Optimal Stewardship of the new University of Waterloo Website

A Case for A Web Strategy and a Governance Structure

Executive Overview:
The benefits of the new CMS and University of Waterloo website architecture are best realized when a web strategy is in place to ensure the sustainability of key leverage points. Purposeful management of the web's ongoing development will ensure continued integrity, usability and coherence in the uWaterloo website. Ideally, optimal stewardship of the new web would include:

1. The effective reuse of content
2. The management of metadata for optimized searching
3. The management of Web application Development
4. The management of security (server and CMS content)
5. The monitoring of Web content and presentation
   a. Compliance with Look and Feel guidelines
   b. Compliance with Accessibility Standards
   c. Voice, tone and authoring style
6. Compliance with the CMS

The earlier a web strategy with a well defined governance structure is put in place, the more coherent the resulting web site. It is anticipated the strategy will evolve as the site unfolds, but the migration path to preferred solutions will be consistent and definable if a governance strategy provides the over-arching framework for sustainability.

The need for a web strategy and a plan for governance will continually surface as each of the above opportunities for optimal stewardship is briefly discussed in the remainder of this document.

The Effective Reuse of Content

There are two key ways in which content can be reused within a website.

1. By imbedding a link to the secondary content in the text of the original web page.
2. By dynamically building the webpage, pulling in content already authored in the CMS. Who actually stewards the content is separated from who can use the content.

Both reuse techniques have their own set of advantages and disadvantages.

The first is good when a full page of content is to be reused. When this is done, careful consideration needs to be given to window management and ability of the user to navigate back to the launching page. This technique is used widely today in our website and will continue to have a role in the new environment.

The second reuse technique is less common today, if used at all. The new CMS templates for page creation will enable the web page designer to "assemble" the content from "content blocks" in the CMS. The packaging of these "content blocks" is critical to the successful reuse of content. An example will best illustrate this:

> Housing is currently developing their content and designing their web pages using the new CMS. If they choose to use the full page template (essentially one large block of content) throughout their site, elements on each page cannot be reused in another site, nor can they be used in mobile applications. Consider for example the details of the 1st year housing

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guarantee. This content is authored by Housing, but the Recruitment site for Perspective Students would like to "pull in" the same content in the context of the recruitment web-pages. In order to do this, the housing guarantee content must be stored in the CMS as a separate block of content. If that block also contained information about application deadlines, the recruitment site may not be able to reuse the guarantee content.

This example serves to illustrate some important concepts in CMS content authoring:

1. Each content block in the CMS should contain one focus only if reuse is to be optimized
2. Page design becomes the art of assembling blocks of reusable content
3. This sharing of content requires collaboration among page designers and content authors to ensure reusability (or to at least understand why it may not be possible).
4. The same content may need to be presented in different ways (a maximum guideline to be established) in order to be effectively presented on different sites. In order to ensure accuracy and timeliness of that content, all versions should be under the stewardship of the content expert so changes are made in lock-step.
5. The CMS needs to have a robust content naming convention to facilitate the dynamic assembly of content blocks as new pages are designed.
6. The CMS needs tools to quickly identify all users of a given set of content blocks.
7. The collaboration required for reuse and consistent creation and maintenance of content in the CMS needs to be centrally governed.

Management of Metadata

Very closely related to the authoring of web content, is the identification of metadata to be attached to content blocks. Information architecture attempts to organize content in its most logical framework, and is often targeted to meet the navigational needs of specific audiences.

In its simplest form, metadata attempts to build alternate paths to the same content through keywords associated with each block of content. For extensive users of search, metadata is essential. But just as the development of an information architecture is a laborious task, so is the identification and stewardship of metadata and similar care must be taken to preserve its integrity.

1. To ensure optimal searching capabilities across all sites on the web, one set of metadata should be maintained for all web content and used by all sites
2. The metadata should be assigned at the time that a content block is authored
3. There needs to be a mechanism to verify that metadata assignment is done correctly and consistently across all CMS content
4. The metadata development needs to be religiously controlled and tested. If too few words are in your metadata vocabulary, content mapping to the metadata will lose its effectiveness. Alternatively, each new addition to the metadata dictionary needs to be carefully scrutinized to ensure that it is relevant to web-site visitors and is applicable to a sufficient body of web-site content.
5. Thought should be given to implementing the ability to search using synonyms to the metadata defined, further enhancing the user experience.

