For: Enterprise
Architecture
Professionals

Mobilize, Monetize, And Harvest Enterprise Content With Interoperability Standards

by Cheryl McKinnon, February 28, 2014

KEY TAKEAWAYS

CMIS Has Progressed Beyond Vendor Hype And Solves Real Business Problems

Skepticism around new standards in content management is healthy, but architects should take note when a critical mass of large and small, on-premises and cloud, proprietary and open source vendors collaborate. Architects and developers are already creating CMIS-based applications to meet the business needs of large organizations.

Consider Harvesting From Content Silos Instead Of Breaking Them Down

Conventional wisdom dictates that silos of content are bad and that the walls should be broken down. CMIS, however, provides methods by which architects can selectively harvest useful information from a multitude of repositories without forcing migration between content management systems. Legacy systems can be decommissioned cost-effectively.

No Standard Is Perfect; Due Diligence On Products And Vendors Is Essential

Architects who plan to use CMIS to deliver content applications to their business stakeholders must carefully assess vendor platforms and their fit for specific use cases. Compliance with any standard can be inconsistent from product to product. Verify vendor claims to ensure investments in new or upgraded systems meet your needs.

Mobilize, Monetize, And Harvest Enterprise Content With Interoperability Standards

The CMIS Standard Is Solving Real-World Content Management Challenges

by Cheryl McKinnon
with Leslie Owens, Craig Le Clair, and Emily Jedinak

WHY READ THIS REPORT

Standards can help and hinder enterprise architecture. Successful standards let technology managers adopt systems that work together with minimal customization. Poor standards inhibit innovation and don't evolve with changing business demands. Most enterprise content management (ECM) vendors have embraced the content management interoperability services (CMIS) standard. Enterprises, however, often remain unsure of what CMIS is and how it can be used as part of a content management strategy. This report looks beyond vendor views on CMIS and explores how early adopters in the private and public sector apply CMIS to solve real-world business and technical problems. Architects should assess the potential role of CMIS in delivering content-rich applications to busy frontline employees.

Table Of Contents

Notes & Resources

Forrester interviewed 13 organizations for this research.

Related Research Documents

The Forrester Wave™: Enterprise Content Management, Q3 2013
September 19, 2013

The Enterprise Information Management Barbell Strengthens Your Information Value
July 15, 2013

Take A Process View Toward Enterprise Content Integration
October 7, 2010

CMIS IS DELIVERING ON ITS MISSION OF INTEROPERABILITY FOR CONTENT

The mission of CMIS is to solve the problem of "islands of incompatible systems" that results when organizations acquire or inherit multiple content management repositories.[1] CMIS originated in an Association for Information and Image Management (AIIM) Standards committee in 2005. In 2006, several vendors moved the technical work to the Organization for the Advancement of Structured Information Standards (OASIS).[2] Since the ratification of CMIS 1.0 as an OASIS technical standard in 2010 and its update to 1.1 in 2013, this document and content management spec has been supported — with varying degrees of completeness — by many ECM vendors.

CMIS offers a common object model that describes unstructured content and metadata. The spec allows applications to perform create, read, update, and delete (CRUD) operations. It enables search, simple retention and holds, and supports SOAP, REST, and browser bindings for connecting to ECM repositories and moving or accessing content (see Figure 1).

Figure 1 Use Common Development Languages To Access Content From Multiple ECIM Systems

