

Report of the Web Content Management Task Force to the Web Services Advisory Committee at the University of Florida

June 21, 2012

Executive Summary

The UF Web Content Management (WCM) task force was formed in late Fall 2011 and charged to identify UF's web publication needs, review the available options, and recommend an enterprise solution. This report describes the steps taken by the task force to address that mandate, the results of our inquiries, and our recommendations.

Briefly stated, the task force's recommendations are as follows:

- Implement a Centrally Supported WCM System as soon as possible.
- Establish WCM Governance immediately because significant work must be completed prior to system installation. Selecting the right members will be crucial; they must be committed to WCM success and able to invest significant time in the effort. Ongoing active governance will be important.
- Given the importance of the Web to UF, our highly diverse business needs, and the large number of people who are passionate about web publication, we suggest that WCM Governance take steps to encourage open communication and broad participation, both during the startup process and in the long term. Possible mechanisms include user advisory boards and social networking.
- The task force has performed a thorough review of eight WCM systems. Several systems were included in the candidate pool based on Gartner research; equal consideration was given to WordPress, Drupal and Sharepoint as each is currently in fairly broad use at UF.
- The task force recommends the following systems, in order of preference:
 - #1 – Oracle WebCenter
 - #2 – TerminalFour SiteManager
 - #3 – Adobe Web Experience Management
- WCM should be considered as one component of a broader online ecosystem at UF so that we can exploit potential synergies between WCM, enterprise content management, portals, PeopleSoft, eLearning in Sakai, SharePoint and other platforms.

Introduction

Publishing content to the web is beyond the reach of many people because of the need for technical expertise; those without knowledge of HTML, CSS, JavaScript and other arcana are unable to use standard web servers.

In an earlier era, only those who had typesetting skills were able to publish printed materials. Just as word processors and the laser printer have enabled anyone to create sophisticated print documents, Web Content Management (WCM) systems allow nontechnical users to effectively publish their information via the Web. Web sites and pages can be designed via simple graphical interfaces. Content can be created and updated using tools that are remarkably similar to Microsoft Word and other familiar editing tools.

This simple ability to create traditional web pages and edit content is compelling enough to motivate the implementation of a WCM system; however, there are even more profound benefits that the University could derive. From a marketing perspective, we could experience a more consistent presentation of the UF brand online. This increased consistency would help our website visitors to more easily navigate UF's many sites. At the same time, a WCM system would allow units an appropriate level of individuality.

Previously, simple "brochureware" websites that only broadcast content to visitors were the norm. By contrast, today's web users expect a site that responds to their needs, utilizes the latest technologies, is visually appealing, etc.

The Gartner Group strongly advises against selecting yesterday's WCM solution, noting, "Many enterprises are operating with a traditional Web strategy. Avoiding key Web innovations like context, social and mobile can place an enterprise at a significant competitive disadvantage."

Fortunately, today's best WCM systems address both basic content management concerns and also provide the kind of advanced features that our users demand. Best of all, even nontechnical users can incorporate advanced capabilities into their sites via simple drag and drop methods.

Recognizing the need for improved web communications and the opportunities presented by modern WCM systems, the UFIT Web Services Advisory Committee created the WCM Task Force in late Fall 2011. The task force was charged to "seek broad institutional participation on identifying needs, review different options, and recommend an enterprise wide Content Management System with a primary focus on web content management to be used at UF."

The remainder of this report describes the steps taken by the task force to address that mandate, the results of our inquiries, and our recommendations.

Situation Analysis

The task force performed surveys of both UF personnel and peer institutions in our effort to characterize today's web publishing environment. As with all information technology, the Web and WCM systems are evolving rapidly, so the task force sought to understand not just the status quo, but also the trends that will shape WCM in the coming years; Gartner research documents and conversations with Gartner analysts were very helpful in that regard.

The following paragraphs describe the results of our UF survey and peer institution interviews, followed by a brief review of Gartner Group's research.

UF Survey

The task force conducted a survey of UF administrators and IT staff in January 2012. Requests to participate were widely distributed via multiple email lists.

More than 90 individuals completed the survey over the next few weeks. Respondents included Associate Deans, Directors, faculty members, technical staff, etc. They represented the central administration, Academic Health Center, IFAS, several colleges, research centers, UFIT, libraries, museums, and other units.

Respondents were asked to provide detailed information about their unit's current web publication practices, business processes that rely on their websites, the challenges they face, features they would require in a WCM system, and their plans for improving their unit's web presence over the next few years.

Fewer than 25% of respondents are currently using WCM systems. Roughly an equal number reported that they plan to migrate to WCM in the next few years, suggesting that this is an ideal time for the University to offer a centrally-supported service. There are 11 different WCM systems in use at UF, most of which are used by only one or two units. WordPress is by far the most widely used WCM system at UF; another open source system, Drupal, is the next most common.

Respondents report that their units are using the web to support academic endeavors, marketing, event management, alumni affairs, student affairs, business processes, and a host of other purposes. Please see Appendix A, Business Processes, for more details.

UF units face significant obstacles that limit their effective use of the Web to address those business requirements. The most commonly reported challenges are:

- Non-technical staff are currently unable to create and manage web content
- Insufficient IT staff to support web content under current model
- Keeping content up-to-date

- Site changes are too time-consuming (content updates and site redesigns)
- Maintaining content consistency
- No web design staff in unit
- Presenting information in a modern, engaging way

There was a real sense of optimism that WCM could help units effectively address many of the web-related obstacles that they face. A full listing of the challenges reported by survey respondents is in Appendix B, UF Survey Results.

Survey respondents expressed aggressive plans to improve their units' web presence in the next few years. By far, the most common goal is the implementation of WCM. Several respondents specifically mentioned their desire to use a centrally-supported campus WCM system. In addition to this general desire to implement WCM, the survey revealed several strategies that are shared by numerous units:

- Rich content (better quality, enhanced experience)
- Online marketing
- Site redesign
- Social media
- Support for mobile devices

Some of these goals can only realistically be accomplished if the units have access to a powerful, up-to-date WCM system. A full listing of plans reported by survey respondents is in Appendix B, UF Survey Results.

Respondents were asked to rate typical WCM features as being essential, fairly important, fairly useful, or unnecessary. Several features were almost universally acclaimed as being essential to UF's web publishing activities:

- Easy editing
- Search Engine Optimization
- Accessibility
- Usage stats
- Forms

Slightly lower in perceived importance were several forward-thinking features, including:

- Mobile
- Social Networks
- Scheduled publication & expiration of content
- Campaign effectiveness

Peer Practices

As part of our Web Content Management research, committee members contacted 13 peer institutions for information about the extent to which WCM systems were in use. Committee members asked each institutional representative a series of questions [see Appendix C, Peer Survey] to determine breadth and depth of WCM support. Depending on the contact, not all questions could be answered; so it is important not to read too much into peer institution activities based on this feedback.

Of the 13, only 3 institutions (Minnesota - Twin Cities, University of Texas - Austin, and Pennsylvania State University) provided a centrally supported WCM and Penn State is deprecating that service in favor of distributed WCM support. Thus, it is clear that centrally supported WCMs are not a high priority at many institutions. Likewise, there are definitely uncertainties about the advantages central vs. distributed WCM deployment. That being said, most of the schools contacted were smaller institutions and the extent to which central IT is a key provider of web and other technical services is also unclear.

Of the eight WCM processes investigated, only simple content delivery seemed widespread. Other processes that were in use by schools were:

- Integration with social media (2)
- WCMS forms (1)
- PDF forms through WCM (1)
- Event registration through WCM (1)
- Mobile device support (1)
- Search optimization (1)

Most schools (10) indicated that changes and upgrades were especially problematic. Schools using open source WCMs (especially Drupal) found programming and development to be a severe problem in distributed environments.

Despite limited use, the majority of institutions (10) reported happiness with certain features such as easy to produce web content, drag-and-drop design capabilities, consistency of navigation, and support for web page and other content themes and templates. Likewise, 7 of 13 schools reported that non-technical people were able to use their web content management system successfully.

Perhaps the most important findings from our inquiries were, 1) very few schools seem to provide a centrally supported web content management system; 2) that eight schools indicated use of automated workflow features; but one of those (Ohio State), indicated they had abandoned it as “too complicated;” and, 3) of the 13 institutions contacted less than half (6) indicated they were happy with their WCM. Whether this unhappiness is a function of the selected tool(s) or some other issue is unclear.