Management of Web Applications

Web applications can significantly improve the effectiveness of a web-site, however the organic development of such applications can lead to much duplication of effort and function resulting in significant inefficiencies. The CMS development team recognizes this and has identified key applications to be centrally developed and delivered early in the project's life (e.g. calendaring tool). If we are to reuse applications, it follows that

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1. the application should be designed to meet certain development standards in order to facilitate subsequent enhancement and maintenance activity
2. This implies that the design of web applications becomes a process of soliciting requirements from the whole web-community and ensuring the ongoing participation of interested parties throughout the development and testing of the web application
3. The application should be catalogued and documented in the CMS for use by any web designer
4. All of this suggests that governance guidelines for application design be developed and administered centrally.

Security Management

The administration of consistent security in our current distributed web environment can prove to be challenging at best. Recent audits have identified potential vulnerabilities in our current web-site's security.   Efforts to secure appropriately the new web-site would be improved if initially there was:
1. Centralized management and administration of all hardware
2. Centralized management of CMS and web application security
3. As experience was gained, and the governance structures was in place, appropriate levels of security management could be delegated back to the web-page design teams.

Quality of Web Content and Presentation

Web content in a CMS can still diverge significantly in tone, style, look and feel and usability. Today, the use of look and feel guidelines is not monitored and as a result the uWaterloo web-site is more of a collection of villages than a city with a strong presence.

The nature of a CMS will result in more consistency in the presentation and information architecture of the new web-site through the use of templates and predefined navigation.   However, compliance with look and feel guidelines, Accessibility Standards and adherence to recommended authoring styles cannot be guaranteed without an appropriate governance body that "signs off" on content before it is promoted to the public web site.   Ideally workflow of this nature would be built into the CMS, where, before promotion to the Web, each page would be reviewed. A governance structure defines what content must be centrally reviewed vs locally reviewed.

Compliance with the CMS

There has not yet been a mandate that all web content will reside in the CMS by a specified date. Current thinking is that the conversion of content will be the determined by the content owners. By now it should be clear that many of the previously stated benefits of CMS useage can never be fully realized if this philosophy is adopted. Every department needs to participate in a migration strategy that engages other departments whose data is/could be shared.   Conversion of our current website is not a "siloed" activity where independent decisions will lead to the desired end. A Web strategy is an essential backdrop to the carefully orchestrated migration of content to the new CMS.

Summary and Conclusions

Throughout this document, opportunities to optimally leverage the effectiveness of the new uWaterloo web-site have been identified. It has been shown that there is a need for a Web Strategy

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that defines the roadmap for migration of current content while addresses future needs of the university's web community.

It has also been shown that a significant component of the Web Strategy is the definition of a governance structure that will ensure the continued integrity of the web-site and compliance with CMS content and presentation guidelines. There are alternative ways in which the governance structure can be implemented, balancing the degree of centralization vs decentralization but there is strong evidence that a central team ultimately responsible for the institutional integrity and coherence of web content and presentation is essential. This central team works with satellite governance teams in the faculties/departments.

An initial task of the Web strategy will be to determine the scope of the governance structure. Similar to the Information Architecture (IA), does the governance structure concern itself primarily with content at the higher levels of the web structure, or is it pervasive? Definition of the scope of governance activity will, in itself, require careful consideration and will impact the degree of centralization vs decentralization.

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Stewardship and Use of the Registrar's Office Web Content

A Proposed Approach to Content Management at the University of Waterloo

Currently, the Registrar's Office content is proliferated throughout the existing website. Admissions, Records and Student Awards information is repeated in every Faculty, Findoutmore, and FAQ's, just to name a few sites containing redundant RO information. Furthermore, the content for Part-time and Post/Non-degree Degree studies, Letters of Permission, Online learning, and exchange students is maintained by departments outside of the Registrar's office.

The introduction of the CMS and the redesign of the University web-site is an opportunity to not only change look and feel and navigation, but also improve management of the content.

"Ownership" of Web Content is often a very contentious topic, especially when an institution undertakes a significant web redesign project. A constructive way to view content ownership is to accept that the institution owns all of the content, managed in a central Content Management System (CMS), using a Common Architecture for navigation and presentation. "Stewardship" of the content can then be assigned to various institutional entities (people or departments), using appropriate access rules for creation, editing and use of the content.

The purpose of this document is to serve as a discussion paper. It suggests an approach to the more practical challenges related to the stewardship and use of content, specifically originating in the Registrar's Office (although many of the principles discussed here may be extended to all content in the CMS).

Before the new RO web-sites are redesigned using the new information architecture, the RO should determine a strategy for the management of all of its content within the new CMS to enable the sharing of single-source content across all uWaterloo web pages .

