From Unstructured to Strategic: Enterprise Content Management with Oracle WebCenter

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Introduction

For a long time, content management was departmental and focused on limited goals such as managing website content or content for a specific line of business. CIOs, CTOs, and IT directors saw content management largely in terms of niche applications. Now content management has become a higher-level issue: how do you manage all of the content across the enterprise? Many companies and IT executives recognize enterprise content management as a strategic priority. These companies seek to approach content with the same level of discipline with which they manage other pieces of underlying infrastructure, such as middleware.

Unfortunately, many enterprises are stuck with content management systems from yesteryear that are not up to the challenge. Typically, these companies support multiple systems acquired by departments—which collectively form a logjam that blocks the flow of information, integration, and collaboration. The companies suffer from common woes such as high costs, information silos, and the inability to search and reuse information. Meanwhile, an unprecedented flood of unstructured content is exacerbating these problems. Companies realize they need to address content management on an enterprise level, with an integrated solution that leverages all their information systems and serves all their content requirements.

In this paper, CITO Research reviews failed attempts to solve the enterprise content management problem and describes how Oracle WebCenter provides a solution designed to meet all of these needs. Oracle has long been known as a world-class provider of database technology and enterprise systems. In recent years, it has emerged as a provider of best-in-class content management systems (CMS) unified with powerful backend systems such as Oracle databases and enterprise applications such as ERP, e-commerce, and CRM. With one strategic repository that integrates with all of these systems, content no longer disappears into information silos, desktop applications, or email servers. Instead, it becomes part of a workflow in a whole-enterprise information system. Content can be managed through its lifecycle, from creation, collaboration, approval, revision, publishing, search, and retrieval to retention, archiving, and destruction. Further, it can be delivered where it is needed—where people are making decisions in the flow of business processes.

Oracle WebCenter empowers all lines of business (LOBs) within the enterprise, including marketing, brand management, web, sales, legal, finance, IT, HR, engineering, and more. Every LOB shares the same tools and easily accesses the same information in a
common repository. Content silos become a thing of the past. The result: a comprehensive solution that elevates content management to a strategic advantage for the enterprise.

CITO Research found that Oracle WebCenter’s content management solution delivers:

- **Cost savings**: Oracle’s unified enterprise content management solution offers efficiencies and lowers total cost of ownership
- **Productivity gains**: Oracle WebCenter provides the ability to surface content at the right time and enable employees to quickly solve problems, make decisions, and innovate
- **Risk Management**: This system helps the enterprise mitigate risks by ensuring that all enterprise information is properly stored, tracked, retained, searched, retrieved, and disposed of properly. It also allows companies to consolidate their content with a single vendor, further reducing risk

**The Challenge of Modern Content Management**

Most enterprises are struggling with explosive growth in the amount of information they manage. Managing and gaining insight from this burgeoning sea of information is a top business challenge for many organizations. Systems for managing structured information like financial accounts or inventories are relatively mature. But managing unstructured information—otherwise known as content—is another story.

Getting a handle on burgeoning unstructured information remains an unsolved challenge for many enterprises. This unstructured information runs the gamut from documents, spreadsheets, presentations, email, audio and video files, scanned documents, CAD drawings, graphics, models, and more. Unstructured content is growing at runaway speeds and now represents the majority of information in business processes.

Until recently, content management has focused on tactical projects of limited scope, such as putting content on a website or managing it within a department. Now, enterprises face a host of emerging challenges, including the growth of video and social media, the continuing groundswell of information, and the need to consolidate disparate information systems. The next generation of ECM is about being able to unify, manage, and leverage all content across the entire enterprise. This enables collaboration, data flow, and the availability of information, not only for current business processes, but also for future processes that we cannot imagine today.
Critical challenges stand in the way of this vision. Next, we address some familiar challenges and pain points.

**Growth of Unstructured Content**

Today, the enterprise is being flooded with unstructured content. This unstructured content is the grist of everyday business: documents, email, spreadsheets, presentations, instant messages, images, voice, video, and so on.

This deluge is exacerbated by the panoply of available authoring tools. First, we had word processors, spreadsheets, and presentation tools. Next, we used tools for desktop publishing and creating websites. Today, we freely create blogs, wikis, instant messages, podcasts, and videos. Everyone has multiple authoring tools within easy reach. On the one hand, this has empowered employees and enterprises to communicate with internal and external audiences with precisely targeted messages through many channels. On the other hand, it has created a monster in terms of managing this growing sea of information.