111901   Source: Forrester Research, Inc.
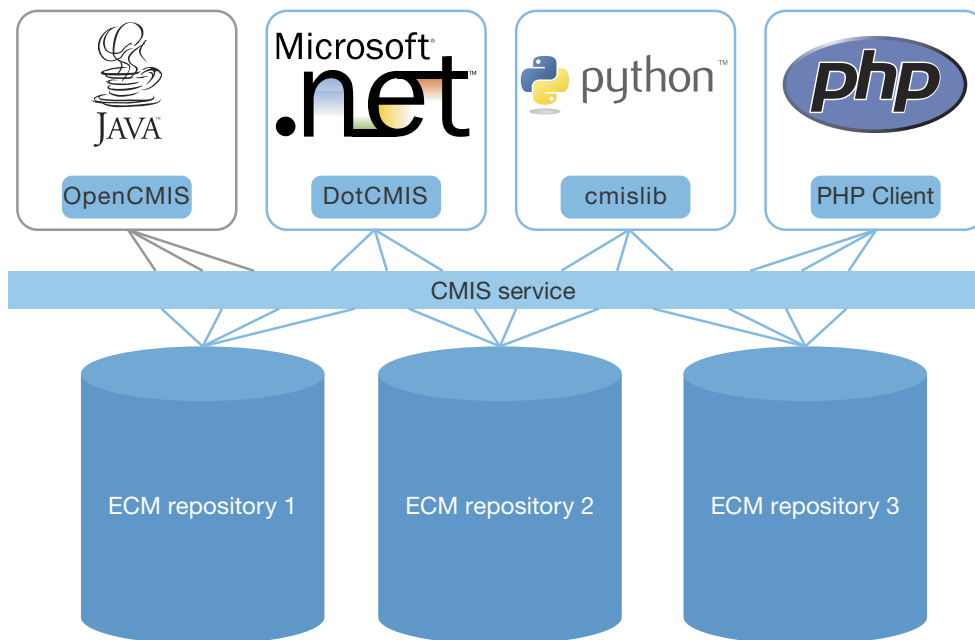
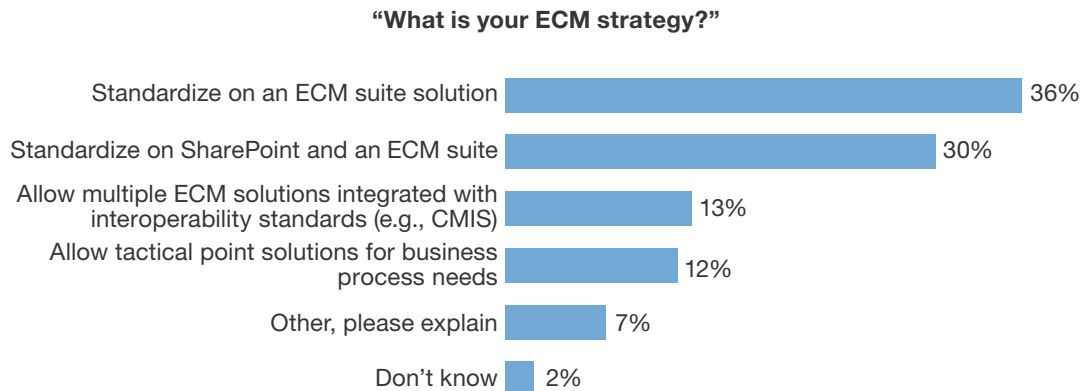## CMIS Is Designed To Help Architects Solve Business Content Problems

While ECM vendor adoption of CMIS is widespread, enterprise and information architects are still in the early stages of using interoperability as the foundation of a content management strategy. Only 13% of ECM decision-makers identify their strategy as using interoperability standards, such

as CMIS, to support multiple repositories (see Figure 2).[3] For example, a large insurance company evaluated CMIS but chose not to use it due to developer comfort with a vendor's existing application programming interfaces (APIs). However, the technology management team is actively monitoring CMIS for future projects, such as integration between their customer relationship management (CRM) system and ECM repository.

However, leading-edge architects in large enterprises have put CMIS first and the vendor product selection second. In recent client interviews, Forrester spoke to several technology decision-makers who heavily based their ECM platform choice on a vendor's commitment to CMIS. For example, a large ministry in the French government selected the ECM platform from vendor Nuxeo specifically because of its CMIS support. This ministry had determined that CMIS would be a vital component of an employee file management system to reduce the risk of vendor and systems integrator lock-in and maintain the flexibility to access other document management repositories as required. Similarly, a large US financial services firm, with 17 CMIS client integrations currently in production, stated that the standard would be mandatory for any new content management systems in the future, due to the high degree of success it has had to date.

