Scaling Knowledge Management:
IT'S TIME FOR A UNIFIED INFORMATION STRATEGY

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To succeed in today's diverse digital economy, enterprises need to proactively and effectively create, store and deliver content. Doing so means superior customer experience, enhanced employee productivity, and stronger partnerships. A knowledge-driven enterprise needs to provide managers, knowledge workers and line employees all the information they need, at the moment they need it, to respond to customer and market needs—to support product design, product maintenance, information systems management, and software creation. However, much of this information—in the form of documentation, messaging, graphics, video files, audio files, and transactional data—is locked away in silos and within diverse applications across organizations, requiring inordinate amounts of time and resources to locate.

While information from all these sources is critical to business success, the chaos continues to grow within enterprises. Technology continues to grow more sophisticated, yet knowledge is still scattered and disconnected across organizations—not only in enterprise content management systems, but also databases, records management systems, enterprise resource planning (ERP) systems, and customer relationship management (CRM) systems. These are likely all managed by different units and teams across the enterprise. A traditional content management approach is not enough.

In this thought leadership paper, we will explore new avenues available to enterprises for sharing information, and how to enable seamless access to information to users across the enterprise.

Real-World Challenges with Knowledge Management

While a knowledgebase may exist in a digital format, its reach and relevance may be severely impeded if it cannot be scaled to meet new requirements or grow with the organization. Today's enterprises are adding and expanding digital channels and processes, reaching new global markets, and innovating at a blinding pace. A knowledge management solution needs to be able to expand and meet this accelerating pace.

Ongoing surveys by KMWorld find that embedding knowledge management into the day-to-day work at enterprises is top of mind. The treatment of KM as a standalone function continues to be the issue that concerns respondents the most, along with a related concern, siloed information systems. Currently, half indicate they have encountered challenges to their implementation plans and goals. Finding the right skills also continues to be an issue holding KM efforts back, with one-third indicating they simply can't find the right skills. Satisfaction with strategic performance around KM continues to grow as an issue as well—fewer than half, 49%, report they are either "highly" or "somewhat" satisfied with their organizations' implementations.

Only 22% of knowledge management executives responding to the most recent Technology Services Industry Association study have achieved some level of maturity in their knowledge management efforts—defined as achieving ROI, optimizing and automating processes, or leveraging analytics. Only



8% report their knowledge management efforts have attained strategic value to their organizations.

Complicating this capability is the scattershot approach that characterizes knowledge management efforts. Marketing departments maintain content management systems with sales content, engineering departments will maintain repositories for technical documentation, IT maintains its own cache of documentation, and so on. Capabilities are spread across multiple solutions from multiple vendors across the enterprise.

Accidental Knowledge Management Architecture

The disadvantages today's decentralized, accidental knowledge management architectures bring to enterprises include the following:

- High total cost of ownership from maintaining separate systems and duplicate content
- Difficulty measuring ROI of content management capabilities
- Reduced productivity from time spent searching for content
- Lack of awareness of available content
- Documentation content may not be accessible when and where needed
- Content may be inconsistent across business units and departments
- Lack of collaboration between business units and departments
- Customer dissatisfaction at inability to rapidly resolve product or system issues

Current Landscape of Knowledge Management Solutions

There is no single, definable category of "knowledge management"; rather, it is based on a wide range of disciplines and capabilities. The following are some key areas offered in today's highly fragmented market —many are bundled within solution sets, but others are often addressed singularly by vendors in the space. There are nine broad categories of solutions that are brought together within knowledge management environments, including advanced analytical tools, application development tools, content management systems, data management, input technologies, methodologies, service providers, and user interfaces.

To illustrate the wide diversity in this market, here are examples of the leading categories that make up knowledge management as we know it today:

- **Advanced analytics:** Artificial intelligence/machine learning, collaboration and project management platforms, image-based analysis and classification, text analytics
- **Application management, development and delivery:** APIs and software development toolkits, cloud compute platforms, low-code/no-code development tools
- **Content management:** Advanced search and discovery; curation tools, document management, e-discovery, e-signature, content automation, content collaboration, content creation, content management platforms
- **Data management:** Databases/data lakes, data visualization tools, file analytics and sharing, metadata management/master data management
- **Input technology:** Barcode recognition, document and data capture solutions, document imaging, scanning solutions, OCR **Methodologies/Best**
- **practices:** Business process management, campaign management, case management, information governance, risk and compliance, records management
- **Services:** Consulting and systems integration
- **User interfaces/user access management:**



Augmented reality/virtual reality, intranets, mobile access, natural language processing/chatbots, self-service solutions

Gaps in Knowledge Management Solutions

The wide array of technologies and capabilities that are broadly applied to knowledge management points to the need for a more comprehensive approach to the capture, organization, discovery and accessibility of knowledge assets. Currently, there is dysfunction in approaches to providing knowledge workers or technical staff the information they need as it is needed.