Managing structured information, such as financial accounts or inventory, is a relatively defined process, with mature tools such as databases, business applications, and business intelligence. But these tools are no longer sufficient; in order to attain its true value, this structured information must be enriched by related information that does not have a strict data structure. This unstructured information should appear in the context of related structured information.

Unstructured information now represents the majority of information in business processes. As early as 1998, Merrill Lynch cited estimates that as much as 80% of all potentially usable business information originates in unstructured form.\(^1\) Such estimates may not be based on primary research, but they are widely accepted. In 2010, multiple analysts estimated that data will grow 800% over the next five years.\(^2\) Unstructured information accounts for 70% to 80% of all data in organizations and is growing 10 to 50 times faster than structured data.\(^3\)

An estimated 85% of the data stored by enterprises is unstructured—and this volume continues to grow at an alarming rate.\(^4\) This burdens the enterprise with growing costs and the challenge of storing, organizing, and archiving this sea of information.

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Video is a prime example of the unstructured content explosion. Video has arrived in the enterprise, but few companies have gotten their arms around the management of it. Nearly 70% of enterprises consider video to be unmanaged.5 Now companies are using video for all sorts of things: a CEO speech to employees, a sales demo, how-to videos, and podcasts. All this content is growing enormously, but most enterprises have no mechanisms for managing it.

Virtually every business process involves unstructured content. Employees devise ad hoc processes for managing this information: they put it on paper, into a spreadsheet, email it, park it on their personal laptops, or on file shares. These ad hoc techniques effectively send the information into black holes where few people can find it. Companies need the ability to get this information into the electronic workflow and make it searchable and available at key points in the business process. When this happens, content becomes strategically valuable. When it can be stored once and reused often in a controlled, managed fashion, the return on investment (ROI) of any one piece of content increases as more parties make use of it for various purposes.

Multiple Content Silos

Historically, departments or lines of business acquired content management systems to solve their localized needs. As a result, content management applications have become one of the most departmentalized technology buys within the enterprise and have proliferated into a collection of disconnected solutions. It is not uncommon for a large enterprise to have several, or even dozens, of different content management systems. One large company took an inventory of its content management systems and found nearly 50. Another stopped counting after 60.

According to the 2011 Association for Information and Image Management (AIIM) State of the Industry Survey, 72% of large organizations have three or more content management, repository management, or document management systems. Twenty-five percent have five or more of these systems.6 These disparate systems form informational cul-de-sacs with no outlet. They trap information and make it very difficult to reuse it for other purposes. Enterprises lack mechanisms to easily share, search, and leverage content across silos.

Multiple systems increase costs. Every product used to manage content requires its own team of experts to administer the system. Having a variety of experts on-hand,
at various levels of engagement, is expensive. Some organizations attempt to address this by having experts in one system cover another system, often without adequate training. That makes those systems less strategic and usable and leads to band-aid solutions.

CIOs are tired of trying to manage multiple content systems. If a document exists in several systems, how can anyone be confident which version is accurate? They want a single source of truth. If there is a problem, they want to deal with one vendor and one tech team, not five.

Integration Problems

One of the most highly prized ways to leverage content is to make it available directly in key business processes. This involves integrating the content management system with ERP or CRM systems. Enterprises count consolidation and integration of content management systems among their strongest desires.

Employees need the ability to find and use content for business processes—and do so electronically across geographically dispersed enterprises. The old habits of walking down the hall to a file cabinet, emailing a colleague, or toggling over to a separate application are obsolete in today’s 24/7 world of geographically dispersed enterprises. People expect to easily access content from their workstations and have confidence that the information is correct and up-to-date.

But besides making the content accessible, the power of integration is that it is tied to a specific record in the enterprise application. An invoice record brings up an image of the invoice. A customer record brings up a related service contract. An employee record brings up relevant insurance forms. By having enterprise applications seamlessly tied to the right content, organizations find that processes run more smoothly and efficiently.

Companies cannot solve this problem by spending hundreds of thousands of dollars on band-aid integrations to retrofit disparate systems, integrations that then become useless when enterprise applications are upgraded. Ultimately, these companies wind up with a spiderweb of point-to-point integrations. Of the 64% of organizations that attempt such integrations, 53% do so using custom-developed connections. This puts companies in a dilemma: companies must go through another expensive integration or remain locked into old versions because they dread the pain of upgrades. They need systems that come integrated out of the box, prebuilt to best practices, with easy configurability. Only then will integration cease to be such a headache.

