

Editorial

Introduction to the Special Issue: Content Management—Perspectives From the Trenches

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In this special issue, we use *content management* to refer to a particular type of content management: component content management. Component content management is an interdisciplinary area of practice characterized by methodologies, processes, and technologies that rely on principles of reuse, granularity, and structure to allow communicators to create and manage information as small components rather than as entire documents. An example of component content management is a product user guide that can be generated on demand. A customer who has questions on how to use particular product features, for instance, might select relevant topics from a menu available on a product support webpage or mobile application and, upon submitting a request, receive a just-generated customized guide that meets his or her immediate information needs. When information is created and managed as small components, these components can be assembled and published in myriad ways, as in the case of the above example. By shifting the focus of information development from entire documents to reusable units of information, content management has brought on a magnitude of changes to the field of professional and technical communication over the past 15 years. It has changed work processes and practices and, in doing so, redefined what it means to be a communicator.

The promise of component content management is that it facilitates the design and production of stand-alone information topics, or content components, that can be published through various delivery channels, such as computer-based browsers, mobile applications, and e-books, and accessed from various devices. As organizations must increasingly maintain pre- and post-sales product information in web and mobile formats,

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the relevance of component content management has grown for all areas of content production in organizations (e.g., marketing, training, product support, technical documentation). Content components that have been carefully structured have the potential to automatically adjust—in presentation and in substance—to specific user requests and device capabilities, such as screen size and orientation. Content components can also be reused by different people at different times and in different contexts to create any number of information products. For example, a product description might be used on a website viewed by a prospective customer who is researching a potential purchase, in an online product catalog that a marketing representative checks on a smart phone before visiting a prospective customer, on a quick tour video that new users view on their tablets, and in a printed user manual sold with the product. Not only does reusing a single product description reduce writing costs, but it also better ensures consistency across the information products in which the description appears and promotes a shared understanding of the product itself. This cost-effective development and promotion of consistency motivates business decision makers to look to component content management as a strategy for developing and managing content across their enterprises.

IMPACTS OF CONTENT MANAGEMENT FOR THE FIELD OF PROFESSIONAL AND TECHNICAL COMMUNICATION

Creating content components that can be used by a variety of different groups of users in a variety of different informational contexts and on a variety of devices contrasts sharply with the traditional approach to preparing professional and technical communication products, which emphasizes full documents intended for one or two well-defined audiences in just one or two similarly well-defined contexts and used on just one class of device. So a move to component content management means more than adopting a new technology. It means that professional and technical communicators must adopt entirely different ways of working:

- New approaches to writing, in which the focus is on content components that can be used by several audiences in several contexts.
- New processes for managing and publishing content to reflect the different types of content produced, the larger variety of contexts in which users interact with the content, and the larger variety of devices on which users view the content.
- New roles such as information architects and content strategists, whose job is to figure out not only which content components to develop but also how those components might interlock with one another and on which devices users might view them.

These new ways of working also demand that professional and technical communicators develop new competencies, such as structured authoring, user-experience design, and coordination of localization efforts (that is, efforts to use the same material in different markets in which the content must be adapted for the local language, such as French or Mandarin, but also for local customs and spellings, such as using the word “lift” for “elevator” in British English).

Working with content management challenges traditional relationships in professional and technical communication: those of writers and texts, of writers and technology; of rhetorical theory and text production; and of organizational hiring needs and approaches to training and mentoring professional and technical communicators. Consider these impacts of content management:

- On authoring approaches and methodologies. A transition from producing complete documents intended for one or two groups of users in particular contexts to producing series of content components intended for many groups of users in a variety of contexts. These components conform to predefined rules that ensure the components are consistently structured and can be easily assembled for particular uses (such as a user guide or online help) in forms appropriate for a variety of different delivery channels (such as mobile phones, websites, and PDF documents). Key approaches and methodologies include structured authoring, minimalism, writing for reuse, XML schemas, and XML-based standards.
- On business and publishing processes. A transition from processes for writing, reviewing, and publishing complete documents that

are published in their entirety and a limited number of times per year to processes for creating individual content components that are published one at a time and revised continually throughout the year, and that must be tested in a variety of contexts and on a variety of devices. Key processes that must be defined include, among others, reuse strategies (what content can be reused and how), workflows (how people and tasks interact), governance (who has authority to make content decisions at different times and stages), and collaboration (how team members will coordinate and carry out the different phases and tasks of a project). Processes that support translation and localization of stand-alone content components must also be defined, as the more that translators are aware of the possible contexts in which components are used, the stronger the resulting translations and the better those translations can be localized.