To accomplish this, it is recommended that:

1. All RO content stewardship accountability should be centralized within one team in the Registrar's Office. The accountability for the RO's web presence both within the RO and among peers across the university would be vested in the leader of this team. There would be two key functions provided in this centralized team:
    a. CMS expertise(for content maintenance)
    b. Presentation expertise (for web page design, information architecture, and adherence to the UW style Guide)
    Specific duties of this team will be to:
    a. Optimize the use of web resources (system and people)
    b. Develop a web strategy for RO content and a plan for execution of that strategy (including the strategies for effective searching, optimizing the usability of the content)
    c. Develop presentation of RO content that is compliant/consistent with the new university look, feel and navigation standards using standard templates. The presentation of RO knowledge is not within the scope of these recommendations, other than to note that care should be taken to present an integrated picture to the

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visitor to our website, not reflective of the internal administrative departmental boundaries. For example, collaboration with Finance to present their data as part of the admissions process would be an asset.

    d.   Facilitate discussions with content stewards outside of the RO whose web pages will use RO content

    e.   Represent the RO when a strategy is developed for the consolidation of student services on the web (Student Portal discussions)

    f.   Represent the RO at institutional discussions of Web Architecture, the CMS, common web facilities, web access analysis etc.

2.   Content experts from the various functional units within the RO (Admissions, Records, Student Awards, Recruitment) would interface directly with the centralized web team to ensure currency of the data.

    a.   Although content would be functionally sourced, this would not necessarily dictate the presentation of knowledge on the web or its management in the CMS. Theoretically, the knowledge of Admissions, Student Awards, and Records may never be presented on Admissions, Student Awards, and Records pages, per se. Conversely, the actual Recruitment-specific content in the CMS may be small, with its web-pages primarily the presentation of content from Admissions, Housing, Student Awards etc.

3.   Content within the CMS should be saved in small units of coherent information that can be "assembled" at time of presentation. Guidelines for the development of these "Knowledge objects" should be established in order to:

    a.   Ensure assembly of the knowledge objects is seamless

    b.   Enable the use of RO content on any other university web page

    c.   Provide flexibility in the presentation of RO content in web templates of different design

4.   Knowledge objects should be stored in the central CMS and should follow:

    a.   A naming convention shared by all university content

    b.   Have creation, edit and use access rules that can be inherited according to the organization of the content within the CMS

    c.   have standardized metadata or taxonomy attached to the knowledge object to facilitate searching

5.   Presentation of RO content should be consistent with the presentation of all other university websites directed to the same audience. This may result in the same content being presented in several ways, serving various audiences. The knowledge objects are assembled in ways appropriate to the audience using a standard set of presentation templates. If different scripts are required for different audiences, all related scripts would be housed in one knowledge object, with the ability to indicate which script will be used in a specific web-page.

6.   The tone of RO content should be professional and in keeping with the university's Style Guide. How the web-page presents the professional content is at the discretion of the web-page designers.

7.   Tools to support the management of the content need to be developed.

    a.   A tool that identifies all web-pages using a specific knowledge object

    b.   The CMS should have a facility to prompt automatic review of content at a given date (to ensure currency of content).

    c.   The CMS requires advanced search capabilities/indexing of all knowledge objects so page designers know content that does exist for reuse

d. The CMS should automatically notify all users of a knowledge object when it has been opened for editing. (Ideally, an edited knowledge object cannot be "published" for use without adequate time for all users to review the change and adjust their pages accordingly)
e. A central metadata repository needs to be developed and policed to ensure that consistent metadata is used by all CMS knowledge objects for superior searching.
f. A common" frequently asked questions" (FAQ) utility in DRUPAL that utilizes the knowledge objects. No static pages with lists of questions and responses should be developed but all dynamically built.
g. A tool for online form completion and submission by users of the RO's services.
8. The calendar, Quest and other third party packages will reside outside of the CMS and the content of these pages are outside of the scope of this discussion.
a. However, there would be significant advantage if the calendar was supported within the CMS at some point in the future. The same principles of reuse and content management would enable faculties to "pull in" calendar content with the assurance that their web-page would always reflect the content of the current calendar.

Bridging from the Current Web Management Practices

It is recognized that transitioning from existing web management practices to these recommended practices will require careful planning given the unending nature of recruitment cycles. It is recommended that existing practices continue in parallel to the population of the new CMS with RO knowledge objects. Admittedly there is duplication of content maintenance during the conversion period, but a critical mass of RO content must be on the new CMS before pages of the new web architecture can be delivered. Timing is critical if we intend to provide content building blocks to faculties as they revamp their own web pages.

The planning of the conversion effort is a critical activity and should be carefully developed in conjunction with all content experts within the RO and faculties/departments using the content, to ensure critical business and customer service deadlines/activities are not compromised by the web's conversion. It is highly recommended that a project leader be designated for the duration of the conversion activities to develop the plan and oversee its execution.

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