Inability to Meet Business Requirements

IT personnel increasingly struggle to meet the demands of business initiatives. Departments understand the role of documents and other content in their daily business processes. Without a standardized strategic approach, these departments investigate point solutions to their problems, which further exacerbates the silo problem. These departments are looking for ways to collaborate on top of a common strategic repository. They want private workspaces to create and update content, and then they want to be able to share it with other departments when they need broader expertise.

New Ways of Working

The need for collaboration also branches into the new ways organizations are working. Remote workers, mobile devices, social tools—they all interact with content but they require new methods, new integrations, and new interfaces. These interactions do not just take place around the content—they often take place in the flow of business processes and enterprise applications. Organizations need a way to integrate mobile and social tools, relevant stored content, and business processes into a seamless interface that enables users to be more productive and efficient.

Risk, Compliance, Auditability, and Records Management

Enterprises face growing compliance legislation and high costs of litigation. This puts a premium on comprehensive and easy management of all your organization’s content. In the event of regulatory action or litigation, enterprises need the ability to find information and find it fast. Essential content must be preserved, and nonessential content must be defensibly disposed once it has expired, in accord with a uniform policy for such content—yet most enterprises lack this ability. Some have paid dearly...
for it. Witness the recent parade of large financial institutions that have had to pay huge settlements because employees deleted documents relevant to legal cases and audits.

Many organizations are blind to their own risks and liabilities. Information is scattered among multiple repositories, laptops, email accounts, file systems, and formats. As a result, these organizations might not even be aware of what information they are supposed to manage—or what risks might be hidden in forgotten files.

If organizations cannot track their enterprise content, they cannot track issues that may come back to haunt them in the form of regulatory or legal action. The lack of a centralized content management system also makes it impossible for the enterprise to enforce corporate policies regarding information storage, security, and disposal.

A Master Strategy for Content Management?

For many organizations, content management remains an unsolved challenge. Most enterprises lack the ability to effectively formulate a strategy for content management—let alone execute it. They invest too much in the wrong places or too little overall. Different LOB managers buy niche solutions while trying to solve tactical problems. Some ignore the problem entirely. These niche solutions cannot answer questions that are essential to the company as a whole nor track information that matters. Without a single source of truth, it’s impossible to know what content must be managed.

Modern enterprises need the ability to communicate and collaborate across departments and across different audiences. How do they access the information in all their disparate systems? When a problem arises, do they know where to find the person with the answers? How can they build on their own innovations and discover whether one of their colleagues has already solved the same problem? How can they leverage knowledge investments? Organizations need software systems that knit together people and information systems into a coherent whole. In short, they need a new vision for enterprise content management.

A New Vision: Content Management as a Strategic Investment

In recent years, enterprises have realized that their approach to content management needs a drastic overhaul. They have realized that they need to move beyond a piece-meal, scattershot approach to content management and adopt an enterprise-wide
strategy, one that places their entire organization under one unified system and allows them to adapt to emerging demands like social media, video, and the burgeoning volumes of unstructured content.

A strategic approach to ECM combines the full array of content management functionality in one platform. With it, all content-centric applications are deployed on the same platform. Any piece of content or functionality is interchangeable, extensible, and complementary. A single architecture with a common interface allows all users (with appropriate security settings) to access relevant content, applications, and services. A unified solution should not require enterprise IT to undergo yet another exercise in integration; the full package comes integrated out of the box.

At the same time, however, the unified solution must adapt to the many different demands faced by different departments within the enterprise. It must be configurable and have interfaces optimized for specialized functions such as accounts payable, human resources, legal, and other LOBs.

This revolutionizes content management, just as ERP revolutionized business processes in the last century. Before the advent of ERP, companies had many applications that couldn’t talk to each other. The main achievement of ERP was consolidating key business processes and leveraging information. Until recently, however, this movement did not include unstructured content. The next step is to bring all enterprise information—both structured and unstructured—under central control, yet surface it at relevant, contextually appropriate points in business processes.

These challenges prompted organizations to turn to enterprise content management to help them corral their maverick herds of content. A strategic approach to ECM manages the entire content lifecycle from creation to destruction.

