A content management system must work with the most widely used, market-leading applications. Multimedia designers need to use familiar, market-leading applications such as Macromedia Dreamweaver or Adobe Photoshop. A content management system must also support the storage of rich content and provide access to it from the leading applications used to create and manipulate that content. Likewise, an end user should be able to use a familiar desktop application such as Microsoft Word to create or update pages. Business users must be able to work with their content in a format and application familiar to them, without a learning curve.

Templating Support

Templating, which is one way to channel content contribution, allows authorized members of an organization to contribute content to a website without concern for

formatting, using pre-established templates developed by a web page designer. By developing templates, the web page designer controls the look and layout even including fonts and sizes of the web page and designates areas that can be populated with content. One common web page template, for example, "locks down" the banner and navigation portions of a page, but allows the end user to contribute to a section designated for page-specific content.

In addition to the benefit of providing a consistent look and feel, templating offers the ability to reuse page templates to create multiple pages in a site. This frees the web page designer from involvement in the development of every page on the site.

An effective content management system provides the ability to not only develop templates, but to manage the templates themselves as content. Armed this way with page templates, a non-technical end user can use familiar desktop applications such as Microsoft Word to create or update pages. A content management system should shield the end user from complexity by combining the template and content document into an HTML file ready for publication or deployment.

Database Form Support

Database forms, supported by some content management systems, offer another paradigm for end user content contribution. These forms are often a good solution in situations where large numbers of small, uniform content pieces are required. Producing an online product catalog is a good example of a situation where this paradigm is effective: the content consists of uniform pieces such as product name, SKU, price, and description; and there can be many products in a catalog. Rather than updating the catalog page-by-page, a database form provides an efficient method for entering content into the database.

Content Preview

Finally, because content typically comprises a number of disparate elements—page layout, graphics, navigation— it is imperative that the contributor to have the ability to view their content as it will appear to visitors of the site. Content preview allows the contributor to continually review their work in progress, and QA the content without having to go through steps required to publish content.

Successful Collaboration Requires Control that Enables Freedom

Content originates throughout an enterprise—across teams, departments and geographies. Often, a single piece of content must migrate across those boundaries in order to become complete and approved. When multiple people work on the same piece of content, common questions arise: Who has the latest version? Does this version contain my feedback? Is it approved? Who needs to approve it?

An effective content management system helps facilitate this collaboration. It helps the content originators and contributors gain answers to their questions, and it streamlines the process. When a content management system automates workflow and controls version and asset protection, contributors are freer to concentrate on their content contribution to the website.

Versioning

Managing versions of content is integral to the effective management of a website. Contributors working on the same piece of content need assurance that their work will not be overwritten, and that they do not risk accidentally overwriting the work of others. Check in and check out ability is therefore an essential component of content management. Versioning should also allow contributors to know whether they are working with the latest version, and allow them to merge changes made in separate versions when needed.

Workflow

Also critical to collaboration are workflow and approval processes. A content management system should provide a method for streamlining the publishing process so that content moves quickly and efficiently from origination through the development and approval processes into production. Workflow can be single-threaded or involve simultaneous steps. A quality content management system accommodates any organization's self-defined workflow, from the most simple to the most complex.

A content management system should support the notification of content contributors via email, as workflow steps are completed. Contributors'work processes are simplified this way, as they avoid having to check a separate system for new assignments, content approval or any other step in the process.

The system should further simplify the contributors' work processes by allowing them to respond via email to workflow requests (such as "approve," "don't approve," "pass").

Workspaces

A content management system should offer workspaces where users and work groups can choose to collaborate in private or shared workspaces. With this capability, teams of content contributors can test and preview their contributions without affecting the production site or other team members' work.

Website Integrity Must be Maintained

As the department often ultimately responsible for the integrity of the website, IT is rightfully concerned about maintaining solid software development procedures, particularly under the high volume of rapid-fire changes. At the same time, IT staff do not want to be the bottleneck between the publication of website content and multiple people in multiple departments demanding top priority for their projects. Versioning and workflow provide part of the solution, ensuring the integrity of the content creation process. Other content management tools include user security, rollback and audit trails that ensure integrity of the website content.

User Security

User security helps control the content contribution process by ensuring that only authorized personnel have access to specific areas of the site ... or even specific elements of the content. A "groups and users" security model can make user security easy to administer. Some content management systems allow users to be assigned pre-defined access privileges in pre-defined groups or roles. Other systems allow more flexibility, allowing organizations themselves to define roles or groups and access privileges.