Enterprise architects turn to CMIS to:

- **Unlock content silos.** CMIS is alternatively described as either the "SQL of content management" or the "JDBC of content management."[4] Just as common syntax languages and APIs in the 1980s and 1990s helped applications use multitudes of database engines with minimal rewrites, CMIS has the potential to do the same for content management. Because CMIS identifies a specific common ground across many ECM systems, architects can design their content applications on a predictable set of vendor-neutral baseline capabilities.

- **Access legacy document repositories.** The cost and effort to migrate content to newer systems, particularly from older systems with complicated or unpublished data schemas, can be prohibitive and delay infrastructure renewal initiatives. CMIS can offer a practical middle ground, allowing older content to be accessed from these legacy systems — including mainframes — via the new system, or with custom web or mobile user interfaces, but without requiring full-scale migration and decommissioning projects.

- **Mobilize existing business content in new apps.** Mobile-first thinking can be difficult when so much corporate content resides in older repositories. Often, ECM vendors have limited mobile access capabilities or they provide hard-to-customize apps specific to just their own repositories. To serve their always-connected customers and frontline business users, technology management professionals are exploring Apache-licensed client libraries for CMIS for iOS and Android, with the potential to offer single apps that can access and retrieve content from a number of ECM systems.[5]

Figure 2 Early Adopters Look At CMIS As A Central Part Of An ECM Strategy

"What is your ECM strategy?"

Standardize on an ECM suite solution	36%
Standardize on SharePoint and an ECM suite	30%
Allow multiple ECM solutions integrated with interoperability standards (e.g., CMIS)	13%
Allow tactical point solutions for business process needs	12%
Other, please explain	7%
Don't know	2%

Base: 179 enterprise content management professionals

Source: May 2013 Global Enterprise Content Management Online Survey

111901   Source: Forrester Research, Inc.

HEALTHY STANDARDS RELY ON ENTERPRISE AND VENDOR COLLABORATION

CMIS is by no means a panacea for all content management problems: Applications that harvest and use managed content are dependent on vendors and integrators to make the standard work. Emerging success stories bode well for this initiative today, but previous document management standards such as open document management API (ODMA) and web distributed authoring and versioning (WebDAV) have fizzled over time. Ongoing commitment to keeping the specification relevant, useful, and in line with business and technical needs will be important to maintaining staying power.

Acknowledged issues in the first iteration of CMIS, including performance, support for browser binding (for use of HTML and JSON), and support for retention and holds, among others, have been addressed in the updated 1.1 specification. The Apache Chemistry project, which has served to kick-start many real-world CMIS success stories, is a solid example of collaborative work by developers from multiple vendors, consultants, and end user organizations, delivering essential reference libraries for the major development languages used in enterprises.[6] According to one large financial services firm, "Apache Chemistry OpenCMIS has been key in the quick adoption for custom implementations."

Vendors Support CMIS Differently Across Their Products And Releases

Vendors' acceptance of CMIS ranges from comprehensive — with active participation in technical standards work — to mere lip service to complete opt-out. Some vendors tout CMIS as their recommended integration layer. Others support CMIS but put their primary development efforts

into their own proprietary APIs. It's important to understand if CMIS-compliant products support the standard as a client, a server, or both.[7] Forrester clients express concern that, to date, ECM vendors have been very slow to adopt the new CMIS 1.1 updated spec.

CMIS Adoption By Vendors Outside Of ECM Will Be The Tipping Point

A slew of related information management technologies, including web content management (WCM), portals, business process management (BPM), and collaboration tools, has embraced CMIS to allow users to more easily surface and integrate the content residing in CMIS-compliant repositories. Even enterprise application vendors, like SAP and salesforce.com, use CMIS, demonstrating the value of content in these horizontal and vertical applications.