**Oracle WebCenter and Strategic ECM**

Oracle WebCenter is an example of a strategic approach to enterprise content management. It ties content capabilities in seamlessly with enterprise applications such as Siebel, E-Business Suite, PeopleSoft, and JD Edwards.

Oracle WebCenter is built on the Oracle Fusion Middleware stack. It provides out-of-the-box tools to extend content management functionality into custom applications. And it is extremely scalable for large global enterprises.
These enterprise content management capabilities can be accessed wherever employees need them: the desktop, enterprise applications, within business processes, within portals and composite applications, from websites and custom web applications, and from social and mobile tools.

The Content Lifecycle

Oracle WebCenter addresses the full content management lifecycle: create, capture, store, version, index, manage, cleanse, distribute, publish, search, retain, and destroy.

Figure 2. The Content Lifecycle

Oracle WebCenter molds unstructured content into a catalogued, digital form so that unstructured information can flow through business processes and applications. This triggers a better-managed workflow, where every step, from creation to destruction, is automated, allowing enterprises to manage every phase of the content lifecycle. A piece of content can be tracked, searched, shared, reused, edited, and combined
with any other piece of content anywhere in the system. A single solution empowers all lines of business, with no need for band-aid integrations. Everyone uses the same system, and content flows throughout the organization, surfaced in context, and permissioned according to each user’s role.

Oracle WebCenter offers significant benefits in four main areas:

- **Cost savings**
- **Productivity gains**
- **Risk management**
- **Innovation**

### Cost Savings

Oracle WebCenter can support cost savings across the enterprise, particularly when multiple content management systems are in place.

**Consolidation:** Oracle WebCenter Content allows organizations to consolidate content management in one application. This brings cost savings in software fees, maintenance, consulting, and personnel.

**Automation:** Many organizations spend hours entering information into ERP and other systems. Oracle WebCenter can automate this process, cutting costs by as much as 90%. Another time savings is in the area of digital assets. Graphic artists create images and then have to spend hours rendering as high resolution, low resolution, and thumbnails. Oracle WebCenter automates such rendering based upon business rules, saving time for highly skilled employees.
Printing and Shipping: Many organizations spend millions per year printing and shipping documents. With Oracle's document management solution, organizations can share documents quickly and securely online, enabling the latest versions to be accessed via browsers or mobile devices. Such a solution reduces environmental impact compared with shipping paper.

Productivity: Leveraging People, Knowledge, and Information

Oracle WebCenter allows organizations to maximize the value of their information and their workers. Content is no longer lost in data silos or on someone's laptop. Instead, it is made available whenever and however employees need it. It can be used in business processes and reused in ways that nobody conceived of when the data began to be collected.

Content can be repurposed at any time, allowing you to leverage existing work, investments, and innovations and avoid duplicative efforts. As a result, employees spend less time searching, integrating, and reconciling information, increasing time for more productive activities.

Integration: One of the most powerful advantages of Oracle WebCenter Content is its integration of enterprise systems with its core content functionality. Oracle WebCenter comes pre-integrated with Oracle applications such as E-Business Suite (ERP), PeopleSoft (HR), and Siebel (CRM). While other vendors offer a variety of solutions, Oracle has put in significant effort to harmonize the integration of products as they have been developed and acquired. The solution connects information from one enterprise application and displays it in context in another application.

Oracle WebCenter works with third-party applications as well, offering an open API. It can be dropped into existing web applications with just two tags.

Multichannel: Oracle WebCenter exposes content through multiple channels. This includes enterprise intranets, email, external websites, mobile formats, and so on. Documents can be converted into PDF, XML, HTML, XHTML, and mobile formats, allowing sharing and reuse of content. File formats can be converted automatically. A document originally created for print, for example, could be converted for viewing on a mobile device.

Scalability: Oracle WebCenter is a high-performance, scalable platform that can meet the demands of enterprises, including the ability to ingest millions of documents per day. A single node of Oracle WebCenter Content can ingest anywhere from 11 million
to 23 million content items per day on generic server hardware, more than 91 million files per day with an Oracle Exadata Database Machine Quarter Rack Hardware, and nearly 179 million files per day with Oracle Exadata Database Machine Half Rack Hardware.