Rollback

Sometimes even the most highly controlled process produces an error, and a method is required for correction. The ability to roll back a content element, a page—even an entire site—can be critical. In the case of a graphical error in a logo, for example, only the graphical element needs to be rolled back; other changes should not have to roll back with it. In another case, it may be necessary to restore the entire site to a previous version. That too should be made possible by the content management system.

Audit Trails

Audit trails in a content management system provide a record of content activity and offer the ability to trace the path of changes. If a record of activity for research purposes is required, the audit trail allows users to see who has created or modified content, when it was done, and what was done. It offers accountability for content and can prevent future errors.

Administration Capabilities Should Suit Long-Term Needs

Directory Management

If not handled effectively by a content management system, directory management can pose an administrative nightmare. System users do not want to remember unique IDs and passwords to gain entry. System administrators do not want to manually create and manage a user list that spans the enterprise. For these reasons, a good content management system provides access to an existing directory via LDAP or other accepted standard.

Scalability

As the volume of content added to the repository and the number of people using the content management system increase, it must to scale to accommodate the growing needs of the enterprise. This may require multiple servers and databases, but this can cause problems with system users who shouldn't have to know in which server or database their content is stored. Storage must appear seamless to the user, and an effective content management system spreads projects across servers and databases invisibly. From a users' standpoint, one content management system contains all of their content.

Project Administration

In addition to system administration, a content management system must offer project administration capabilities. The system should allow project managers to authorize specific users for access to specific projects and content elements. This gives control to the project manager, and frees the IT representative in charge of systems administration from being a potential bottleneck and from responsibility for this minor but potentially time-consuming task.

Content Lifecycle Management

Sometimes, content must be promoted to a live site at a specific time, or removed from the live site by a specific time, or both. This timing can be critical, sometimes for legal reasons. Without a content management system, this content lifecycle is often handled manually.

The ability to automate this lifecycle ensures the accurate publication of timely content and eliminates tedious, sometimes forgotten tasks. Two features assist with lifecycle automation: the ability to conduct scheduled releases of content, and the ability to set an expiration date for a content element. Both automated processes ensure that content is published and expired on time, without manual intervention.

Reporting

Reporting goes hand-in-hand with a content management system, and can offer a wealth of valuable information about the system and the website.

Reporting can provide information such as content change status and deployment history. Reporting can answer questions about content in a system, and it can provide information that can be analyzed to research how the content is received by site visitors. This analysis allows content developers to monitor their campaigns, tailor and test messages for different audiences and determine what works best at any given time. An organization can continually improve the impact of it's website with the knowledge of what type of content is most effective for what audience, user activity tracking, and content usage and access information.

A content management system should offer the option to work with reporting systems, as this type of reporting is often provided by third-party vendors.

Metadata

The volume of content on an average website has grown well past the point of an organization's ability to keep track of it. Just keeping up with the addition of new content is well beyond the capacity of most web teams.

A content management system should allow content to be categorized as it is placed in the repository and subsequently located with ease. Most content management systems allow content contributors to create metadata for their content. The system should also allow a contributor to search and locate content via this metadata. And, site visitors should be able to find the content they request from a site via search engines. The metadata can also be used by the system for specific deployment scenarios such as language-specific deployment to support the globalization of a website.

Content Deployment is as Important as Content Management

Separate Environments

As with most effective software management processes, web content management should separate the development and deployment environments. A good content management system employs, at minimum, two physical servers—one for development, where content is created and structured—and one for deployment, from which the content is served to the website visitor. This separation isolates the load of site traffic from content management traffic. It also allows the deployment server to reside outside the corporate firewall while the development server resides within, providing additional security for content contribution without preventing access to the site.

Static Publication

Web page publication methods are either static or dynamic, depending upon the approach required by the needs of an organization. Although sites are increasingly using a dynamic approach to content publication, many sites require only static publication for the type of content they currently publish. For those who are concerned about accuracy and the approval process, static publication can ensure the proper approval process, and meanwhile it can be masked as dynamic publication by scheduling multiple deployment processes based on time intervals.

In static publication, HTML pages are generated by the content management system by merging contributor content with page templates. The resulting static pages are then presented to site visitors. This method is ideal for pages that do not change often: they are served faster and can easily be cached in memory, giving site visitors a faster page viewing experience.

Dynamic Publication

In dynamic publication, requested HTML pages are generated on demand by the content management system or web application, based on the page template and the content elements defined within. For example, a site visitor's query (such as a dealer locator) would result in the generation of a dynamic HTML page. Content that changes frequently or is personalized for each user requires dynamic production.

Some content management systems use the dynamic publication capability to enable real-time publication of content as soon as it passes final approval in the workflow. This can have tremendous impact on the speed at which an organization publishes information.

