

## The implementation of Open Text Content Server and its role in relation to the management of information's lifecycle - the Canadian Context

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### Abstract

*The increasing volume of content created in various media, makes it more and more challenging to manage it throughout its lifecycle. The Enterprise Content Management (ECM) tools available, can address the full scope of content management needs. Nevertheless, the key to a successful management of content enterprise wide is the successful implementation of the ECM tools. The article at hand discusses the use of Open Text's Content Server as an enterprise content management solution for the private and public sectors in Canada, and its implementation in order to manage information throughout its lifecycle. Specifically, the analysis focuses on the implementation of Content Server in a large municipality and in a large Canadian oil company, and the challenges these organizations face regarding the lifecycle management of their information. The article uses interviews with professionals from these organizations who lead enterprise information management or participate in decision-making processes. Based on these interviews, the article draws conclusions regarding the implementation of Content Server and the preparedness of the organizations to manage information of long-term business value in the electronic environment. In addition, the article demonstrates how the lack of an ECM strategy governing the enterprise-wide implementation of the tool affected the effective and efficient management of content throughout its lifecycle in the organizations under discussion.*

### 1. Introduction

Year after year, information becomes more complex and the volume of content steadily increases. Organizations in both the public and private sectors seek opportunities to strategically maximize the value of content residing in various locations and media. Enterprise content management as a concept, along with the solutions offered and the products developed, has evolved over the decades and today plays a significant role among the approaches that organizations take in order to achieve operational efficiency, consistency and regulatory compliance. ECM tools, long-term implementation strategies, and new business processes, take a more central role within organizations' strategic plans. However, when it comes to managing the lifecycle of content, what makes the difference and leads to success or failure is the way an organization implements an ECM solution.

The Association for Information and Image Management (AIIM) defines ECM as the strategies, methods and tools used to capture, manage, store, preserve, and deliver content and documents related to organizational processes (AIIM, 2010). Another definition for ECM is: Enterprise Content Management comprises the strategies, processes, methods, systems, and technologies that are necessary for capturing, creating, managing, using, publishing, storing, preserving, and

disposing of content within and between organizations (Grahmann et al., 2012). The concept of ECM is not a recent development, and various definitions have been developed over the years. However, the majority of definitions identify ECM as a combination of strategies, processes, tools and systems that serve the purpose of taming the volume of content created, accessed, exchanged and stored enterprise wide, and throughout its lifecycle.

In order to gain a better understanding of the benefits, challenges and areas for improvement when it comes to content management in the private and public sectors in Canada, we invited records managers from a large municipality and a large energy company, to share their perspectives, thoughts and experiences in relation to the ECM solutions deployed by their organizations.

Both these organizations invested in the basic functionalities of Open Text's Content Server solution in order to increase business efficiency, enable better access to information and collaboration and ensure business continuity. The two organizations selected this specific solution for different reasons, and took different approaches to implementing it. However, neither organization developed an ECM strategy prior to implementing Content Server, which led to gaps and inconsistencies. In addition, since they implemented basic modules of Content Server and did not implement it for all of their business units, the organizations are far from managing their content throughout its lifecycle.

## **2. The implementation of ECM solutions**

The ECM implementation landscape is complex, heterogeneous and fragmented. Most organizations have taken some form of focused content management initiative where ECM tools are used to address the needs of a specific function or department and are primarily focused on managing the creation of information (version control, manipulation permissions etc.), access to information (active and semi-active) and collaboration. These content management initiatives are struggling due to their narrow focus, siloed service and limited enterprise commitment. Since there is no unified and strategic management of the content, inconsistencies and gaps are addressed on a case-by-case basis and, as is to be expected, the implementation of ECM solutions, regardless of the quality and capabilities of the tools, is ineffective and in some cases, puts the organization's operations at risk. The best way to create and communicate the desired ECM vision for an organization is through the development of an enterprise content management strategy (Alairys, 2006).