The gaps in today's fragmented array of knowledge tools include the following:

- **Complexity:** Information tools are too complex, and therefore out of reach for many employees. Extensive training may be needed
- **Obsolescence:** The technology in knowledge management tools is often outdated, and therefore lacking in needed functionality. It may be difficult to integrate data from obsolete solutions that may be used throughout the enterprise
- **Lack of transparency:** Information may be difficult, if not impossible to locate. Again, because information is maintained or stored across disparate systems, critical information or data may be out of reach of those who require it to serve customers
- **Fragmented solutions:** As described in the previous section, knowledge management isn't a single, definable category. Rather, it is often an assemblage of solutions drawn from a range of disciplines. Often, these separate solutions require different skills sets, different data formats, and often may be challenging to interoperate. In addition, this creates uncertainty about information ownership at a variety of levels—taxonomy, metadata, security and lifecycle management
- **Structured and unstructured data formats:** Knowledge management relies on both structured data such as relational database information, and unstructured data such as documents and video files. Knowledge management systems need to pull information from systems supporting either format

Building a Robust, Scalable Knowledge Management Solution

A scalable knowledge management architecture that delivers content and data from all sources, and grows as the organization grows, requires a cohesive, enterprise-wide approach. Knowledge management capabilities and resources can be enabled through a unified information strategy, building on today's platforms and methodologies.

A unified knowledge management strategy will bring together technical content from across the enterprise. Not only does such a strategy encourage the adoption of a "single pane of glass" for all content resources; with content more searchable and accessible but also greater consistency across business units and departments, with processes and rules aligned. In addition, a unified information strategy enables intelligent tracking of usage and version control across all enterprise documents. As an added bonus, the strategy enables greater collaboration between business units and departments.

The following key elements form the foundation of a unified information strategy:

Content as a Service

The KMWorld survey finds that cloud is becoming an increasingly dominant platform for hosting knowledge management systems. A total of 43% run their systems in the cloud, either in whole or partially in hybrid fashion, up from 38% two years previously. The percentage with all-cloud



systems also increased, from 15% to 21%. More than one-third, 36%, intended to move most of their KM activities to the cloud.

A Content as a Service (CaaS) approach is built on cloud computing—a service layer that will provide resources required for technical documentation, as well as the ability to easily create, contribute, and categorize content. CaaS employs either public cloud, private cloud, or a combination of both—and is similar in architecture to Software as a Service (SaaS), Infrastructure as a Service (IaaS), and Platform as a Service (PaaS) models. It may be delivered through subscription from a third-party vendor, or configured internally.

The components of a responsive CaaS architecture include the following:

- **Ease of use and access:** The user interface and user experience should be simple, intuitive and require no training
- **Integration with existing solutions:** As described above, knowledge management technologies encompass a range of products that exist across enterprises. A CaaS needs to eventually integrate across these various silos
- **Quality assurance:** A process for assuring the relevance, timeliness and accuracy of assets
- **Search and discovery capabilities:** The amount of content, data and other knowledge assets will continuously expand and grow as the enterprise grows. The ability to add new resources should be automated as much as possible
- **Enterprise-wide collaboration:** A CaaS needs to be open and accessible to all employees and partners across the enterprise, with tools and platforms that enable close collaboration **An executive champion**
- **—as well as active employee engagement:** A CaaS architecture is more than a technical implementation, it is a transformative force that enable greater responsiveness to customers in a fast-paced digital economy. This requires the active participation of teams to design and grow these knowledge management services

Information Architecture and Governance

A unified information strategy needs to be guided by a roadmap that aligns with business requirements, as seen over the coming months and years. A unified information architecture addresses integration between various systems and sources, as well as provides guidance on future purchases and projects. With an architecture in place, information governance needs to be put in place to ensure that solutions and processes meet ongoing business requirements. Information governance also reduces risk by assuring that information reaches the right users, and is in compliance with governmental, industry and company mandates, and is as secure as possible.