Content is finding its place in broader information and process ecosystems, and it no longer needs to be tucked away in hard-to-use ECM systems blocked by proprietary APIs and complicated data schemas. Enterprise software vendors outside of ECM are embracing CMIS because:

- **Document security and access controls must be consistently enforced.** A use case that came up repeatedly in Forrester's client interviews is enabling mobile access to content from diverse repositories. Security and access controls for clients' corporate content need to be preserved in order to ensure compliance with policies and regulations. It's not viable to copy or migrate content to storage locations that are mobile-friendly while providing less granular access controls than an ECM system. CMIS can enable mobile app access to content inside an ECM repository, keep the document policies intact, and let the content management system perform necessary user authorization.

- **Retention rules determine document life cycles in line with corporate policies.** With the updated CMIS 1.1 specification, retention rules applied in an ECM or records management system that is 1.1-compliant are respected in other applications. For example, an expired rich media asset used by a WCM system could be flagged and retired from website use. An obsolete price list from a CRM system downloaded to a tablet by a sales manager could be automatically removed from the mobile device in line with approved corporate disposition rules.

- **Business process automation relies on transactional content.** Organizations realize the return on investment (ROI) for ECM through process automation and reduction in paper bottlenecks.[8] BPM and capture technologies play a vital role in these initiatives. BPM tools including Bonitasoft, IBM with both its case management and BPM (formerly Lombardi) tools, and Pegasystems' Pega BPM support CMIS, as does the Ephesoft capture and scanning solution. Simplified integration of these transactional content management tools with CMIS-compliant ECM systems allows organizations to build repository-agnostic vertical or horizontal process apps that meet their specific business needs while allowing portability across diverse content management systems.

BUSINESSES USE CMIS TO MIGRATE, MOBILIZE, AND MONETIZE CONTENT

Real-world examples of CMIS helping architects use, move, distribute, and safely share content beyond an ECM system are found across industries and geographies. Technology managers considering CMIS should seek out success (and failure) stories from their vendors and integrators as they plan their content and information management road maps.

Simplify Migration And Content Integration Initiatives With CMIS

Moving content from legacy content repositories to new platforms can be a costly and often labor-intensive effort. Even with vendor-provided utilities or scripts, or the use of extract, transform, and load (ETL) engines, data schema mappings across systems can be complex and even risky, particularly for older, poorly documented systems. CMIS provides a single point of access to multiple content systems without moving content. It enables large organizations in the public and private sectors to minimize the scope of migration projects and save time and money. In Forrester's interviews, architects indicated they are able to:

- **Connect to multiple archives with a single CMIS-enabled query application.** As two large European financial services institutions merged, technology decision-makers created a plan to deliver a single query interface that connected the existing repositories used by the original businesses. Architects designed a common search client that delivers query results from both repositories, rather than embarking on upfront migration to deliver combined query results. Architects identified CMIS as the preferred approach to deliver a single, simple search interface to business users, enabling access to diverse repositories, including ASG Software Solutions and IBM Content Manager OnDemand (CMOD). Technology managers continue to work to remove the complexity of multiple systems from the view of typical users, allowing them to get the data they need quickly.

- **Migrate content out of decommissioned ECM systems to newer platforms.** A high-profile US Department of Defense office embarked on an infrastructure modernization initiative, including a refresh of a task and records management application. The cost of upgrading its outdated ECM repository to the current version from the same vendor was projected to be as expensive as adopting an entirely new system. CMIS was a key component of the migration effort from the legacy system to the new one based on Alfresco Software. The old ECM system did not support CMIS, but the integrator for the project used the OpenCMIS developer library (part of the Apache Chemistry project), adding a CMIS interoperability layer that uses the incumbent product's own APIs. No scripting or ETL tools were needed. The reusable code is anticipated to deliver cost savings with each additional project. End user requirements, initially thought too difficult to deliver with the previous system, have now been met with CMIS. These included the ability to access content from multiple repositories in one user interface and the allowance of multiple access methods, such as mobile and web clients.