Gartner Research

The Gartner Group has published a number of excellent research documents that address WCM strategies, vendors and products. The Gartner strategy documents helped the committee to look beyond the immediate web publishing challenges expressed in the UF survey, focusing attention on the successful practices of organizations that are innovators on the Web. The key trends common to WCM leaders include the following:

- Multi-channel support (mobile, browser, print, etc.)
- Social (both public social media outlets and social networking capabilities internal to the site)
- Contextualization (presentation of content targeted toward the visitor)
- Integration with other technologies such as enterprise resource planning (ERP), customer relationship management (CRM), enterprise content management (ECM)
- Cloud-based service offerings

Another key piece of Gartner research is their Magic Quadrant for WCM, released in November 2011. In that report, Gartner analysts evaluate most of the major players in the WCM marketplace, considering the strength of their current product, the completeness of their vision for the future, their ability to execute, and reports from many Gartner customers who use those systems. The task force used this document to gain a better feel for the experiences of major enterprise WCM customers, Gartner's opinion of the strengths and weaknesses of key products, and as a guide in selecting the products we would evaluate. Most of the evaluated products are in Gartner's "leaders quadrant" due to their large customer base, complete vision, ability to execute, and product strength; however, the task force was not bound by that criteria and did evaluate several other systems as well.

Finally, two members of the task force attended the Gartner Portals Content and Collaboration Summit in March 2012. One of the key takeaways from this event was the recommendation that organizations consider WCM and portal solutions together as part of a larger ecosystem. Vendors have begun to create tightly integrated WCM/Portal solutions that provide a larger set of features when used together than when considered individually.

Options

Today's WCM market is extremely crowded; there are literally hundreds of systems from which to choose. The task force took advantage of the Gartner Group's expertise to rapidly reduce the pool of potential systems down to a reasonable size. This list was augmented with three additional candidates that have fairly wide use at UF: WordPress, Drupal and SharePoint.

The task force evaluated each of the WCM systems against a list of 150 criteria that were drawn from several sources, including our UF WCM survey, Gartner research, and previous WCM reports created by the College of Liberal Arts and Sciences and the Academic Health Center. These criteria addressed system features, intangible aspects such as ease of use, vendor experience in higher education, health of the enterprise, etc.

Evaluators assigned a score from zero to five for each criterion. When a WCM system could not meet a particular requirement, we assigned a score of zero; for other systems, the score indicated the how well the requirement was met (higher values indicate greater compliance). Features were weighted based on their importance.

Our evaluators relied on numerous sources of information, including:

- live product demonstrations
- product documentation - system specifications, websites, user manuals, etc.
- comments of current users of those systems
- Gartner Research notes

The following paragraphs summarize the committee's evaluation of the eight candidate WCM systems. Open source systems are addressed first, then commercial products. The order of presentation does not reflect any value judgments, which are presented in the Recommendations section of the report.

Open Source WCM

Three of our candidate WCM systems are open source projects – WordPress, Drupal and DotNetNuke. All are currently being used at UF.

For many people, the term "open source" carries connotations of "free." While these systems have no license fees, there are other elements to the total cost of owning an enterprise-level open source system such as our Sakai course management system or a WCM system. These are very complex systems that require significant investments in expert staff. Further, although UF has experience with enterprise open source systems such as Sakai, it would be wise to invest in external enterprise-grade support for planning, implementation, and ongoing operations.

Much of the enthusiasm for open source WCM systems revolves around their easy extensibility. Each of these three open source systems has an active development community that is continually releasing new plugins to provide extended capabilities to the base system. A decentralized, unit-level server can be rapidly augmented with new third-party plugins at minimal risk; however, this may not be the case for an enterprise deployment. The governance process necessary to ensure smooth operation of a shared enterprise system may preclude the level of flexibility and agility that current users have with their departmental systems. Several peer institutions that we contacted reported this as a significant problem.

A hybrid approach, blending central servers with a limited number of unit-level servers, could meet the needs of some units to adopt specialized modules without impacting the entire user base; however, the loss of standardization would increase system complexity. The system would become more expensive to manage, secure and support as a result.

The three open source WCM systems in our candidate pool are presented below in alphabetical order:

DotNetNuke (DNN) is built using Microsoft's .NET development platform. As such, it integrates well with SharePoint. The UF Office of Research is running a development DNN system. It has a large and vibrant user community. While the University of New Orleans is one example of a centralized DNN installation; other higher education installations are much smaller in scope, leading the task force to be concerned about its ability to scale up to the needs of an institution with our size and complexity. The task force also noted weaknesses in DNN's support for contextualized delivery of content to site visitors, content migration, page preview capabilities, content handling, etc.

Drupal is another very popular open source WCM solution. It also has an active development community and rich set of plugins. Drupal is currently in use at the Academic Health Center and IFAS; other units expressed plans to implement in the near future. The task force identified centralized implementations of Drupal at the University of Kentucky and Oregon State University. Strong commercial support is available from Acquia, a firm that appears on Forbes' list of America's 100 most promising companies. Three consultancies that specialize in Drupal made presentations to the task force, specifically addressing how they would implement Drupal to meet our requirements. The task force noted weaknesses in their ability to provide contextualized delivery of content to site visitors, a less user-friendly environment than commercial WCM systems, and potentially high costs for customizing it to meet several of our requirements.

WordPress was initially a blogging tool that has grown to include WCM capabilities. The system is quite easy to use and has a large development community and commensurately broad collection of plugins. Locally, it has been implemented at the UF Academic Health Center and is used for the interim UF web template. As with the other open source systems, the task force noted significant gaps between UF's needs and the capabilities of WordPress; in our objective evaluative scoring, WordPress earned the lowest score of all systems in the candidate pool.

Deficiencies included weaknesses in WordPress's support for contextualized delivery of content to site visitors, approval workflows, mobile support, integrated social networking capabilities, and content preview capabilities.

Commercial WCM Solutions

The five commercial systems in our candidate pool are presented below in alphabetical order:

Adobe Web Experience Management – has a strong focus on the site visitor's experience, marketing, mobile, social, multi-channel publication, etc. It is noted for being very user friendly for non-technical content editors.

Microsoft SharePoint – has a powerful set of features supporting intranet activities, such as collaboration and document sharing. SharePoint powers the connect.ufl.edu site at UF.

Oracle WebCenter – has a strong focus on customer experience, powerful contextualization capabilities, plus good mobile, social, analytics, etc. The system looks very user-friendly.

SiteCore – has an extremely intuitive interface for content editors. It also has a strong focus on mobile, customer experience, and marketing. It is built on the .NET platform.

TerminalFour SiteManager – is focused specifically on the higher education market. The system looks very user-friendly but also very powerful, providing contextualization, social, mobile, integration with back-end enterprise systems, and completely open APIs.

A rank-ordered listing of all eight candidate WCM systems, commercial and open source, is provided in the Recommendations section of the report.

Recommendations

The task force strongly recommends the implementation of a centrally supported WCM system for the University of Florida. We believe that the process should commence immediately, be pursued aggressively, and be completely transparent with broad opportunities for participation and comment. The following paragraphs provide additional details on our recommended plan of action.

Implement WCM Governance

WCM Governance should be established as soon as possible. It should have a clearly defined structure, reporting path and mandate. Members should be highly committed to the success of UF WCM; they should be both willing and able to devote significant time to the task. Peer universities with successful WCM implementations indicate that a partnership between information technology, marketing, and the business units was essential to their success; the task force recommends the inclusion of representatives from all of those areas.

The group should immediately begin defining policies and procedures for the UF WCM; those documents will be invaluable during product installation and configuration. Governance would also be available to address unforeseen issues that arise during the deployment process. Early involvement of a campus-wide Governance organization should also increase the sense of ownership across campus, facilitating adoption of the WCM system.

The task force suggests that WCM Governance establish methods for long-term user involvement. Possibilities include a user advisory board, social networking website, and others. The key is to maximize long-term collaboration among WCM users and provide a way for the governance committee to monitor the changing WCM landscape at UF.

Given the highly volatile nature of web technology, ongoing active governance will be important. Several key requirements for UF's 2012 WCM system search did not even exist just a few years ago. Governance will play an important role in moderating requests for system enhancements, installation of new modules, and policy changes

Openness and Broad Participation

Open communication and broad community participation should be hallmarks of UF WCM. This open process will help insure that the selected system continues to meet the changing web publication needs of our University. We also believe that widespread understanding of the issues and the rationale behind decisions made will foster positive sentiment about the WCM, increasing the likelihood that units will enthusiastically adopt the central WCM.

Governance will likely receive significant long-term benefits from ongoing openness and communication with the user community via advisory groups, social tools, and other means.

Acquisition Cost

The task force was instructed to only consider how well the candidate systems meet UF's business and technical requirements. System cost was not to be a factor.

Should UF IT discover that the total cost of owning our top-rated system is significantly higher than one of the other two recommended solutions, that is not a problem. The task force is confident that any of our three recommended WCM systems would serve UF very well, both now and in the future.

Recommended WCM Solutions

The task force recommends the following systems, in order of preference:

#1 – Oracle WebCenter, score=1688 points

Our evaluators were very impressed by Oracle WebCenter's ease of use and rich set of powerful features. Content migration from WordPress and other systems could be expedited via third-party software recommended by the Oracle team. The task force believes that WordPress migration is essential to the success of a centralized enterprise WCM and urges the inclusion of the recommended migration tool as an element of the total Oracle WCM solution. Oracle WebCenter is also very strong in the critical areas of marketing, mobile, social, and analytics. The task force recommends the consideration of Oracle's Social and Portal platforms, in addition to the standard WCM component (WebCenter Sites). Other Oracle software, such as the Oracle database and PeopleSoft, is used by UF Enterprise Systems; integrating these back-end systems with Oracle WebCenter is likely to be easier and cleaner than with other WCM systems. Finally, Oracle has a high-profile strategic relationship with UF that could be of great benefit to the WCM project.