- On authoring and publishing technologies. A transition from desktop publishing and help authoring tools—which focus almost exclusively on the production of individual documents—to integrated content-management systems—which focus on the production of entire libraries of content. These systems include XML editors, database platforms, and publishing engines that allow writers to author, review, and then assemble content components in various outputs for various audiences and purposes. These systems also allow for dynamic publishing, the automatic assembly and delivery of discrete content components based on user specifications.
- On the competencies of professional and technical communicators. A transition from professional and technical communicators whose core competencies are writing, editing, and visual design to professionals whose competencies also include structured authoring, information design, information architecture, user-experience design, multimedia presentation, localization coordination, writing with translation in mind, project management, and business analysis. In addition, the transition to content management requires professional and technical communicators to have a deeper understanding of, and involvement in, translation and localization practices.

These changes are significant and affect not just professional and technical communicators, but also technical translation and localization specialists, and educators and researchers in the field.

Indeed, these changes ultimately challenge the core values of the field. If, in the past, excellent professional and technical communication involved the production of specific documents for specific users in specific contexts, what makes for excellent communication now, when the end products are stand-alone information topics intended for broad groups of users in a number of different contexts?

In light of these impacts, and in light of the fact that the last time a peer-reviewed journal in our field devoted a special issue to this topic was in 2008 (a special issue of *Technical Communication Quarterly*) and only a few individual articles on the topic have been published since then, we felt a need existed to prepare a composite picture of the processes, methodologies, and technologies of content management today, as well as the local, global, and distributed contexts in which content-management activities occur. We hoped to include studies that illuminated the extent to which content management improved the user experience and met user needs and goals. To our delight, we received numerous excellent proposals for articles from both academic and industry researchers that promised to help us assemble this much-needed composite picture of content management.

When reviewing proposals, we noticed an interesting split in focus: some proposals primarily focused on implementing content-management projects while others focused on strategies for managing component content and the user experience. Because these are both important areas of content management, we decided to create two special issues. This first issue focuses on the state of component content management. The second issue, scheduled for publication in the March/June 2016 issue, focuses on content strategy: how organizations and communities approach complex content challenges, from managing user-generated content in a wiki-based content-management system to adopting a new international standard for information development.

INTRODUCTION TO THE ARTICLES IN THIS SPECIAL ISSUE

When a discipline is relatively new and does not have much empirical research, the best place to start is with a comprehensive synthesis of existing literature and with case studies that offer thick, qualitative descriptions of the emerging phenomenon at work in different contexts. Such studies help stakeholders identify opportunities for new research and assess the extent to which

existing practices are working. That's exactly the approach we took when assembling this issue. It starts with an integrative review of the content-management literature and continues with four case studies. Together, they document the state of content management and capture insights gained from tough experiences.

In the first article, "The Current State of Component Content Management: An Integrative Literature Review," we systematically review the body of trade and scholarly literature on component content management with the aim of describing how this evolving discipline of practice has impacted information development and management work and assessing what this impact means for research, theory, and practice in the field. Based on our review of 93 publications that met the inclusion criteria, we suggest that component content management has evolved from a practice focused on single sourcing and reuse intended for product documentation to a mature discipline concerned with designing pre- and post-sales information for a variety of devices and delivery channels. We also suggest that trade publications have led the way in standardizing the core concepts, methodologies, processes, and technologies in component content management whereas scholarly publications have had comparatively little impact on advancing the discipline. Although key voices in component content management have made good progress in defining best practices, we conclude that component content management as a discipline lacks both a strong research foundation and research-practice connections. We thus call for a coherent, robust, ambitious research agenda that advances scholarship and improves practice in component content management.

In "Technical Communicators as Agents and Adopters of Change: A Case Study of the Implementation of an Early Content Management System," Grace Leinbach Coggio tracks how members of a team of technical communicators individually and collectively influenced the outcome of a six-year implementation of a component-content-management system at a global organization. Using a single, retrospective instrumental case design, Coggio examines how technical communicators responded to a technological change that profoundly altered how they did their work when content management was first gaining traction in industry in the late 1990s and early 2000s. Her case follows one team's response to the change, with a particular focus on the stories of some technical communicators

who acted as change agents and developed and implemented the content-management system and other technical communicators—the writers—who were asked to adopt those changes. More significantly, she explores why the technical communication group needed six years for everyone to accept using the content-management system as their primary authoring tool. Based on extensive interviews, survey results, and document analysis, Coggio concludes “that the adoption of paradigm-shifting innovations is far more complex than sequential models of innovation diffusion” (p. 285) and that pro-innovation bias and emphasis on “technical preparedness” over “psychological preparedness” can impede the creation of shared meaning of the innovation between change agents and adopters.