An ECM strategy helps align all levels of the organization and provides a solid foundation for communication with stakeholders, processes, applications and systems: it creates a "content ecosystem". The development of an ECM strategy prior to the implementation of an ECM solution identifies areas that need to be standardized, sets a common set of practices to create interoperability and enables compliance with regulatory and organizational policies. An ECM strategy, through architecture, standards, guidelines, best practices and processes, enables the successful implementation of an ECM solution since it is expected that technologies and platforms will change over time but the common set of practices will persist (Province of British Columbia [Canada], 2012). The ECM strategy creates the foundation of an strong,

ongoing governance model that clearly defines roles and responsibilities, provides guidance to the stakeholders throughout the ECM implementation, keeps the focus on the required enterprise approach when adjustments are needed and at the same time sets universal baselines for all (Province of British Columbia [Canada], 2012). The strong governance model established by the ECM strategy prior to the implementation of an ECM solution, ensures content is accessible, classified, managed, protected and stored consistently across the organization.

For organizations that aim to an all-inclusive, enterprise-wide ECM solution implementation, it is important to take a strategic approach that focuses on key areas, people, processes, content and technology (Kumar, 2014). A shortsighted focus on only one element - the technological implementation of ECM for example - leads to an ineffective content management ecosystem, and will inevitably undermine the implementation and the sustainability of the solution. The ECM strategy needs to focus on these key areas when designing an ECM solution for the organization, while implementing the solution and when assessing the implementation and considering changes.

## 2.1 People

This area refers to all stakeholders behind the technological implementation: employees, IT support staff, executive level leadership, vendors etc. The ECM strategy needs to be developed around the business requirements, capabilities and business culture. In addition, the business requirements and goals need to be closely monitored for changes, which will result in proactive adjustments. When implementing a technological solution without taking into account the people

and their needs, there is minimal opportunity for success. Failure in implementation could be precipitated by a number of issues including resistance to change, a lack of required skillset, strong folksonomies, personal/peer level vocabularies and a lack of standard content. The ECM strategy will connect people with content, and by understanding the business and its needs will align the tools and processes with the content people create and with the ways they want to contribute, access, share and reuse it. With that in mind, an organization needs to manage change, invest in ongoing training and generate awareness.

## 2.2 Processes

When designing the ECM architecture, all steps, protocols and tactical procedures need to support existing business operations that are facilitated by the content management solution. Therefore, before the implementation, an organization needs to identify and analyze the business requirements, focus on users' perspectives, map the processes and procedures that are relevant to the ECM solution's implementation and identify critical success factors (Jedd, 2008). These steps will optimize learning curves and will enable adoption while integrating business processes.

The governance model established through open industry standards, policies and procedures will ensure that the solution supports business processes, it is routing content and creating audit trails (Escalona et al., 2015). Additionally, an important step to take is to establish a set of metrics that can periodically evaluate the system's status. Overall, when assessing an ECM solution, the

organization needs to consider vendors with stronger process capabilities.

### 2.3 Content

This key area refers to the whole of unstructured content spread across the organizational systems and repositories regardless of formats. When developing an ECM strategy, an organization identifies the different repositories, systems and content silos, specifies the ingestion points, establishes metadata taxonomies and designs proactive migration projects. These steps, in conjunction with the established governance model, will enable records management functionalities and ensure accessibility, and content reusability. Moreover, due to the enterprise-wide architecture, there is greater control over the content and visibility, which empowers a range of client services and support for new content types and delivery models.

### 2.4 Technology

Technology refers to the physical and electronic IT infrastructures needed to facilitate content lifecycle management (Kumar, 2014). The technological infrastructure supports application rationalization and reconfiguration and standardizes common interfaces. Additionally, technology supports migration needs and enables access to and sharing of content, regardless of the repository, and enables federated vocabularies. Technology enables applications and systems to be coordinated and function collaboratively and ensures interoperability.

## 3. The Canadian (Alberta) context

Alberta, Canada, presents special interest when it comes to the implementation of ECM solutions. On the one hand, Calgary is the home of Canada's largest energy companies and their supporting industries. On the other hand, there are large municipal governments with long term investments in tools and infrastructure that support the management of their content. Energy companies rely heavily on robust information management systems that ensure information quality, collaboration and information access and retrieval. At the same time, some municipalities such as the City of Calgary were early adopters of products like Livelink making them good candidates for discussion on the implementation of ECM solutions.