#2 – TerminalFour SiteManager, score=1672 points

TerminalFour seems to offer the best options for migrating content from other WCM systems; they have extensive experience helping other university clients migrating their WordPress content into TerminalFour. The system is one of the most user-friendly that we reviewed; that ease of use extended into all areas of the software, from the WYSIWYG editor to forms creation and approval workflow design. TerminalFour had the most robust calendar system, strong bidirectional SharePoint connectivity, excellent reporting, and very useful administrative dashboards. Finally, the system has some unique, higher education specific features such as the course finder, build your own catalog, etc. TerminalFour offers 24x7 support as an option; the task force strongly urges the inclusion of 24x7 support with any WCM system due to the critical nature of web publication.

#3 – Adobe Web Experience Management, score=1619 points

Adobe has a very strong position in digital content creation, thanks to industry leading products like Adobe Creative Suite (Illustrator, InDesign, etc.). These creative products dovetail neatly into Adobe's WCM system, which would be valuable to units creating digital publications with high production values. Adobe's WCM system has a broad range of features covering social, mobile, marketing, etc. The task force was impressed by Adobe's strong mobile capabilities. The system looks to be quite user friendly, but some evaluators felt that Oracle and TerminalFour have slightly better ease of use. In addition to the main WCM module, the task force recommends the consideration of Adobe's Digital Asset Management and Social modules, and possibly the Marketing Campaign Manager. The Adobe team's plan for migrating WordPress content was the weakest of the three recommended systems.

The remaining systems scored significantly lower, ranging from 1526 to a low of 1078 points. Most of the non-recommended systems failed to satisfy one or more of our criteria that were deemed to be absolutely necessary.

The complete scoring matrix for 150 criteria and eight systems can be found in Appendix D, Evaluation Results.

WCM as Part of an Online Ecosystem

The task force cautions that WCM should not be considered in a vacuum. Rather, it should be considered as a strategic component in a total online ecosystem. There are potential synergies between web content management, enterprise content management, portal solutions, PeopleSoft, eLearning in Sakai, SharePoint, and other platforms.

Anticipated Benefits

Implementation of a high quality, centralized WCM system at UF will bring numerous benefits in the areas of website quality, cost efficiency, security, and staff development. The next few paragraphs will explore a few of these benefits in greater detail.

Improved Site Quality

UF units are facing significant challenges as they try to create high quality, engaging web presences. The administrators and IT staff in those units recognize the need, and a significant number of our survey respondents specifically indicated a real need for a WCM solution in their unit. Interestingly, quite a few of those units specifically requested a centrally supported WCM platform.

As an introduction to the site quality improvements that are possible, the problems that were most frequently reported in the UF WCM survey are addressed below:

Problem: Nontechnical staff are currently unable to create and update websites, web pages, or the content delivered via those websites.

Solution: Any of the recommended WCM systems would empower nontechnical users to perform these tasks. The “most highly recommended” systems brought the most power to nontechnical users, and did so in the most user-friendly manner.

Problem: Insufficient technical staff.

Solution: Currently, technical staff are called upon to do simple content edits, which consumes much of their time. Once nontechnical users are empowered to create and manage content, the existing technical staff will be able to devote their time and talents to more complex web design activities.

Problem: No web designers on staff.

Solution: The implementation of a centralized WCM system, together with flexible centrally maintained UF templates, will enable smaller units to create and maintain their own sites and content without having internal design staff. (Note: some larger units with more complex web design requirements are likely to retain their design staff). The most highly recommended WCM systems empower nontechnical users to easily create template-based websites that include powerful features like forms, social networking, mobile support, contextualization, etc.

Problem: Presenting information in a modern, engaging way is very difficult with standard, static websites.

Solution: WCM systems separate content from presentation, enabling more frequent design refreshes, keeping sites looking more modern. The best WCM systems also allow users to easily incorporate features that make their sites more interactive and engaging: forms, social networking, mobile support, etc.

Problem: Bottlenecks in the publication of web content.

Solution: WCM systems address this significant problem in two ways. First, nontechnical staff are able to manage their own content, removing the bottleneck of waiting for an IT person to update a page. Secondly, flexible, automated approval workflows help move content updates from concept to publication rapidly and efficiently.

Problem: Maintaining current, accurate, high-quality content.

Solution: WCM eliminates obstacles to content publication, enabling nontechnical users to easily maintain their own pages and content. WCM also provides the means for users to easily incorporate rich content. Removal of these obstacles will encourage staff to be more proactive in managing their web content. Finally, WCM systems track content creation and expiration dates, automatically prompting content owners to refresh content before it becomes obsolete.

Benefits of a Centrally Supported System

While decentralized, unit-level WCM solutions are an option, the task force recommends a centrally supported WCM. A single, central system should be less expensive, more reliable, more secure, and also have staffing benefits.

Less expensive. Costs should be lower for a centrally supported WCM system due to economies of scale in hardware, software and training.

More reliable. A centrally supported WCM should be more reliable due to better hardware configurations and greater staff specialization. Most units are unable to afford highly redundant, clustered systems for their web hosting. By contrast, the centrally supported WCM would be an enterprise system in every way, with enterprise-grade hardware, redundancy, and machine room support. Of equal importance, the central IT staff operating the WCM would be specialists, able to identify and resolve problems more rapidly than unit-level IT generalists.

More secure. Dedicated WCM specialists in central IT would have the time, training and external support resources they need to provide a secure WCM hosting environment. These attributes are much harder to provide in a decentralized deployment.

Large community. Most units on campus would likely use a centrally supported WCM. The resulting large user community would be a powerful resource. Colleagues in different units would be able to provide informal help with the system, as they do today with systems ranging from PeopleSoft to Microsoft Word. As staff members move from one unit on campus to another, their skills with the centrally supported WCM system would be fully portable. Further, with the implementation of a WCM certification program, employers would be able to effectively evaluate the WCM skill levels of applicants for a position; staff would recognize this as a differentiator and seek to enhance their WCM skills.

Task Force Members

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Appendix A – Business Processes

UF units are using the Web to enable a plethora of complex business processes. A centrally supported WCM solution must be capable of addressing these business requirements.

Alumni Affairs

Communication and event management activities that involve direct interaction with Alumni. The WCM system should use implicit and explicit contextualization to characterize the interests of alumni visitors and present targeted content that is likely to be of greatest interest to them. This activity would not be perceived by alumni as “spamming” or excessive contact. The idea is to increase alumni engagement by automatically providing them with current, relevant content that best matches their interests whenever they visit UF’s web sites.

Examples include:

- Publication of online magazines, news, and other content targeted at alumni; distribution methods should include mobile, web browser, RSS, etc.
- Promote alumni events. For example, promoting trips for sporting events, homecoming week activities, cultural events, etc. All should be contextually presented to maximize impact and reduce clutter. As an example, activities from an alumna’s college would take precedence.
- Encourage alumni giving; for example Law School “LitiGator” page
- Recognize alumni for their outstanding leadership, contributions to their field, etc.
- Capture alumni interest in becoming more involved with UF and their College.
- Match alumni with students for mentoring.
- Resource for connecting alumni with each other via alumni portal, social media, alumni directories, etc.
- Tie web experience to alumni profiles, data in UF systems to provide them with the best possible experience when visiting UF’s websites.

Business Process Automation

Automation of business processes not served by PeopleSoft. In most cases, these are unit-specific processes that do not merit the investment required for an enterprise solution; however, the local benefit may well justify a unit-level automated system. Processes would

most likely be triggered by form input and continue in some step-wise fashion; people involved in the process would receive email notifications at various steps. It is not expected that the WCM system would be a comprehensive process automation toolkit; however, it should provide some of the elements (perhaps via widgets) plus APIs that would allow unit-level programmers to support these business needs. There will be a need for WCM Governance to create a business process automation strategy that clarifies what type of processes are automated by the enterprise system, by SharePoint, or by other systems such as the WCM system or custom programming.

Examples include:

- Ticket sales
- Provide materials for UF faculty research award management
- Control self-assessment application for UF departments
- Online ordering system with payment processing, such as the IFAS Extension Bookstore (<http://ifasbooks.ifas.ufl.edu/default.aspx?>)
- Print ordering, such as the current IFAS EDIS Print Ordering system (<http://edis.ifas.ufl.edu/print/order.jsp>) or a proposed system at the Warrington College's copy center that would allow faculty to request copy jobs online.
- CLAS – collect testing fees from students at Broward testing center
- WCBA Leadership Center – student application process
- CTSI research teams submit requests for resources and/or services online; they are also able to purchase consumables online.
- Membership information – collection, management, publication
- Rentals at Florida Museum of Natural History
- Proctor nomination for distance students
- Training registration
- Applications for scholarships & awards
- Collection and management of user contact information
- Online submission and processing of applications for scholarships, awards, etc.