Accelerate Content Mobilization With CMIS

ECM vendors have been slow to provide intuitive mobile client apps, and those that have restrict these apps to accessing only their own products. CMIS can enable applications to securely deliver enterprise content to smartphones and tablets.

For example, SAP launched a mobile document access app to bridge ECM and mobile devices. As a large, multinational company, SAP — like many of its customers — uses several ECM systems internally. Busy frontline workers needed a secure way to get access to their documents, regardless of source repository, via phones or tablets. A single secure cross-repository app didn't exist to solve this problem, so SAP built its own by using CMIS to harvest content from more than 15 content sources, including Alfresco, OpenText, SAP Knowledge Management, and SharePoint. Now commercially available to customers, SAP Mobile Documents is a component of the SAP Mobile Secure portfolio and provides online, offline, and file sync support to frontline workers who work in content-heavy environments. CMIS allows the underlying content management systems to control the permissions, audit trails, and business rules applied to documents. For example, a sensitive proposal could be downloaded to a tablet for an on-site customer meeting but secured so that it could not be printed while on the road.

Tech Innovators Serve Customer Needs And Find New Revenue Sources With CMIS

While CMIS has demonstrated its potential to reduce the cost and effort of delivering content applications, it is also opening up ways for solution providers to generate new revenue with their customers.

For example, ADP has responded to customer needs for secure, contextual management of personnel files. ADP has offered human capital management and other business outsourcing services for more than 60 years, but it continues to explore new ways to serve its clients' needs. CMIS played a central role in a recent offering, called the ADP Document Cloud. Clients who use ADP for their payroll, benefits, and HR systems wanted a secure, easy way to manage their sensitive employee files (such as forms, documents, and media pertaining to hiring, work eligibility, benefits, and confidential medical information).While most clients have their own internal content management systems, HR departments view employee records as unique and wanted them stored in context with the rest of their secure data, hosted by ADP. CMIS was a key requirement for selecting the content repository that would serve as the back end to the Document Cloud. ADP wanted control of its product road map, with the flexibility to use other repositories as a back end should its requirements change. CMIS was a way to build its product and keep a level of vendor neutrality. The company selected Alfresco as the ECM platform, largely due to its maturity with CMIS and commitment to the standard's evolution.

WHAT IT MEANS

ARCHITECTS HAVE NEW TOOLS TO SOLVE BUSINESS CONTENT CHALLENGES

While it is not a surprise that CMIS is approaching critical mass with ECM vendors, it is also gaining traction with technology providers in adjacent markets and with early adopters inside enterprises. Continued adoption of this interoperability standard outside of core ECM markets will be a critical factor in its staying power: CMIS delivers content into bigger information ecosystems.

Architects recognize the value of "code once and reuse" — the ability to decouple the client application from the back-end repository results in less rework, more portability, and more flexibility to upgrade modular components of an infrastructure. Content-rich applications can be designed to deliver on business objectives, without compelling lock-in to a particular ECM platform. Enterprises that have evolving requirements, that need to stay agile, or that are growing through acquisitions can offer consistent user experiences regardless of the underlying repositories through CMIS.

A small number of ECM vendors remain laggards when it comes to CMIS adoption. As industry leaders in ERP, CRM, or WCM markets jump on the CMIS bandwagon, basic abilities to access and use content from ECM systems will become table stakes. Forrester anticipates that solution providers will balk at developing custom connectors when the majority of ECM vendors support more plug-and-play integration. Vendors that make it difficult to tap into their content repositories using common connectors will be perceived as too costly to maintain over the long term if custom code is required to access legacy content.

As natural infrastructure refresh projects occur, customers will have to make decisions about what repositories to migrate and decommission versus those to preserve and access. Enterprises that have developed expertise with CMIS are unlikely to acquire new ECM systems that don't support the standard.

SUPPLEMENTAL MATERIAL

Methodology

Forrester's May 2013 Global Enterprise Content Management Online Survey was fielded to 179 technology management professionals. Forrester fielded this survey from April to May 2013. Respondent incentives included a summary of the survey results. Exact sample sizes are provided in this report on a question-by-question basis.