The second case study in this issue, “A Study of the Usefulness of Deploying a Questionnaire to Identify Cultural Dynamics Potentially Affecting a Content Management Project,” is a response both to our call for studies that advance scholarship and improve component-content-management practice and to Coggio's call for content-management project stakeholders and researchers to be mindful of cultural factors affecting the implementation of content management. Recognizing that “the vast majority of content-management implementation projects proceed with very little visibility into the cultural dynamics that will eventually play a central role in determining the success or failure of the projects” (p. 289), authors Joe Gollner, Rebekka Andersen, Kathleen Gollner, and Tenny Webster examine the usefulness of a questionnaire intended to help project leaders understand the views, reservations, agendas, and attitudes of project participants. The authors specifically trace their process of designing the questionnaire—including how they adapted a previously published set of research questions for assessing cultural dynamics—and distributing it to participants during the early stages of two content-management projects. They then discuss the outcome of their field-evaluation study, focusing on the kinds of issues the questionnaire elicited from participants, the extent to which the questionnaire was useful in assessing participant needs, and the extent to which the results helped to improve plans for implementing the content-management projects in the two organizations that participated in the study. The authors confirm the merit of the research methodology followed and recommend a similar needs assessment approach be used by project leaders, consultants, and researchers who

are interested in addressing cultural dynamics in content-management projects.

In “The Effect of Content Management Technologies on Writing Styles and Processes: Two Case Studies,” Rahel Bailie and Jeffrey Huset provide case studies of two writing teams in two different organizations transitioning to using content-management systems: one adopting a web-content-management system and the other a component-content-management system. As part of their transitions, both teams moved to creating structured content according to the Darwin Information Typing Architecture (DITA) standard. Bailie and Huset specifically explore the following questions: What are the dependencies between technology choices and the corollary editorial constraints that writers must consider to realize the benefits that the technology can bring? What types of training are needed to ensure that writers become fully productive in the resulting collaborative, structured-authoring environment? The case highlights “how technology choices affect writing styles and processes, and conversely, how writing styles affect the effectiveness and benefits of the chosen technology” (p. 314). Through direct comparisons of content requirements for the two types of systems and of the experiences of two teams of writers learning to create structured content, Bailie and Huset conclude that writers in these situations need grounding in theoretical knowledge about the technology, the function and value of content standards, and structured authoring in a collaborative writing environment. Bailie and Huset also note that management support is key to the success of writers, who need extensive training and sufficient time to practice applying their knowledge of the new systems and processes.

In the closing article, “Teaching Structured Authoring and DITA through Rhetorical and Computational Thinking,” Carlos Evia, Matt Sharp, and Manuel Pérez-Quiñones link the practice of content management to teaching. They describe how they integrated component content management and DITA into a Creating User Documentation course of an undergraduate professional writing program. Their teaching case addresses two research questions: How can instructors best teach English and humanities students to operate within a structured authoring workflow? How can computational abstraction be combined with students' previously acquired genre and rhetorical knowledge to ease their adoption of DITA to create technical documentation? Arguing that our students already use structured

content and will likely be required to create and manage it in the future, Evia, Sharp, and Pérez-Quiñones demonstrate how instructors of technical communication might successfully integrate component content management into their curriculums. To do so, they walk readers through the five “layers of abstraction” on which they structured their course: developing quality documentation (layer 1), separating content from design (layer 2), authoring granular content with XML (layer 3), authoring and linking content components with DITA (layer 4), and single-sourcing and content reuse (layer 5). As they describe these layers and associated assignments, they discuss the challenges and successes they have had in teaching this structure over the years. They also recommend cost-efficient software tools.

This special issue offers stakeholders in the content-management discipline—including managers, consultants, communicators, researchers, and educators—a much-needed picture of the state of the discipline. After the opening integrative literature review maps the territory of the content-management literature, the subsequent articles provide a series of in-depth portraits of the current state of the discipline through their case studies. In doing so, Coggio, Gollner, et al.; Bailie and Huset; and Evia et al. uncover the confusion and numerous challenges

that characterize content-management practice. Recurring themes in these cases include transition, disruption, change, resistance, and vulnerability. These themes capture the paradigm shift represented by the move to content management and suggest that the discipline has a long way to go in solidifying best practices, particularly in the areas of change management and technology diffusion. We hope this special issue will inspire new research and innovative ideas that help improve practice and contribute to the growing body of knowledge about the complex cultural, rhetorical, economic, and technological factors that shape the nascent discipline of component content management.

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