- Forms that support data gathering for either research or business-related purposes.
- Faculty activity management tools. Faculty members enter their activities, workflow supports administrative review processes, and the various reports are generated such as annual evaluations, promotion and tenure packets, accreditation processes, etc.

Instructional Support

The University has invested considerable resources in instructional support through the course management system (Sakai). While Sakai meets the majority of instructional needs, there are some needs that may be better supported through a web content management system, including creation and management of certain kinds of course content. Other business processes that are closely aligned with, but not identical to, course management functions include:

Examples include:

- Publish catalogs and other curriculum information
 - Including web-based curriculum management
- Publish course syllabi
- Registration for workshops, etc.
- Document management (e.g. Homework/exam notifications and returns)
- Academic programs for high school students and teachers
- Host multimedia instructional content
- Create custom interactive tools for courses
- Collaboration

Customer Relationship Management

Advanced application management business processes that focus primarily on continual communication with the customer of an organization through its web site. Although there is no expectation that the WCM system will provide comprehensive CRM capabilities, it should be able to handle simple CRM activities for those units who do not have a full CRM solution. The WCM should also be able to cleanly integrate with CRM solutions.

Examples include:

- Collaborate/interact with site visitors via forms, forums, comments, etc. The audience may be students, staff, or other types of customers.
- Academic information
- Student affairs information
- Career development information
- Inquiries
- Admissions
- Patient care information
- Graduate student recruitment
- Communications to site users
- New Admissions site
- The Counseling and Wellness center's site has a database of community mental health providers that backends to SQL with an ASP form for data entry; this is great for when they have to refer students for care outside of their clinic.

Directories

A customized collection of individuals associated with the unit. This can be based off already existing data in the UF directory system, entirely external data, or a combination thereof.

Examples include:

- Directory of lab members
- Specialized groups such as external advisory committees
- Listing of a unit's faculty and/or staff, together with options for filtering and ordering to meet a user's immediate needs

Event Management

A set of business processes that minimally includes the publication of information about events. The management of events can include more complex activities such as registration, resource reservation, and payment for an event. Some events will be visible to the general public and others will have access controls.

Examples include:

- Event promotion / information
- Calendar of events; at a minimum, this would be a localized calendar of events for a unit or College; ideally, a single event data store should be able to populate multiple calendars across the organization.
- Event schedules provide detailed information about large events: session times, locations, speakers, etc.
- Event registration
- Ticket sales
- Reserve time on scientific instruments
- Schedule videoconferences and teleconferences. The audience may be localized to UF or include external guests. As one example, IFAS Communications Services uses their website to schedule statewide video and teleconferences for distance education and other purposes.

Marketing

Activities related to advertising, promotion, and marketing. The system should use implicit and explicit information about a site visitor to optimally deliver content that is most likely to be of interest to that visitor. We believe that a WCM system will make it easier for units to engage in marketing activities in a systematic, ongoing manner.

Examples include:

- Promotion of UF academics and research in general branding terms
- Promotion of UF research and technology
- Promotion of UF incubator and real estate assets such as Innovation Hub and Square

- Event promotion, ranging from unit-level activities to university-wide events.
- Public relations
- Marketing a unit, its programs, the accomplishments of its students, etc.
- Marketing to prospective students
- Promotion of distance education programs is essential to their growth and success. An effective internal capability via the WCM system will maximize the fiscal benefit of these entrepreneurial activities.
- Marketing of products such as books, apparel and associated items.
- Advertising campaigns
- Ease of management of UF identity standards as they are applied to marketing
- Social media marketing
- Site analytics will help gauge the effectiveness of online marketing activities, both at the University and unit levels. This capability will guide units in achieving maximum results from their marketing expenditures and provide important data for ongoing marketing improvement programs.

Media Services

Publication of content that is media rich. Business processes could involve publication of photos, video, and audio via a unit's web site. Media distribution may be open or have access restrictions.

Examples include:

- Audio content distribution
- Video content distribution, including user-generated content by students, faculty, staff. Delivery via HTML5 is required to address modern mobile devices, browsers, etc. most effectively. Support for legacy formats and players is also important.
- Podcasting
- Photo galleries. Some use cases, such as the Warrington College's International Programs Office, require the ability for students to upload photos, moderator approval, and then publication.

- Some sites, such as the University Relations Stock Photography Library, sell media content to site visitors.

News Management

Business processes that involve publication of press releases, special announcements, home page content, and subscription management of news related information from a given web site.

Examples include:

- Home Pages that contain a rich collection of current, engaging, well-written news stories that are intelligently delivered by the WCM based on contextual data about each visitor.
- Announcements, both public and access-controlled, delivered via multiple channels
- News updates
- Multichannel distribution of news items via email, RSS, etc.
- News subscription management

Publications

Making documents electronically available to consumers. Some publications may be publicly available, while others will require some level of access control. The WCM system will make electronic publication more accessible to units, increasing the impact of UF's Think Before You Ink campaign.

Examples include:

- Faculty home pages
- Online magazines.
- Electronic publication of documents. Where possible, make use of existing Enterprise Content Management solutions as document repositories. Contextually-based presentation of documents is desirable in some instances. Social features such as comments, "likes", etc. should be available. Site visitors should be able to perform searches on document metadata and/or full contents. Subject matter for these documents will cover entire gamut of university activities, including:
 - Financial aid information for students

- Internal documentation
- Information about services and resources
- Distance education materials
- Internal collaboration that is required to produce a publication. Commonly seen as notes related to the development of a publication (much like track changes in Word)
- Publication of information intended only for select audiences, such as advisory boards, subscribers, etc.
- Posting vendor solicitations, addenda, sole sources, awards, etc.
- Contact Information
- Basic information about unit - who / what / where
- Publish fiscal information to unit staff
- Public information
- Publish research
- Information gateway
- Student organization information
- Static websites; typically public-facing, informational

Research

Support for University's research mission. May include web-based tools for performing research related tasks as well as tools that facilitate research.

Examples include:

- Surveying research participants
- Integration with web-based applications
- Grant resource database
- Research groups

- Publish grant-specific content
- Match people to research studies
- Identify potential research collaborators

Appendix B – UF Survey Results

Survey Respondents

The task force is grateful to the following individuals for generously sharing their time and expertise with us by completing the UF WCM Survey and responding to subsequent requests for information and clarification.

Aaron Sotala, IFAS CALS Distance Education
Adrian Gritz, Web Services
Al Kirby, University Relations
Amy Douglas, UF Performing Arts
Andrew Keller, College of Dentistry
Anne Allen, Academic Technology, UFIT
Antonio DiFranco, AT - CITT - Web Services
Art Watson, Community Health and Family Medicine
Avi Baumstein, Information Security
Ayola Singh-Kreitz, Information Technology - UF Computing Help Desk
Barb Sedesse, IT
Benjamin Goldsbury, BEBR
Carlos Morales, External Web Services, UF Academic Health Center
Cathy Honeycutt, CNS - CICS
Chris Ambrose, Law School
Christopher Miller, Distance & Continuing Education
Cinnamon Bair, UFF Communications
Claire Baralt, Clinical and Translational Science Institute
Connie Nicklin, ICBR
Craig Lee, College of Journalism and Communications
Daniel McCoy, College of Education
Daniel Westermann-Clark, UF Web Services
Debra Amirin, Levin College of Law
Debra Neill-Mareci, Sid Martin Biotech Incubator
Diana Hagan, IFAS IT and Communications
Dr. Anthony DeSantis, Dean of Students Office
Eric Lowe, UF&Shands Jacksonville
Erik Deumens, Quantum Theory Project
Erika Tompkins, Web Services
Gayle Dykeman, Florida Innovation Hub at UF
Greg Norton, College of Eng. - Research Service Centers/PERC
Gregory Orloff, UF Graduate School Data Management
James Ayres, Law School Communications Office
James Young, External Web Services, UF Academic Health Center Information Services
Jeanna Mastrodicasa, Student Affairs