The public and the private sectors in Alberta took different strategic directions and invested in different components for the management of their content. However, as they share the needs for operational efficiency, systems and applications integration and adherence to specific legal frameworks, they are good case studies. As stated earlier, the article at hand focuses specifically on the implementation of Content Server in Alberta. Therefore, we discussed the implementation of Content Server with two professionals who participate in decision-making processes and who represent large organizations of the private and public sectors.

### 3.1 Open Text Content Server

Open Text is a Canada-based company, which over the years has evolved and become the second largest ECM vendor

in terms of worldwide market share (Koehler-Kruener et al., 2015). In 1996, Open Text introduced Livelink, which was the first web-based collaboration and document management system. From 2003 to 2005, Livelink evolved into a software suite that included several software products. Open Text continued to introduce product bundles that include records, document management and archiving capabilities (OpenText, 2014). In 2012, Open Text introduced Content Suite, a portfolio of enterprise content management software products. Therefore, Livelink ECM- Enterprise Server became known as Open Text Content Server and is a key component of Content Suite.

Open Text aims to address the full scope of content management needs, hence, Content Server is a combination of different modules that, in specific configurations, address different needs related to capturing, processing, accessing and storing information (OpenText, 2014). Open Text has a strong footprint within solutions, especially for government and the utilities/energy industries. It has strong technical partnerships with SAP, Microsoft and Oracle, and offers a robust portfolio with a heavy focus on traditional ECM functionalities (Koehler-Kruener et al., 2015).

### **3.2 Private Sector – Energy Company based in Calgary**

This large Canadian energy company was established in 2009 when the mother corporation split into two distinct companies. The company under discussion has approximately 4,500 employees, and operates mainly in Canada, specifically in the provinces of

Alberta and Saskatchewan.

As is the case with all energy companies, the organization requires the coordination of different operations and resources in different locations. Moreover, it uses different applications and software products that create dynamic structured and unstructured information. In addition, given the different legal frameworks that the company must adhere to (provincial, federal, state and international), the organization needs reliable long-term retention of information for reporting and operational sustainability purposes.

Open Text's Content Server had been chosen for the management of content before the company split into two in 2009. After the split, the company under discussion inherited the business infrastructure and resources and continued to support the implementation of Content Server. Today, the company retains dedicated ECM groups as parts of its IT department that supports the implementation of ECM and provides guidance to the whole organization through a centralized model. It is important to note here that in 2006, the mother company replaced IBM FileNet with Livelink as their ECM solution.

#### ***3.2.1 Current state***

The organization, as mentioned above, has developed a centralized model and takes a user-centric approach where each department/group identifies – sometimes in cooperation with the IT department – the software application most suitable to their needs and deploys it. Consequently, when it comes to the implementation of Content Server, each department/group can use its capabilities in combination with other applications to the extent they

require, and they can manage it as they find useful.

Even though each group at the company has employees who are named “expert users”, there are no Content Server administrators. The expert users do not have additional rights, and in cases when there are difficulties and the business requires help or guidance, the users make the requests to the IT help desk.

From an information management perspective, it is important to note that when they split in 2009, the two companies did not separate their information assets. That division is planned as part of a multi-staged project where the companies plan to identify and appraise records at the file level; however, that does not apply to Content Server, but mostly to physical records. Besides Content Server, the organization also uses SharePoint (2007 and 2013) for information management, and intends to implement the lifecycle management of information through SharePoint since Content Server is used mainly as a repository. There is a first level taxonomy, which is partially function-based. In addition, there is basic classification, and the Records Management group, which along with the ECM group belongs to the IT department, is using Content Server to manage the physical records, which reside primarily off site. There are some integration points with other applications; however, the company has not integrated records disposition functionalities.