The drawback to dynamic publication can be slower website performance due to the increased time required to generate each page. In addition, because pages don't "exist" until they are published to the deployment server, they cannot be cached in memory, also resulting in slower website performance than static pages.

One company may need dynamic page publication for the type of content it delivers. For another company, static publication without dynamic or real-time publishing may suffice for the time being. Regardless, selecting a content management system that

can handle both types of publication is critical. As complexity and volume of websites increases, companies need a content management system that will grow with their needs.

Multi-Channel Delivery

An inherent advantage to a centralized content management system is the ability to reuse content for a variety of channels, such as: globalization/other language sites, access devices such as PDAs and telephones, or additional servers for load balancing and performance management. Globalization and performance management are currently areas of particular importance. A content management system should support: content distribution to multiple sites; multiple-language deployment from a single project; and deployment across server farms and synchronized mirrored servers.

Advanced Application Functionality Speeds Development

Most content management systems stop short of providing assistance with the development of the website or application itself. Or they focus primarily on creating the application environment to the detriment of their content management capabilities. Adding application functionality such as that described below to a rich content management environment is the ideal. The functionality enables a richer site visitor experience and having a content management system assist with it speeds the development process.

Syndication

Syndication is a method for creating and sharing content. In most cases, it's a one-way content relationship. Web content syndication companies offer pre-packaged content to companies who then serve it to their site visitors. Weather forecasts and stock prices are examples of commonly syndicated content. Although syndication is not a core content management functionality, an enterprise-class content management system should support syndication.

Personalization

Personalization has become the holy grail of web marketing. The ability to sort content and deliver it, customized, increase the likelihood that site visitors will return. Metadata that is created during the content authoring process makes personalization possible, and a content management system plays the important role of creating personalization-ready content. Some content management systems also offer components of business logic that can be used in their existing state or customized to add personalization capabilities to a site, providing for more rapid development of this functionality.

Application Integration

Incorporating a website into a business requires integration of the site into existing business practices and IT systems. E-commerce provides an obvious example, requiring integration with existing ordering and inventory systems. Even when e-commerce capability is not an anticipated need, companies may find themselves requiring inte-

gration with a CRM application that drives site personalization or enables customers and business partners to view and update their profile data. Integration with existing applications, therefore, is a critical consideration when evaluating a content management system. Companies should ask: Is the system based on open standards? Does it provide any components or other assistance with integration? These can become major issues as a site grows with the business.

Custom Business Logic

Even if the content management system provides advanced application functionality to run outside the firewall, there will almost always be a need to customize this functionality or create new functionality. The content management system should be able to support this with an open standards-based API.

A Partner is More Than a Good Product

MERANT is a partner for enterprise content management. Software for content management is a useful product, but its value to you over time is dependent upon the longevity, support and innovation of the vendor. At MERANT, we build our solutions around open standards and platform-independent capabilities. This approach enables us to serve customers' needs now, while remaining flexible for their needs in the future.

Open Standards are Key

As with any system, open standards are imperative to a content management system's success. Without open standards, an organization is potentially locked into a proprietary system or dependent on a particular vendor. Open standards are of particular consequence in content management systems, as there can be multiple, varied points of integration such as authoring tools, the website itself, and software configuration management. For long term success, it is important to partner with a content management vendor with a system based on open and industry accepted standards such as Java, XML, WebDAV, ODBC/JDBC and LDAP.

Integration with Software Configuration Management Sets the Stage for Success

Until recently, content management solutions have ignored code management to a varying extent. As websites become increasingly like any other digital business asset, there is increased awareness of the importance of managing code and content together. Integration between the systems can afford significant benefits in streamlining operations, and savings of time and costs. Using separate systems for each cannot provide a complete picture and results in duplication of effort. A web page including both content and code cannot be viewed or tested in its entirety unless there is integration between the code and content management systems. Any reports on project status will also be incomplete without that integration. In addition, using two separate systems results in a duplication of effort in the areas of versioning, testing, and issue management, among others. For these reasons, the conversion of content management and code management is a strong direction for the industry.

Initially, the integration will be in the area of deployment. This enables testing of both code and content together, and enables use of the content management system's deployment capabilities for deploying code as well as content. As this feature area matures, integration will likely be expanded to include the entire lifecycle, eliminating the duplication inherent in having separate systems.

The vendors that are in the best position to provide these capabilities are market leaders in the code management—or software configuration management—industry. Some of these leaders are now offering content management in addition to software configuration management. This ability will increasingly become a key factor in choosing a content management partner.