Jeff Capehart, Audit & Compliance Review
Jennifer Hugus, IFAS Communications Services
Jennifer Sykes, IFAS Center for Landscape Conservation and Ecology
Jesse Schmidt, IT-AT-CITT
Jessica Gates, Department of Recreational Sports
Jill Pease, PPHP
Jodi Chase, Facilities, planning & construction
Joseph Kays, Office of Research
Judy Shoaf, Language Learning Center
Julie Frey, College of Design, Construction and Planning
Keith Stanfill, IPPD
Kevin Hanson, Emerging Pathogens Institute
Kim Martin, Tallahassee Semester
Kim Pace, Office of the Provost
Kris Kirmse, Office of the Associate Provost for IT
Kyle Holland, College of Pharmacy
Lane Blanchard, UF Pharmacy
Laura Bernheim, Center for Public Issues Education
Lauren McIntyre,
Liesl O'Dell, foundation - communications dept.
Ligia Ortega, UF College of Veterinary Medicine
Lisa Deal, Purchasing Services
Lynne Vaughan, Business Services
Martin Smith, UF CNS OSG
Matthew Collins, ACIS Lab in ECE
Meghan Meyer, Office of Technology Licensing
Mercy Olmstead, Horticultural Sciences
Michael Anthony, Center for Precollegiate Education and Training
Michael Kutyna, Microfabritech
Michael Legrande, psychology
Michael Magarelli, LATAM
Priscilla Chapman, CLAS
Randy Switt, ESSIE
Ray G. Thomas, Geological Sciences
Raymond Lukowe, UFIC
Rebecca Holt, Vice President and General Counsel
Regina, Document Management
Renee Buchana, Admissions
Rhonda Rogers-Bardsley, Hinkley Center
Richard Kelley, Rinker School
Robert Walker, IFAS - Southwest Florida Research and Education Center
Ronald Scott, Counseling and Wellness Center
Rossana Passaniti, PURC/Economics
Salvatore J Calise, Chan Lab, Dept. of Oral Biology, College of Dentistry

Sara Tanner, Student Affairs
Sarah Fazenbaker, Florida Museum of Natural History
Sarah Zachrich Jeng, College of Dentistry
Scott Purcell, Florida-Friendly Landscaping (previously IFAS Research)
Shelby Taylor, Bob Graham Center for Public Service
Sophia K. Acord, Center for the Humanities and the Public Sphere, CLAS
Steve Lasley, IFAS Entomology
Thomas Gordon, EDGE
TJ Summerford, AP-IT
Tom Reno, College of Fine Arts
Wendy Williams, CALS
Winnie Lante, IFAS-SFRC-FAS-GEM

Top Challenges

Survey respondents were asked to identify their top challenges in using the Web to address their unit's needs. The task force applied a consistent taxonomy to their responses, arriving at the following list of challenges that are most commonly faced by UF units.

- Non-technical staff need to manage web content
- Insufficient IT staff to support web content
- Keeping content up to date
- Site changes too time-consuming without WCM system
- Keeping content consistent
- Need content approval process
- Need training for web IT staff
- Need training on writing for the web
- Insufficient resources / Limited Budget
- No web design staff
- Presenting information in a modern, engaging way
- Providing up-to-the moment content / event information
- Broken links
- Ensuring conformance to industry best practices
- Implementation of interactive features
- Multiple systems not seamlessly integrated
- Training for users (non-tech content creators)

Plans for Web Publication (3-5 years)

Survey respondents were asked to share their unit's plans for its websites over the next few years. Our goal was to identify emerging trends in web publication. The task force applied a consistent taxonomy to their responses, arriving at the following list of plans, ordered from most frequently occurring to least.

- Simplified web publication
- Migrate to central UF WCM
- Migrate to WCM
- More rich content
- Online marketing of our unit
- Site redesign
- Social Media
- Content focus: more, better, up-to-date
- Enhanced support for mobile
- Adopt new UF&Shands website template
- Major site redesign
- Migrate to WordPress
- Modernize site
- ADA compliant site
- Approval process for content publication
- Automate additional business processes
- Beg people to update their content
- Better integration with UF web presence
- Complete migration to Concrete5
- Develop automated system to notify authors when their content is stale
- Greater focus on target audiences
- HTML5 compliant site
- Implement check in/check out system for content
- Implement emerging technology that fits our needs and is cost effective
- Migrate to a standardized platform
- Migrate to Drupal
- Migrate to new WCM
- More rapid content publication
- Upgrade to Expression Engine 2
- Use cloud-based services for hosting public content as appropriate
- Web staff to mentor/guide/assist unit staf in effective content creation

Appendix C – Peer Survey

Questions posed to each peer institution

- What is your unit/department?
- Does your unit use a WCM system, if so, which one?
- Name of tech contact for further details
- Approximate number of pages on your site
- Which processes does the WCM system support? Just content delivery or:
 - Integration with Social Media
 - Forms Support
 - Event Registering
 - Search function
 - Mobile Device Support
 - Accessibility/ADA Compliance
 - Search Engine Optimization
 - Are you happy with it?
- Do you use Automated Workflow features of your WCM? Please describe your workflow for getting ideas from people's brains onto the site: levels of approval, date holds
- What do you find most helpful/beneficial about the WCM system?
- For your unit/department, what was/is the greatest challenge of the WCM system?
- What % web content is created and maintained by non-technical people?
- What % web content is created and maintained by non-technical people?
- Do you contract with a 3rd party for design and developments?
 - What is the company?
 - What was the cost of the most recent redesign?
 - What was the scope of the most recent redesign?
 - How satisfied are/were you with the results?
 - Other Comments

Appendix D – Evaluation Results

Category	Requirement	Expanded Description	Importance	WordPress	SharePoint	Oracle	TerminalFour	Adobe	SiteCore	DotNetNuke	Drupal
Analytics	Intuitive web analytics and reporting	Analytics capabilities must serve as both a strategic business tool for marketing and an effective technology foundation for developers.	2	6.0	8.0	10.0	10.0	8.0	10.0	8.5	10.0
Analytics	Campaign effectiveness	Provides reports to evaluate campaign effectiveness	2	6.0	8.0	9.5	8.7	8.5	9.3	8.0	10.0
Analytics	A-B Reporting	A-B reporting to compare the effectiveness of two campaigns or pages	2	4.0	7.3	10.0	10.0	9.0	10.0	8.0	6.0
Content	Automated content publication/removal	Automated publication and removal of content – content owner can specify the date and time when the content will become available on the site, as well as when it will be removed, archived or deleted.	2	6.0	8.0	10.0	10.0	9.0	9.5	9.0	10.0
Content	Approval workflows	The system should provide an easy-to-use, flexible approval workflow process.	3	9.0	12.0	15.0	15.0	15.0	14.3	10.5	15.0
Content	Approval-Multistep	Multiple step process for author submission, review by one or more individuals, and final release	3	3.0	13.0	15.0	15.0	15.0	14.3	12.8	13.0
Content	Approval-Forking	Forking approval processes desired to reduce bottlenecks	2	2.0	8.0	9.5	10.0	10.0	10.0	7.5	2.7
Content	Approval-Return rejected	Rejected content returned to previous step in process with explanation for rejection, comments	3	3.0	13.0	15.0	15.0	15.0	15.0	13.5	8.0
Content	Approval-Embargo/Expiry	Approvers should be able to embargo content until a specified date or set expiry dates.	2	6.0	8.7	9.5	8.7	8.5	9.5	4.0	5.3
Content	Approval-Intuitive workflow GUI	Nontechnical users should be able to easily create and modify workflows via an intuitive GUI	3	-	11.0	14.3	13.0	13.5	13.5	9.8	9.0
Content	Approval-Override	System should provide an override capability so that authorized individuals can “fast track” content that needs to be published instantly, bypassing part or all of the normal workflow	2	8.0	8.7	9.5	10.0	9.0	10.0	4.5	4.0
Content	Approval-Workflow history	System retains workflow history, including comments; history data can be easily viewed by relevant users and administrators	3	9.0	13.0	15.0	15.0	12.8	14.3	13.5	6.0
Content	Approval-Status dashboard/report	Users are able to easily generate reports identifying where content is currently located in the approval process	3	3.0	13.0	15.0	15.0	15.0	14.3	13.5	8.0
Content	Approval-Notifications	Users can elect to be notified by email and/or text message when they have content approval tasks to perform	3	6.0	14.0	15.0	15.0	15.0	14.3	13.5	13.0
Content	Approval-Multilanguage support	Workflows can contain logic to support multiple language versions of content: automatic routing to translators, approvers, etc.	2	6.0	8.7	10.0	8.7	9.0	10.0	8.7	8.0
Content	Content Deployment	System should allow for the dependency mapping and packaging of new and changed content, to include task description for recall, rollback, expiry, deletion, and archiving	2	2.0	8.7	10.0	10.0	9.5	5.0	3.5	0.7
Content	Content Recall	System should allow for the recall of a single or collection of content records	3	12.0	13.0	15.0	15.0	14.3	13.5	8.3	12.0
Content	Content Rollback	System should allow for the rollback of a deployed content package.	3	6.0	13.0	15.0	15.0	14.3	14.3	8.3	12.0