This survey used a self-selected group of respondents, Forrester contacts interested in enterprise architecture and content management, and is therefore not random. This data is not guaranteed to be representative of the population, and, unless otherwise noted, statistical data is intended to be used for descriptive and not inferential purposes. While nonrandom, the survey is still a valuable tool for understanding where users are today and where the industry is headed.

Companies Interviewed For This Report

ADP	Postbank Systems
Alfresco Software	SAP
ASG Software Solutions	State of Colorado, judicial branch
Fidelity Investments	Strategic Operational Solutions Inc.(STOPSO)
IBM	TIAA-CREF
Ministère de l'Éducation Nationale (France)	Zia Consulting
Nuxeo	

ENDNOTES

[1] To learn more about the mission and purpose of the OASIS CMIS Technical Committee, refer to the project charter and scope statement. Source: OASIS (https://www.oasis-open.org/committees/cmis/charter.php).

[2] To learn more about the historical roots of CMIS, please refer to the following book. Source: Florian Muller, Jay Brown, and Jeff Potts, *CMIS and Apache Chemistry in Action*, Manning Publications, 2013.

[3] Source: Forrester's May 2013 Global Enterprise Content Management Online Survey.

[4] CMIS is the "SQL of content management." Source: Florian Muller, Jay Brown, and Jeff Potts, *CMIS and Apache Chemistry in Action*, Manning Publications, 2013.

CMIS is the ""JDBC of content management." Source: Interview with IBM product marketing, December 2013.

[5] To learn more about the Apache Chemistry project and the open source CMIS client libraries it supports, please visit the Apache Chemistry website (http://chemistry.apache.org/).

[6] To learn more about the Apache Chemistry project, please visit the Apache Chemistry website (http://chemistry.apache.org/).

[7] For example, Microsoft SharePoint continues to be the most pervasively used content management system for both ECM and records management. While SharePoint 2010 was widely viewed as having a weak implementation of CMIS, SharePoint 2013 includes improvements allowing it to be used as a CMIS server. Support for a consumer web part that allows SharePoint 2013 to act as a CMIS-compliant client, however, has been removed, requiring developers to create new interfaces to use SharePoint to access other ECM repositories. Similarly, some ECM vendors, such as OpenText, support CMIS only in specific parts of its product portfolio. Users of solutions based on the OpenText Content Suite Platform, Archive All-in-One, or InfoFusion offerings have CMIS as an option, while document management users of Content Server or eDOCS alone do not.

[8] Source: Forrester's May 2013 Global Enterprise Content Management Online Survey.

About Forrester

A global research and advisory firm, Forrester inspires leaders, informs better decisions, and helps the world's top companies turn the complexity of change into business advantage. Our research-based insight and objective advice enable IT professionals to lead more successfully within IT and extend their impact beyond the traditional IT organization. Tailored to your individual role, our resources allow you to focus on important business issues — margin, speed, growth — first, technology second.

FOR MORE INFORMATION

To find out how Forrester Research can help you be successful every day, please contact the office nearest you, or visit us at www.forrester.com. For a complete list of worldwide locations, visit www.forrester.com/about.

CLIENT SUPPORT

For information on hard-copy or electronic reprints, please contact Client Support at +1 866.367.7378, +1 617.613.5730, or clientsupport@forrester.com. We offer quantity discounts and special pricing for academic and nonprofit institutions.

Forrester Focuses On
Enterprise Architecture Professionals

By strengthening communication and collaboration across business lines and building a robust, forward-looking EA program, you help transform your organization's business technology strategies to drive innovation and flexibility for the future. Forrester's subject-matter expertise and deep understanding of your role will help you create forward-thinking strategies; weigh opportunity against risk; justify decisions; and optimize your individual, team, and corporate performance.

« **ERIC ADAMS,** client persona representing Enterprise Architecture Professionals