Implementation: Tool-based vs. Product-based

A Forrester report titled Content Management (March 2001) polled organizations regarding their content management purchases. Of the respondents, 53% who bought content management products noted that installing the products was harder than expected, and 40% said they spent more than \$500,000 to get started. With some content management products, the cost of implementation can dwarf product cost.

When selecting a content management solution, it is critical to understand the difference between a tool-based solution and a product-based. A tool-based solution provides the tools to create a virtually custom content management system. This affords the ultimate in flexibility, but comes at a great price in cost and ease of use. Often with tool-based solutions, many different packages are required to piece together a complete content management solution. A product-based solution may not be as flexible, but out-of-box functionality and resulting speed of implementation decreases the costs significantly.

Today, there exist content management systems that offer the best of both worlds, providing out-of-box functionality with fast implementation and customization capability should the need arise.

Support, Service and Stability

Careful assessment of a content management product and its offerings is important, but equally important is the assessment of the content management partner. In an immature and high-growth market such as content management, new vendors spring up overnight and vanish just as quickly. Consolidation among vendors in the market is inevitable. Selecting a partner with an established business and a record of financial stability can ensure the future of a content management implementation.

A successful partnership also depends on established support and service capabilities, making the difference between a product purchase and the selection of a true partner who is interested in a company's long-term success. A partner should match a company's support requirements, and should offer the resources to fulfill any service requests.

Conclusion

Content management is critical because it puts control of the content back in the hands of the people who have the domain expertise, reduces the demands on the webmaster, improves website quality and raises staff productivity. Without content management, an organization can buckle under the pressure of exploding volume and variety of content, number of contributors and the ever-increasing demands for more advanced site functionality.

Glossary of Terms

API: Application Programming Interface provides a method to embed the functionality of one application within another application.

Brochureware: A non-interactive site that presents brochure-type content via static web pages.

Business users: Also known as end-users, these are the people in the line of business departments that contribute content via the content management system.

Channel: Vehicle for content presentation such as another site, PDA, or telephone.

Content contributors: Anyone who contributes content to the website: designers, editors, business-users, or developers.

Content lifecycle: The stages of a piece of content, from creation to publication to expiration.

Content management: The process of creating, managing, and deploying content while maintaining the content separate from its presentation.

Deployment: The act of publishing to a site.

Dynamic pages: Pages that are pulled together "on the fly" when they are requested by a site visitor. The content for dynamic pages comes from a database and the content presented varies depending upon the request or query.

End users: Also known as business-users, these are the people in the line of business departments that contribute content via the content management system.

JDBC: A Java API that allows Java programs to interact with any SQL-compliant database. JDBC is similar to ODBC, but specifically designed for Java applications.

LDAP: Lightweight Directory Access Protocol is an open protocol that enables applications to obtain directory information such as email addresses and public keys for authentication, configuration settings, or other information related to users.

Metadata: Data about data. Metadata describes how and when and by whom a particular set of data was collected, and how the data is formatted.

ODBC: Open Database Connectivity is an open database access method that makes it possible to access any data from any application.

Personalization: Tailoring the presentation of content to a specific group or individual based on characteristics of that group or individual.

Real-time deployment: Publishing of a piece of content to the site as soon as it is available via dynamic web pages.

Repository: Storage center for a wide variety of web content including HTML, XML, graphics, and metadata among other formats.

Glossary of Terms

Software Configuration Management: The process of managing changes to software.

Static Pages: Pages that are created and then published as straight HTML.

Syndication: A syndicator provides prepackaged content to another company for publication on its website.

Templating: The creation of a design template for the purpose of applying it to a page or set of pages. Frees end-users from concerns over content presentation. The template is combined with the content at deployment time to provide the presentation of the content.

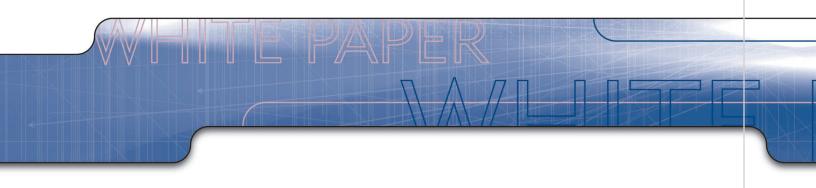
WebDAV: Web Distributed Authoring and Versioning is a set of extensions to the HTTP protocol that will enable people to read and write documents over the Web. WebDAV allows users to share and work with server-based documents regardless of their authoring tools, platforms or the types of web servers on which they are stored.

Workflow: Automation of the work process, assisting the interaction between content creators, editors, reviewers, and any others involved.

XML: Extensible Markup Language is a specification enabling the definition, transmission, validation, and interpretation of data between applications and between organizations.



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