Category	Requirement	Expanded Description	Importance	WordPress	SharePoint	Oracle	TerminalFour	Adobe	SiteCore	DotNetNuke	Drupal
Content	Logging	System must log content-related events such as create, update, delete, approval, etc. It must provide appropriate reports on these activities	3	6.0	12.0	15.0	15.0	12.8	15.0	5.3	10.0
Content	Centralized content library	System has centralized content library	2	8.0	8.7	10.0	10.0	10.0	10.0	-	10.0
Content	Library-Checkin/Checkout/Versioning	Support for check-in, check-out and versioning (content can be rolled back to an earlier version)	3	9.0	13.0	15.0	15.0	12.8	14.3	-	10.0
Content	Library-Organize/Filter/Sort	Content can be organized, filtered and sorted by categories so it can be found more easily.	2	8.0	8.7	10.0	10.0	10.0	10.0	-	10.0
Content	Library-Extensible taxonomy	Extensible taxonomy system – allows units to modify content categorization to best meet their needs	2	8.0	8.7	9.5	9.3	10.0	9.5	9.0	10.0
Content	Library-Diverse filetypes/rich media	Support for broad range of file types, supporting units' requirements for use of rich media on their sites	3	12.0	14.0	15.0	15.0	15.0	14.3	13.5	15.0
Content	Video Support	Video content distribution, including user-generated content by students, faculty, staff. Support provided for the most common formats and players.	2	8.0	8.0	10.0	8.7	9.0	10.0	9.0	10.0
Content	HTML5 Video Support	Delivery via HTML5 is necessary to address modern mobile devices and browsers most effectively.	2	10.0	8.0	9.3	8.7	10.0	7.0	9.0	10.0
Content	Streaming video	System supports streaming video.	2	8.0	8.0	9.5	8.7	9.5	7.0	9.0	10.0
Content	Audio Support	Audio content distribution, including user-generated content by students, faculty, staff. Support provided for the most common formats and players.	2	8.0	8.7	9.5	8.7	9.5	9.0	9.0	8.7
Content	User-generated content	System should support content generated by site visitors.	2	8.0	8.7	9.5	8.7	9.0	10.0	9.0	10.0
Content	User-generated content Review/Approval	The workflow engine should be able to support review and approval of content generated by site visitors.	2	8.0	8.7	9.0	10.0	10.0	8.0	9.0	10.0
Content	Single instance / multiple use	Single instance of content can be displayed in different formats or layouts on different pages and different device types.	3	12.0	13.0	15.0	15.0	15.0	14.0	8.3	15.0
Content	Content aggregation	Content aggregation – Support for aggregation of content from multiple sources (using RSS, REST, etc)	2	6.0	8.7	9.5	10.0	10.0	8.7	9.0	10.0
Content	Multiple language support	Multiple language support	2	8.0	8.0	9.5	9.3	10.0	9.3	9.5	10.0
Content	Accessibility-Standards	System must generate content that is accessible based on W3C and/or Section 508 standards.	3	12.0	13.0	13.5	15.0	13.5	15.0	14.3	15.0
Content	Accessibility-Alerts	System must alert content editors when their content does not adhere to accessibility standards.	2	2.0	9.0	10.0	10.0	9.3	8.0	-	3.3
Content	Accessibility-Reports	System must also be able to generate accessibility reports for an entire site, a page or individual pieces of content. These reports should be available to any system user on-demand, subject to their access restrictions.	2	-	9.0	10.0	10.0	9.3	8.0	-	0.7

Category	Requirement	Expanded Description	Importance	WordPress	SharePoint	Oracle	TerminalFour	Adobe	SiteCore	DotNetNuke	Drupal
Content	Stale content notifications	System automatically notifies content owners when their content has not been updated for a certain period of time and has become "stale." Could be a fixed period for a site or a default with independent override for individual content items.	2	2.0	8.7	9.5	10.0	9.3	9.5	-	6.0
Marketing	Contextualization - Implicit	Implicit = system observes user's movement through the site, adjusts content delivery in real time to maximize user engagement by always offering the most relevant content and features	2	-	7.0	10.0	8.0	9.5	8.7	-	-
Marketing	Contextualization - Explicit	Explicit = system uses user-provided data (such as profile information) to customize content delivery for that user to maximize user engagement by always offering the most relevant content and features	2	6.0	7.3	10.0	9.3	9.5	9.0	9.0	6.0
Marketing	Multivariate testing	System allows for testing multiple components of a website simultaneously to identify the most effective of a set of variations.	1	2.0	3.5	4.8	5.0	4.5	4.0	4.5	3.0
Marketing	Sophisticated e-magazines, newsletters	Creation and publication of sophisticated e-magazines, newsletters, etc.	3	3.0	12.0	14.0	15.0	14.3		11.3	14.0
Marketing	Email campaigns	Creation and publication of email campaigns	2	-	6.0	9.3	10.0	9.3	9.3	8.5	7.3
Mobile	Device recognition	Recognizes most commonly-used mobile devices	3	9.0	12.0	14.3	13.0	14.3	14.0	14.3	15.0
Mobile	Mobile web apps		3	6.0	12.0	14.3	15.0	14.3	15.0	14.3	15.0
Mobile	Native apps		1	2.0	3.5	4.7	5.0	4.5	2.0	-	1.0
Mobile	Device emulators	Provides device emulators for most commonly-used mobile devices	2	-	6.0	9.5	10.0	9.5	4.0	8.0	1.3
Mobile	Responsive Web Design support	Sites created using the WCM should automatically adapt to a broad range of user devices and browsers in such a way that user experience is optimized. Users of smart phones, tablets, etc. should be able to navigate and consume content with a minimum of resizing and panning.	2	8.0	8.0	9.5	9.3	9.0	6.7	9.0	10.0
Multi Channel	Automatic multiple channel support	Automatic support for distribution of content objects across multiple channels such as RSS feeds, SmartPhones, Media Tablets, Browser, email, print (not an exhaustive list)	3	12.0	13.0	15.0	15.0	15.0	15.0	13.5	15.0
Multi Channel	Contextualization spans channels	User preferences and other contextualization data should span channels	1	3.0	3.7	4.8	4.7	4.8		3.5	5.0
Multi Channel	Online Channel Optimization	System should be able to integrate with CRM, analytics, etc. to facilitate the creation of an Online Channel Optimization strategy over time	2	4.0	8.0	9.5	9.3	9.0	10.0	8.5	8.7
SEO	Search Engine Optimization	SEO tactics should be automatically and consistently applied without the need for user intervention or expertise	3	12.0	13.0	15.0	15.0	15.0	14.0	14.0	15.0
Sites and Pages	Multiple sites	System must support multiple sites	3	15.0	14.0	15.0	15.0	15.0	15.0	14.3	15.0
Sites and Pages	Simple site creation	Simple site creation process (e.g. drag-and-drop) that allows non-programmers to create complex sites	3	12.0	14.0	15.0	15.0	15.0	12.0	12.8	-
Sites and Pages	Simple layout select/change	Nontech users can easily select and change layouts, rearrange page layout, move content objects, change the number of columns, etc.	3	9.0	13.0	14.3	14.0	13.5	11.0	11.0	7.0

Category	Requirement	Expanded Description	Importance	WordPress	SharePoint	Oracle	TerminalFour	Adobe	SiteCore	DotNetNuke	Drupal
Sites and Pages	Simple feature selection	Nontech users can easily include sophisticated features such as forms, social media tools, podcasts, etc. on their pages.	3	9.0	13.0	14.3	15.0	14.3	12.0	12.0	7.0
Sites and Pages	Simple forms	Forms can be created without programming	2	6.0	8.7	9.5	10.0	9.5	9.3	9.3	10.0
Sites and Pages	Editors can add and remove pages at will		3	15.0	14.0	15.0	15.0	15.0	15.0	15.0	15.0
Sites and Pages	Editors can apply different (pre-approved) templates & page layouts at will		3	15.0	14.0	15.0	15.0	15.0	14.3	14.0	12.0
Sites and Pages	Compare site to earlier and rollback	System allows users to easily compare current site to an earlier version and roll back if desired	2	4.0	7.3	10.0	10.0	9.5	10.0	3.0	10.0
Sites and Pages	View site past/present/future	System should allow user to view site as it would appear at a specified date and time – past, present or future.	2	-	7.0	9.5	9.3	9.0	9.0	-	2.0
Sites and Pages	Development sites	System supports development sites for extensive editing, redesigns	3	9.0	13.0	13.5	14.0	13.5	13.5	14.3	12.0
Sites and Pages	Dev sites - Creation	Development sites can be easily created – either new sites or copies of existing live sites.	3	12.0	13.0	14.3	14.0	13.5	13.0	14.3	10.0
Sites and Pages	Dev sites - Deployment	When development is complete, the live URL is easily repointed to the new site, either manually or scheduled or the system allows simple migration from development to production.	2	8.0	9.0	10.0	10.0	9.0	9.3	9.5	10.0
Sites and Pages	Navigation automatically maintained	System dynamically updates navigation links as pages are added or removed.	3	9.0	12.0	15.0	15.0	14.3	15.0	14.3	15.0
Sites and Pages	Generated site map	System capable of automatically generating site maps.	2	8.0	7.3	10.0	10.0	9.5	10.0	9.5	10.0
Social	Easily incorporate social	System should allow nontechnical users to incorporate sophisticated social media capabilities in their sites	3	9.0	12.0	15.0	15.0	14.3	14.0	14.3	15.0
Social	Supports external social networks	Support for external social networking – Twitter, Facebook, Digg, etc.	3	12.0	12.0	15.0	15.0	13.5	15.0	14.3	15.0
Social	Facebook Connect integration		2	8.0	7.3	9.5	9.3	9.3	10.0	9.5	10.0
Social	Integrate Twitter feeds directly into a site		2	8.0	7.3	9.5	9.3	9.5	10.0	9.5	10.0
Social	Vendor commitment to social	Vendor must have a demonstrated commitment to supporting social networking	2	-	8.0	10.0	10.0	9.5	10.0	10.0	10.0
Social	Internal social functionality	System provides internal social media functionality	3	3.0	12.0	15.0	15.0	13.5	15.0	13.5	10.0