**Search:** Most people are familiar with full text search, but fewer are familiar with metadata search. Oracle WebCenter’s metadata search capabilities allow users to put parameters on searches and pinpoint the proverbial needle in the haystack. By applying metadata, users can narrow the search to particular values—documents of a certain file type, authored by a specific individual, within certain dates, with specific keywords and so on.

**Risk Management**

Oracle WebCenter provides a single view into enterprise retention schedules, disposition actions, and audit histories, simplifying compliance with internal policies and regulatory mandates. You can identify risks and take steps to mitigate them. In the event of litigation, legal discovery can be predictable and trusted. Compliance and legal teams can apply litigation or audit holds to content in order to prevent deletion of crucial information.

**A Single Lifecycle Management Console:** With Oracle WebCenter, you can define records and lifecycle management policies. A central policy engine is used to set record schedules and retention policies for business information.

You can set policies for creation, declaration, classification, retention, and destruction of content and business records. Every content item has a digital record that can be tracked from creation to destruction. Oracle WebCenter also provides adapters so that records management capabilities can be applied to external repositories and applications, such as email archives and document management systems. These built-in adapters provide a single point of interaction for electronic and physical records management.

**Collaboration**

We are living through a revolution in how we work. Technology has broken down barriers and made it possible for people to work together in new ways. Collaborative networks are the business counterparts to social networks. In terms of enterprise content, this puts a premium on underlying infrastructure such as version control and integration with desktop tools. Enterprises need systems that manage workflows in which multiple people may be working on the same documents. In a sense, collabora-
tion via social networks means that new ways of working change traditional workflow approaches. This collaboration is productive and inherently good, but it does require that content management systems capture all of this interaction and related information in a way that can be tracked and found again. Oracle WebCenter combines the underlying infrastructure with the latest social tools providing freedom and flexibility combined with accountability.

Innovation

Enterprise content management isn’t just about cutting costs and reducing redundant systems and paper waste. Surviving our difficult business climates requires more than just cutting costs. The most competitive, strongest organizations need to be able to find new markets and new opportunities. A shared, integrated content management system can provide a foundation for innovation and top-line benefits.

Companies can’t innovate unless they can locate and build on previous innovations. For example, in material sciences, aerospace, and computing, a “failed” experiment from three years ago might have been conducted before the market was ready for the nascent solution. But the market might be ready now. A technologically impossible idea from 10 years ago may well be feasible now. Good ideas can be reexamined to fuel new projects and products.

Content as a Strategic Asset

When you use a unified enterprise content management system, you can turn content from something that you simply “store and manage” into a strategic asset that empowers your organization. You won’t just save money by freeing up your design talent from copying and formatting content; you’ll add to the top line because designers will have more time to create high-impact content. You aren’t just saving time looking for documents; when analytics are built into your search, you might discover something you otherwise would have missed. When you can collaborate with confidence that you’re all literally “on the same page,” ideas happen, and they can be rapidly launched with the right resources and support documentation. When content can be centrally managed, organized, created, distributed, and seamlessly integrated into the business applications you use every day, it starts to work for you rather than against you. It becomes a strategic weapon for differentiation rather than an information flood.
Oracle WebCenter: A Leader in User Engagement

Beyond content management, Oracle WebCenter provides the full platform organizations need for user engagement. It includes social and collaborative capabilities that are the heart of the Oracle Social Network. It provides strong web experience management as well as the ability to create portals and composite applications.

Conclusion

For many organizations, a tangled mass of systems and information chokes the organization with its own information. It saddles them with high costs, blinds them to risks, and stifles productivity, collaboration, and innovation. Legacy systems leave the enterprise unable to deal with the deluge of unstructured content that is now flooding enterprise information systems—let alone capture this information in a comprehensive, reusable way and use it strategically. Enterprises are realizing it’s time to confront the problem of content management, abolish patchwork approaches, and find an enterprise solution that reduces cost and complexity.

Companies don’t just need new content management systems; they need to make content management part of a strategic infrastructure. They don’t need to consoli-
date content management systems for the sake of consolidation; they need to make
content management a strategic tool in the service of business goals.

With Oracle WebCenter, organizations can implement a cohesive strategy for managing their content across the entire enterprise, maximizing its business value. It brings dramatic savings in costs, increases productivity and innovation, and allows enterprises to better track and mitigate risks. This allows organizations to transform content from a burden into a strategic asset.