### ***3.2.2. Main strengths of Content Server***

In our discussion with the lead of information governance at the energy

company, she identified the main advantages of implementing Content Server as:

- Content Server had a quick uptake and the users find it easy to use. In particular, the users who were familiar with the shared drive environment find the transition to Content Server easier because of its directory-type structure, as opposed to SharePoint, which requires metadata tagging. However, Content Server is not an uncontrolled environment, since the users require a certain level of experience in order to use it.
- Content Server, has an off-the-box audit trail functionality, which is not the case with SharePoint.
- The fact that Content Server is web-based makes it familiar and easy to use; hence, when the organization seeks to implement information management policies and standards enterprise wide uses Content Server as a tool.

### ***3.2.3. Main weaknesses of Content Server***

The main weaknesses on the implementation Open Text Content Server, according to the interviewee are:

- Information searching and retrieval is not easy and the results are not always relevant. This results in the users turning to the IT help desk, which is not always able to provide assistance.
- The users are not able to retrieve information when searching by its creator, especially when the person has left the company.

### ***3.2.4. Next Step***

The ECM group and the Records management group are in constant

cooperation in order to support the use of Open Text Content Server, improve the services provided to the business and suggest specific improvements. The information governance group has developed an assessment tool based on ISO 15489, which aims to assess the services and the current information management practices at the company and lead to more targeted improvements.

Additionally, they are working towards the development of a de-centralized model where information management professionals will be embedded in the groups and departments of the company and will provide guidance on the use of tools and applications. The energy company under discussion has invested a lot in the continuous training of professionals and teams. The training teams support the business in the use of both Content Server and SharePoint, and aim to develop in-house expertise on the use and better implementation of the applications.

### **3.3. Public Sector – The case of a large municipal government**

The municipality that we are focusing on for the purposes of this article was established in 1894. It is a large municipality and it is expanding every year and, according to its 2015 census, the population is 1,230,915 signifying a three percent increase from 2014. The City employs approximately 10,000 employees, and its business model is structured in departments such as: Environmental and Safety Management, City Clerk's Office, The Office of the Mayor, etc. The municipal departments include business units that manage its different functions and activities.

As is to be expected, in order to coordinate and manage all of its functions and activities, the City requires the use of a number of software applications, and is constantly seeking opportunities to increase efficiency. In addition, the management of information at the City, besides contributing to the efficient conduct of its businesses, has the important role of keeping the City accountable to the public. The City also responds to Freedom of Information requests; therefore, it invests systematically in the improvement of information management, access and disposal processes.

As early as 2000, three business units at the City that deal with the property assessment processes that result in the collection of taxes, identified a business need for a solution that would streamline the retrieval of and access to information. The interest was mainly in a document management application, rather than content management system. However, more business units came up with the same request; the City has a legal mandate to respond within a specific timeline to assessment appeals, Freedom of Information requests and other inquiries, which makes successful information retrieval much more important. At the time, the document management solution, search and identification was led by the municipal IT department, which identified Open Text Livelink as the most suitable solution, since it was an integrated solution with more than one functionality i.e. records as well as content management.

#### ***3.3.1. Current state***

The municipality intended to build a bottom up solution where different business units that are interested in

improving their processes, would be in a position to manage their information in a consistent manner while remaining compliant with laws, bylaws, policies and standards (City of Calgary [Canada], 2013, City of Calgary [Canada], 2014). Therefore, the IT department and the corporate records management group, which is part of the City Clerk's department, cooperated with the business units to invest in the development of the infrastructure that would support not only Livelink, but also the constant evolution of the City as an organization and the volume of information to be managed. The infrastructure had to enable consistency including standard naming conventions and metadata elements as well as access to and retrieval of information and the constant development of the scheme.