Data Lakes and "Big Data" Frameworks

Knowledge management systems have typically been built upon content management systems that store and manage documents and text files. Much of the information that supports knowledge development needs to come from structured databases, often accessible through separate systems via SQL-based queries. Broader-based environments are emerging that bring both structured and unstructured information into a single environment, accessible by all applications. Data lakes enable the long-term management and storage of data of all types.

Richer User Access

A unified information strategy delivers information to end-users through a "single pain of glass," meaning users have access to the resources they need, without the need to search across multiple systems or sources for what they need.



- **Visual dashboards:** Data and content can be presented at the front end, providing easy-to-follow and navigable graphics, to show available information and provide analysis
- **Augmented reality:** Augmented reality (AR) brings content and data to life for many technical and frontline workers. Product specifications, repair, maintenance, are visually rendered to end-users in real-time as they are physically present. AR visualizations can bring together data and content from a range of sources
- **Self-service:** By enabling end-users to quickly assemble the data and content they require to complete a process or educate customers, information management teams can spend more time fulfilling higher-level business requirements, such as building information capabilities into business offerings

Recommendations

The following is advice on designing and deploying and making a unified information strategy a reality in your organization:

- **Work collaboratively with the business:** A unified information strategy is for the business, about the business. It's important to understand where end-users spend the most time and resources attempting to locate data and content. Start with the most severe pain points—such as bringing together documentation from disparate enterprise financials systems that may have been brought together as a result of a merger—and integrate these sources in a first instance of a CaaS service. Start with pilot projects to deliver quick wins
- **Identify information assets within the enterprise:** This is a long-term undertaking, as important shreds of data and content may be contained within a multitude of systems and repositories across the enterprise
- **Take a design approach, plan the architecture for ease of use:** A "design approach" means the user comes first in determining the interface and ability to present requested data or content. The information should be delivered as intuitively as possible
- **Coordinate with IT and data teams:** In many organizations, knowledge teams (mainly concerned with content management) work separately from IT teams. In today's organizations, data and content (unstructured data) all need to be integrated and brought forward. Assembling an infrastructure that sustains CaaS or depends on data lakes, for example, requires close coordination with IT developers
- **Demonstrate savings and revenue potential:** Reducing costs is important, and a unified information strategy will help streamline many of the tasks and resources that were separately maintained by either data or content management teams. This is an important point for selling the concept to decision-makers—at least initially. More important than cost savings is the business value that will be delivered through such an architecture. For example, by offering online, real-time maintenance capabilities though augmented reality, a machine producer can leverage a subscription-based model

Overview of Adobe's CCMS: Adobe Experience Manager Guides

Adobe Experience Manager Guides is an enterprise-class CCMS (component content management system) to maximize returns on enterprise content. The solution offers the following benefits:

- **Web-based content creation:** Hit the ground running with the easy-to-use WYSIWYG web editor to create granular, presentation-agnostic,



variant-free content. Migrate content from Word, XHTML, IDML and more to DITA with the out-of-the-box ingestion framework

- **Structured content management:** Leverage best-in-class content management capabilities like advanced content reuse, version management, link management, search and tag management, translation workflows and content health reports to assume complete control of your content
- **Web-based review and collaboration:** Save time and effort through a web-based review workflow. Allow multiple authors and reviewers to collaborate simultaneously. Use projects to assign roles and track progress
- **Immersive, omnichannel content experiences:** Accelerate content velocity by easily delivering XML and non-XML content to Adobe Experience Manager Sites, mobile apps, knowledgebases, CRM platforms, IoT apps, chatbots, PDF, HTML5, EPUB, Kindle,
and more

Take the next step and try the solution today.

Write to techcomm@adobe.com for a demo

https://www.adobe.com/products/xml-documentation-for-experience-manager/request-demo.html

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About Joe McKendrick:

Joe McKendrick is a contributing editor and writer to Database Trends and Applications and Big Data Quarterly magazines, as well as lead research analyst for Unisphere Research at Information Today, Inc.