Category	Requirement	Expanded Description	Importance	WordPress	SharePoint	Oracle	TerminalFour	Adobe	SiteCore	DotNetNuke	Drupal
Social	Blogging		2	10.0	7.3	9.5	10.0	9.5	10.0	9.0	10.0
Social	Discussion boards		2	8.0	8.7	7.3	10.0	9.5	8.7	9.5	10.0
Social	Photo and Video sharing	System supports uploading of photo and video content by users. Some units may require an approval process before uploaded photos/videos are displayed on the site. Gallery mechanism for displaying the content. Interactive features such as comment, like, etc. are desirable.	2	6.0	8.7	10.0	9.0	9.0	9.0	9.5	8.0
Social	Podcasting		1	3.0	4.0	3.7	5.0	4.5	5.0	4.7	3.0
Social	RSS feeds		2	10.0	9.3	10.0	10.0	9.5	10.0	9.5	10.0
Social	Wikis		2	-	8.0	10.0	8.7	8.7	10.0	9.5	5.3
Social	Wikis - Internal knowledge sharing	Flexible, granular access control mechanism supports internal knowledge sharing (UFIT, distributed IT, project groups, combinations, etc).	2	-	8.0	10.0	8.7	8.7	10.0	9.5	5.3
Social	Wikis - Outreach	Wikis can be used for outreach to constituents outside of UF (open to the world: visitors, applicants, etc.)	2	-	8.0	10.0	8.7	8.7	10.0	9.5	5.3
Social	Wikis - single sign-on		2	-	8.0	10.0	10.0	8.7	10.0	9.3	5.3
Social	Wikis - ease of use	Wiki must be easy to use: edit, ingest content, etc.	2	-	7.3	10.0	9.3	8.7	10.0	9.5	5.3
System Characteristics	Maturity	System must be mature, stable, and widely deployed.	2	8.0	8.7	10.0	10.0	10.0	8.7	9.0	10.0
System Characteristics	Hi-Ed Deployments	There must be higher-education deployments comparable in scope to UF's.	2	6.0	8.7	10.0	10.0	10.0	6.0	7.5	10.0
System Characteristics	License entire university	License must cover entire university: central IT, colleges, units, centers, individual faculty members, student organizations, etc.	3	15.0	15.0	15.0	15.0	13.5	15.0	10.5	15.0
System Characteristics	Scalability	There must be multiple large, complex enterprise customers who are successfully using the system to run multiple sites with large amounts of data and pages; those systems must be handling heavy user traffic with acceptable performance. References to staff at representative installations will be required.	3	15.0	15.0	15.0	15.0	15.0	15.0	12.8	15.0
System Characteristics	Scalability - multi tiered architecture	The system should allow for a multi-tiered, horizontally scaled architecture while retaining a near linear if not downward curve of average response time to an increasing number of requests.	2	10.0	10.0	10.0	10.0	10.0	10.0	9.0	8.0
System Characteristics	Scalability - no additional license costs	No further licensing costs as the system is scaled up in size	2	10.0	10.0	10.0	10.0	8.5	8.0	8.0	10.0
System Characteristics	Availability	Availability – the system should be highly available with no single points of failure.	2	8.0	10.0	10.0	9.3	10.0	9.0	9.0	10.0
System Characteristics	Stability	Stable Process Behavior – there should no need to regularly flush or recycle services. Avoid systems with poor memory management, memory leaks, and expensive CPU transactions.	2	8.0	10.0	10.0	9.3	10.0	8.0	9.0	8.0
System Characteristics	UF Infrastructure Standards	Installable on-premise using infrastructure that is supportable by UF systems staff. Must be able to run in a Windows or Red Hat Enterprise Linux environment. The use of Oracle 11g database is desirable.	2	8.0	10.0	10.0	10.0	10.0	10.0	7.5	10.0

Category	Requirement	Expanded Description	Importance	WordPress	SharePoint	Oracle	TerminalFour	Adobe	SiteCore	DotNetNuke	Drupal
System Characteristics	Cloud Bursting Option	While most sites will reside on-premise, an option for bursting key web sites to the cloud is desirable	1	3.0	4.0	4.3	4.7	5.0	5.0	4.0	1.0
System Characteristics	Integrate with Enterprise Systems	Integration with UF Enterprise Systems – such as PeopleSoft. In areas where UF has yet to identify standardized enterprise systems (such as CRM), prebuilt integration with leading enterprise software packages is desired.	2	4.0	9.3	10.0	10.0	9.5	9.0	5.0	2.7
System Characteristics	Integrate with Databases	WCM must be able to connect to databases without complex programming.	2	10.0	9.3	10.0	10.0	10.0	9.3	10.0	2.0
System Characteristics	Integrate with Web Services	WCM must be able to connect to web services without complex programming.	2	8.0	8.7	10.0	10.0	9.5	8.7	6.5	2.0
System Characteristics	Data interchange standards	RFC/Standards Based Interfaces – the system must leverage standards based and compliant interfaces for data interchange with external sources and consumers.	3	9.0	12.0	15.0	15.0	15.0	13.5	6.0	10.0
System Characteristics	Standard web technologies	Based on common, standards-based web technologies.	3	15.0	13.0	15.0	15.0	15.0	14.0	15.0	15.0
System Characteristics	HTML, CSS standards compliant	System should generate valid standards-based code the latest versions of HTML and CSS.	3	15.0	14.0	15.0	15.0	15.0	15.0	15.0	15.0
System Characteristics	HTML5 Support	HTML5 support.	2	10.0	10.0	10.0	9.3	10.0	10.0	10.0	8.0
System Characteristics	Support common development tools	Support for common programming languages and database environments, such as JavaScript, .Net, Java, PHP, MySQL, Oracle.	2	8.0	8.7	9.0	10.0	10.0	10.0	8.5	10.0
System Characteristics	Actively developed product	Actively developed – there should be an established development cycle with frequent improvements, new features, and security updates. Beta versions are made available for testing.	2	10.0	9.3	9.5	10.0	10.0	8.0	9.5	10.0
System Characteristics	Broad browser support for WCM users	WCM users should be able to access the system via the current versions of major browsers on Windows, Mac OS X and Linux. Demonstrated vendor commitment to broad browser support desired.	3	15.0	14.0	15.0	15.0	15.0	15.0	15.0	15.0
System Characteristics	Broad browser support for site visitors	Sites created with the system should be browser and OS agnostic, functioning in a predictable, reliable manner on the current versions of major browsers on Windows, Mac OS X and Linux. Demonstrated vendor commitment to broad browser support desired.	3	15.0	14.0	15.0	15.0	15.0	15.0	15.0	15.0
System Characteristics	Backup/Restore	Automated backup of live sites, with straight forward reinstatement of those sites when needed; not an end-user function.	2	6.0	8.0	9.3	10.0	9.0	8.0	6.5	10.0
System Characteristics	System supports Vanity URLs, Aliases and URL Rewrites		3	15.0	14.0	15.0	15.0	13.5	12.0	15.0	15.0
System Characteristics	APIs for creating extensions	APIs should be provided that allow UF programmers to create custom modules/gadgets/apps that extend the WCM system's functionality.	2	10.0	8.7	10.0	10.0	9.0	9.0	9.5	10.0
System Characteristics	App Exchange	A process that facilitates the exchange and/or sale of extensions by third parties (such as an application exchange) is desirable as a way to speed development and reduce total cost of ownership.	1	4.0	4.3	5.0	5.0	4.5	4.0	4.8	5.0