The implementation of Livelink, and subsequently Content Server, evolved along with the evolution of the products throughout the years. For the management of records, the City bought the iRIMS module from Open Text in order to ensure compatibility (OpenText, 2000). The management of records is a well-established function at the municipality under discussion -it is a corporate-wide function that is backed by a bylaw, and the corporate records management and archives group is included as a stakeholder, under various collaboration schemes, during information management related projects (City of Calgary [Canada], 2005). The role that the corporate records management group played during the design, implementation and upgrades of the Open Text products was very important. Given that the management of records includes, besides the classification of records, the definition of metadata sets and the improvement of information retrieval and access, the corporate records management group

helped substantially during the customization and testing phase of Content Server. Their contribution was especially important, since the functionalities of the solution at the time were not as modular as they are now, but were embedded in the code. In addition, the records management group developed standards that contributed to the overall governance of the implementation of the solution.

### ***3.3.2. Main strengths of Content Server***

In our discussion with the Corporate Content Management Team Lead for the City, she identified as the main advantages implementing Open Text Content Server at the City:

- Content Server is compatible with key applications outside of the Open Text suite.
- The solution is developed by a confident vendor who provides constant support.
- Content Server's modular nature increases the levels of customization.

### ***3.3.3. Main weaknesses of Content Server***

The main disadvantages of implementing Open Text Content Server at the City are:

- The fact that the functionalities are broken down into modules increases the cost for the City. The stakeholders need to build stronger cases every time they need to request additional funds, when at the same time it is unclear whether the functionalities could be developed by using the existing products.
- Since the City was an early adopter of the solution, at a time when the

solution itself did not have the completeness that it has today, their infrastructure must be constantly adjusted to the current characteristics of the product.

- There is a constant need to adjust the metadata sets that are captured in order to make the information accessible to more departments, rather than only to the creator. These processes are not streamlined because initially the product was not modular enough, which makes it difficult to re-use the metadata. Because of this, the City must constantly monitor and adjust the metadata sets to make the most of its investments.

### ***3.3.4. Next Steps***

The City has invested in the development of an infrastructure in order to support the management of its information. The next step is towards digital assets management, a functionality that would improve the processes for many of its departments. These functionalities, which manage recordings and other media files and their relevant metadata sets, must be integrated with the records management functionality, along with the rest of the existing modules. In addition, the City is looking for solutions that will lead to a better presentation of information, which would be especially helpful at the executive level.

In addition, the City is now exploring solutions for digital preservation that would enable the management of information through the final phase of its lifecycle. The plan is for the City to be in a position to apply disposition and to ensure the long-term retention of information presenting archival value. As stated above, the organization has

invested in the on-going training of its employees, as well as in the in-house development of expertise.

## **4. Implementation of Content Server by the private and public sectors in Canada**

ECM is described as a combination of strategies, processes, tools and systems. The ECM solutions available offer a wide range of functionalities. However, it is understandable that one solution will not meet the needs of every business area and that the “one size fits all” approach does not work regardless the size of the organization. The key to a successful use of an ECM solution is in how an organization implements the selected ECM tool.

As discussed earlier, prior to the implementation of a solution, it is imperative that an ECM strategy be developed. The ECM strategy will take into consideration the business requirements and the existing capabilities and limitations, and will lead to a strong ECM governance model. The cases of the private energy company and the large municipality described above help us draw conclusions about the gaps and challenges that an organization might come across when implementing an ECM solution.

Even though there are specific differences between the two organizations, primarily regarding the drivers behind selecting the specific ECM solution, the maturity of the infrastructure and the plans to expand the tool’s use, the organizations have in common the lack of an ECM strategy. That led to gaps and challenges in all four key areas described above, which an ECM strategy would have addressed.

## 4.1 Private sector

The organization in this case inherited the ECM tool and it is not sure if it was relevant to its business needs and requirements. The focus of implementation in this organization is on the technological side, and it does not take into consideration the people and processes, or the content created.

**People:** The implementation of Content Server is left to the business groups with minimum guidance, without well communicated enterprise wide requirements and with no change or knowledge management programs in place. The investment in a training program is not enough itself to balance the lack of robust governance.

**Processes:** It is not clear how the ECM solution supports the existing business processes and functionalities. There is no integration and the overall map of processes seems to contribute to developing silos, rather than to breaking them.

**Content:** There is no ingestion of content from the different applications, nor is there migration from legacy systems and repositories. The content is still scattered across the organization and accessing and reusing it is almost impossible.

**Technology:** From a technological point of view, the organization did not move to applications rationalization. The access to content residing in different repositories is not achieved, and systems and applications are not coordinated or interoperable.

## 4.2 Public sector

The organization in this case was driven to implement Content Server by a specific business need. However, there was no ECM strategy developed, and the expanded use of the tool is not realized as part of an enterprise wide plan, but is rather based on a reactive approach.

**People:** The implementation of the ECM tool is targeted, and even though the organization attempts to build in house expertise, it is not clear if there is a robust training and change management program, or well-established collaboration among the stakeholders.

**Processes:** Again, the targeted nature of the implementation at the City prevents the integration of the processes enterprise wide. That will make it difficult to break silos in the future when the ECM solution will expand its use.

**Content:** As described earlier, the ultimate goal for the City is the management of its digital assets, which requires integrated repositories and systems. The fragmented implementation of Content Server, however, doesn't enable accessibility, and the well-defined metadata elements are not enough to ensure accessibility enterprise wide.

**Technology:** The City has lots of ground to cover when it comes to the technological aspect of the implementation of Content Server. The technological infrastructure has not reached the desired levels that would support the lifecycle management of content, even though the organization is exploring its options regarding digital preservation.

## 5. Final remarks

As stated above, the successful implementation of an ECM solution depends on the existence or absence of an ECM strategy. The need for a strategic approach that focuses on the key areas of people, processes, content and technology is common for all organizations regardless their size, financial dynamic or the legal framework in which they operate. The article at hand discussed the implementation of Open Text Content Server in Alberta Canada; however, the challenges and inconsistencies identified can be detected in the implementation of different tools regardless of the geographical location and the type of organization – public or private.

With that in mind, the energy company and the large municipality in Canada are no different from the Department of Science and Technology and the municipal governments in South Africa. The energy company in Canada invested in Content Server, a complete tool that can address every need and is provided by a confident and dynamic vendor. However, the tool is not relevant to the business needs of the company, its functionalities are not fully used and stakeholders do not support it. Therefore, the implementation of the ECM solution cannot be considered successful for the same reasons that the implementation is not successful for the national government ministries in South Africa (Kwatsha, 2010).

Furthermore, the implementation of Content Server at the large Canadian municipality, which was one of the early adopters and where the information management infrastructure is more mature, presents many similarities with the experience of the institutions in South

Africa that have used ECM solutions for over five years (Katu, 2012). Even though the large municipal government in Canada does not rely heavily on Value Adding Resellers (VAR) and the use of Content Server has matured for specific business units, the implementation of the ECM solution is fragmented and reactive, failing to promote transparency and accessibility. These challenges are comparable to the challenges faced by government departments in South Africa, where the lack of a cohesive ECM strategy and the fragmented and uncoordinated implementation of open source ECM solutions, resulted in higher costs and the loss of valuable time (Ngoepe, 2015).

Every organization around the globe seeks the best possible solution, within its means, that would enable the management of its content throughout its lifecycle. Whether the organizations choose to invest in a proprietary or an open source solution, it is important that they have developed an ECM strategy that coordinates key stakeholders, IT architecture, processes, systems and applications before, during and after implementing the solution.

In conclusion, Enterprise Content Management encompasses the strategies, processes, systems and technologies used to manage content enterprise wide and throughout its lifecycle. The ECM vendors build and offer a wide range of functionalities. The successful management of content throughout its lifecycle, however, depends on the successful implementation of the ECM solutions available.

By interviewing professionals from large private and public organizations in Canada, we were in a position to identify gaps in the implementation of Open Text's Content Server that stem primarily

from the fact that the organizations did not develop an ECM strategy prior to the implementation of the ECM tool. Therefore, there is not strong governance and the implementation is fragmented, irrelevant to the business processes and needs or is not in accordance with the long-term goals of the organizations.