Category	Requirement	Expanded Description	Importance	WordPress	SharePoint	Oracle	TerminalFour	Adobe	SiteCore	DotNetNuke	Drupal
System Characteristics	APIs for custom integrations	Must provide APIs to allow custom integrations.	2	8.0	8.0	10.0	10.0	9.0	10.0	9.5	10.0
System Characteristics	Common development languages	Developers must be able to build on the system using common development languages such as .NET and Java	2	8.0	8.7	9.5	9.3	10.0	10.0	8.5	10.0
System Characteristics	Common development protocols	Developers must be able to build on the system using common protocols such as RESTful and JSON.	3	12.0	13.0	15.0	14.0	14.3	15.0	14.3	15.0
System Characteristics	WordPress Migration	System provides tools for importing content from WordPress sites.	2	10.0	5.3	8.0	10.0	3.5	2.0	-	2.7
System Characteristics	Other WCM Migration	System provides tools for importing content from WCM systems other than WordPress. UF units have reported using Concrete5, Drupal, Expression Engine, Joomla, MojoPortal, SharePoint and custom WCM systems.	2	8.0	4.7	8.0	9.3	3.5	2.0	-	2.7
System Characteristics	SharePoint Integration (SP to WCM)	Content stored in SharePoint can be published via the WCM	2	2.0	10.0	10.0	10.0	9.5	10.0	9.5	2.7
System Characteristics	SharePoint Integration - Bidirectional	Content updates flow both from SharePoint to the WCM and <i>also</i> from the WCM back to SharePoint. Full bidirectional integration.	2	2.0	10.0	6.0	9.3	4.0	10.0	3.5	2.7
Templates	Template Access Control	System provides ability to restrict users, departments, groups to specific templates.	3	12.0	14.0	15.0	15.0	13.5	12.0	15.0	4.0
Templates	Templates Easy	Templates are easy to create/customize. Advanced programming knowledge is not required to create or modify templates. The process should not require extensive programming experience and should be clear to anyone with a good knowledge of HTML/CSS.	3	12.0	12.0	13.5	15.0	15.0	9.0	15.0	12.0
Templates	Flexible Layout	Flexible layout options – templates should provide sufficient flexibility so that sites and pages can be made to look slightly different where needed to meet unit objectives. For example, a page editor could place content in different columns and in different areas of pages.	3	12.0	14.0	15.0	15.0	13.5	12.0	15.0	15.0
Training & Support	Design and installation support	Vendor-provided consulting services for system design, installation and configuration. References at comparable installations will be required.	3	-	13.0	15.0	14.0	13.5	15.0	14.3	15.0
Training & Support	Ongoing vendor tech support	24x7x365 technical support for key UF staff	3	-	15.0	15.0	10.5	14.3	15.0	3.0	15.0
Training & Support	Support process	Problem resolution – vendor must have a documented approach to handling problems and escalating them when necessary.	3	6.0	13.0	15.0	13.5	14.3		10.5	15.0
Training & Support	Training materials library	Extensive library of high-quality support and training materials that address the needs and technical sophistication of various user populations. Examples would include introductory user-oriented video tutorials or in-depth developer manuals.	2	6.0	8.7	10.0	8.7	9.0	10.0	9.0	6.0

Category	Requirement	Expanded Description	Importance	WordPress	SharePoint	Oracle	TerminalFour	Adobe	SiteCore	DotNetNuke	Drupal
Training & Support	User community	There should be a large, active user community that includes users from comparable higher education institutions as well as users from high-profile sites in other industries.	2	6.0	8.7	10.0	8.7	9.5	10.0	9.0	10.0
User Interface	Intuitive UI	Users should be able to perform basic tasks with little or no training	3	15.0	12.0	15.0	14.0	13.5	13.5	14.3	12.0
User Interface	WYSIWYG editor	System should include a WYSIWYG editor that allows users to easily create and format pages and content without knowing HTML or CSS	3	15.0	14.0	15.0	14.0	14.3	15.0	15.0	15.0
User Interface	Editor-Familiar UI	Editor operations should be very similar to Microsoft Word to flatten the learning curve.	2	8.0	9.3	9.5	8.7	9.0	8.7	10.0	10.0
User Interface	Editor-Track changes	Editor should have a track changes feature, allowing users to rapidly identify and review previous changes	1	3.0	4.7	5.0	4.7	4.3	5.0	2.0	-
User Interface	Editor-Easily access HTML	The editor should also provide easy access to HTML for fine tuning	3	12.0	13.0	15.0	15.0	12.0	11.0	15.0	15.0
User Interface	Editor-Content import	Editor should allow easy import of content from other sources; examples include paste from MS Word, import files, etc.	2	10.0	9.3	10.0	10.0	9.0	9.0	10.0	10.0
User Interface	Editor only exposes available functions	Ideally, the editor will not expose functions to which a user does not have rights, reducing confusion and excess complexity.	1	4.0	4.3	5.0	5.0	4.5	5.0	5.0	4.0
User Interface	Flexible / Powerful UI	Flexible and powerful enough to meet the needs of advanced users, web designers, and developers. Ease of use should not come at the expense of flexibility and capability.	2	6.0	8.7	9.5	9.3	8.5	7.0	10.0	10.0
User Interface	Switch to code view	Ability to switch to from WYSIWYG editor to code view	1	5.0	4.3	5.0	4.7	4.8	4.0	5.0	5.0
User Interface	Style sheets	Ability to apply styles from a style sheet	3	12.0	13.0	14.3	14.0	12.8	13.5	15.0	15.0
User Interface	Preview on page	Option to preview content as it would appear on the site.	3	12.0	14.0	15.0	15.0	15.0	14.0	14.3	6.0
User Interface	Easy content upload	Easily upload images, audio, video, and documents.	3	12.0	13.0	14.3	14.0	13.5	12.0	14.3	15.0
User Interface	Easy access to accessibility options	Ability to add accessibility options, like alt text.	3	15.0	14.0	15.0	15.0	13.5	13.0	15.0	15.0
User Interface	Spell check (English)	Content editor has spell checking capabilities built-in.	3	15.0	13.0	15.0	14.0	14.3	13.0	15.0	15.0
User Interface	Spell check (multiple languages)	Content editor has spell checking capabilities built-in.	1	4.0	4.5	4.3	5.0	5.0	5.0	5.0	1.0
User Interface	Edit content directly on the page	Content can be edited directly on a web page.	1	2.0	4.3	4.8	5.0	5.0	4.3	4.8	1.0
User Management	Authentication	System must integrate with existing UF authentication systems; GatorLink; Shibboleth; Single Sign-On	3	12.0	15.0	14.3	15.0	14.3	12.0	8.3	10.0
User Management	Authorization	System should support UF IT and local entitlement management services.	2	-	10.0	10.0	10.0	9.5	8.0	5.5	3.3
User Management	Access control - users/groups	Access to sites, pages and elements on pages can be restricted to specific users or and/or user groups	3	9.0	14.0	14.3	14.0	13.5	13.5	15.0	15.0
User Management	Support for user roles	System supports a set of roles that provides granular control over the features that are enabled for the holders of each role.	3	6.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
User Management	Automatic role updates	Automated application/removal of roles based on external data, such as completion of training or certification, expiration of certification, etc.	2	-	9.0	9.3	10.0	9.0	10.0	9.5	4.0

Category	Requirement	Expanded Description	Importance	WordPress	SharePoint	Oracle	TerminalFour	Adobe	SiteCore	DotNetNuke	Drupal
User Management	Custom access roles	System should support custom Access Roles to meet UF's specific needs and as-yet-unspecified policies	3	6.0	13.0	14.3	13.0	14.3	13.5	14.3	15.0
User Management	Distributed user management	Distributed user management – at minimum, units should be able to grant and remove access to content directly, without intervention by the core support team	3	6.0	13.0	13.5	13.0	15.0	15.0	13.5	9.0
User Management	Web-based user management	User management via web-based user interface	3	12.0	14.0	14.3	13.0	15.0	15.0	15.0	15.0
User Management	Manage users using groups and departments		3	9.0	13.0	14.3	13.0	14.3	12.0	12.0	15.0
User Management	Logging and reporting	At a minimum, the system must log creation, deletion or modification of user accounts, roles, and permissions. System is able to provide reports on these activities.	3	-	13.5	15.0	15.0	15.0		14.3	9.0
Other	Events Calendar	System provides support for events calendar. At a minimum, this would be a localized calendar of events for a unit or College; ideally, a single event data store should be able to populate multiple calendars across the organization. Events can be filtered by multiple criteria (unit, location, type, etc.).	2	4.0	9.0	10.0	10.0	10.0	8.0	9.0	8.0
Total:				1,078	1,494	1,688	1,672	1,619	1,526	1,394	1,372
Rank:				#8	#5	#1	#2	#3	#4	#6	#7

The task force evaluated each of the WCM systems against a list of nearly 150 criteria that were drawn from several sources, including our UF WCM survey, Gartner research, and previous WCM reports created by the College of Liberal Arts and Sciences and the Academic Health Center.

Evaluators assigned a score from 0-5 for each criterion. 0 = feature not present in the WCM system. 1 = feature is present, but implementation is weak... 5 = feature is present and implemented well

Each criterion was assigned an “Importance” factor, as follows: 3 = Mandatory, 2 = Very Desirable, 1 = Desirable. These values were based on the task force’s assessment of how critical that characteristic is to the success of WCM at UF.

A weighted score for each criteria was computed by multiplying the raw score (0-5) times the importance factor (1-3). The weighted scores for all evaluators were then averaged to compute a final score for each criterion. Each WCM system’s final score was simply the sum of the weighted average scores for all 150 criteria.