## References

- AIIM. (2010), "What is Enterprise Content Management", available at: <http://www.aiim.org/What-is-ECM-Enterprise-Content-Management.aspx> (accessed 21st August 2015).
- Alairys, T. (2006), "Making the Case for Enterprise Content Management Strategy", *AIIM E-DOC*, Vol. Nov/Dec, p. 24.
- City of Calgary [Canada]. (2005), "Corporate Records Management Program City Clerk's Office: Audit Report 04 – 16", available at: <https://www.calgary.ca/Auditor/Documents/City-Auditor-reports/AR04-16.pdf?noredirect=1> (accessed 7th July 2015).
- City of Calgary [Canada]. (2013), "Administration Policy: Information Governance", available at: <http://www.calgary.ca/CA/cmo/Documents/IM-IT-003%20-%20Information%20Governance.pdf?noredirect=1> (accessed 15th July 2015).
- City of Calgary [Canada]. (2014), "Annual Report", available at: <http://www.calgary.ca/CA/fs/Documents/Plans-Budgets-and-Financial-Reports/Annual-Reports/Annual-Report-2014.pdf> (accessed 15th July 2015).
- Escalona, M., Domínguez-Mayo, F., García-García, J., Sánchez, N. and Ponce, J. (2015), "Evaluating Enterprise Content Management Tools in a Real Context", *Journal of Software Engineering and Applications*, Vol. 8, pp. 431-453.
- Grahlmann, K. R., Helms, R. W., Hilhorst, C., Brinkkemper, S. and Amerongen, S. v. (2012), "Reviewing Enterprise Content Management: A Functional Framework.", *European Journal of Information Systems*, Vol. 21 No. 3, pp. 268-286.
- Jedd, M. (2008), "ECM meets BPM: getting content in process", *AIIM E-Doc Magazine*, Vol. 22 No. 4, pp. 20-26.
- Katuu, S. (2012), "Enterprise Content Management (ECM) implementation in South Africa", *Records Management Journal*, Vol. 22 No. 1, pp. 37-56.
- Koehler-Kruener, H., Chin, K. and Hobert, K. A. (2015), "Magic Quadrant for Enterprise Content Management", Stamford, CT: Gartner, available at: [http://www.project-consult.de/files/Gartner\\_MQ\\_ECM\\_Enterprise\\_Content\\_Management\\_2015.pdf](http://www.project-consult.de/files/Gartner_MQ_ECM_Enterprise_Content_Management_2015.pdf) (accessed 23rd January 2016).
- Kumar, A. (2014), "Architecting an Enterprise Content Management Strategy: a Four-pillar Approach", available at: <http://www.cognizant.com/Insights/Whitepapers/architecting-an-enterprise-content-management-strategy-a-four-pillar-approach-codex975.pdf> (accessed 23rd January 2016).
- Kwatsha, N. (2010), *Factors affecting the Implementation of Electronic Document and Records Management Systems*. Masters thesis, University of Stellenbosch.
- Ngoepe, M. (2015), "Deployment of open source Electronic Content Management Software in National Government Departments in South Africa", *Journal of Science and Technology Policy Management*, Vol. 6 No. 3, pp. 190-205.
- OpenText. (2000), "Open Text Releases Livelink iRIMS": OpenText, available at: <http://www.opentext.com/who-we-are/press-releases?id=1063> (accessed 15th June 2015).
- OpenText. (2014), "Content Suite Platform: Product overview": OpenText, available at: [http://www.opentext.com/file\\_source/OpenText/en\\_US/PDF/opentext](http://www.opentext.com/file_source/OpenText/en_US/PDF/opentext)

[enterprise content management ec m Content-Suite-Platform product o.pdf](#) (accessed 15th June 2015).  
Province of British Columbia [Canada]. (2012), "Enterprise Content Management Strategy: Defining the Government "Content Ecosystem"", available at: [http://www.cio.gov.bc.ca/local/cio/standards/documents/architecture/ecm\\_strategy.pdf](http://www.cio.gov.bc.ca/local/cio/standards/documents/architecture/ecm_strategy.pdf) (accessed 23rd January 2016).

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