



I D C T E C H N O L O G Y S P O T L I G H T

Big Data and ECM: Making Smarter Decisions

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Big data is a major topic these days and one of the four pillars of what IDC calls the 3rd platform. The combination of big data, cloud, mobility, and social technologies is transforming the IT landscape, as organizations move beyond client/server computing.

Big data is also a complex topic. Some big data technologies have existed for years in high-performance computing (HPC). Today, however, burgeoning big data technologies are being put to use in a wide variety of use cases that are well outside the rarified domain of HPC, and these technologies are being interwoven into the very fabric of enterprise computing.

There's been plenty of debate about the role of enterprise content management (ECM) in conjunction with big data. ECM systems aren't — in and of themselves — big data applications by IDC's definition. However, ECM has a role to play.

Because big data analytics leverage both structured and unstructured information (that is, information that resides in both databases and documents), the ECM system may be one of the information sources. Enterprise content management systems may also be a consumer of big data analytics. ECM systems automate many document-intensive business processes, and big data analytics can make these processes "smarter." Case management applications are a key use case.

To benefit from big data analytics, organizations must first digitize their business processes. This paper examines the current trends, key benefits, and top-of-mind issues for ECM in conjunction with big data and examines the role of ECM vendor Hyland Software in this strategically important area.

Introduction

Big data is a topic on executive agendas as organizations contemplate the potential benefits of the new generation of analytical applications it enables. As one of the four pillars of what IDC calls the "3rd platform," it is a key enabler of a new generation of IT systems. (The 3rd platform combines big data, mobile broadband, social business, and cloud computing and is a major architectural shift away from client/server, LAN-based computing.)

Big data initiatives are already driving significant IT spend. In 2013, big data will account for \$11 billion in spend: \$2.5 billion on information management, discovery, and analytics software and applications; \$3.8 billion on services; and \$4.6 billion on infrastructure. Spend on big data will more than double by 2016 to \$23.8 billion — a compound annual growth rate (CAGR) of 29.4%.

The big data market is still in the early stages of development, and hype often drowns out discussion of the real business and technology issues that early adopters are grappling with. There is plenty of confusion in the market today about what big data is — and isn't — and how it impacts or intersects with other enterprise IT domains (including ECM).

Big Data Defined

IDC defines big data as "a new generation of technologies and architectures that are designed to economically extract *value* from very large *volumes* of a wide *variety* of data by enabling high-*velocity* capture, discovery, and/or analysis." The combination of these characteristics — value, volume, variety, and velocity — differentiates big data from the large, traditional analytical systems of the past. The intelligent economy produces a constant stream of data that is being monitored and analyzed: Social interactions, mobile devices, facilities, equipment, research and development, simulations, and physical infrastructure all contribute to the flow.

Big data technologies and approaches address a plethora of new use cases that will transform many IT systems. Intelligent question and answer systems will address consumer queries in call centers, in retail stores, in hospitals, in cars, and so forth. The use of artificial intelligence will grow as big data analytics combine with biometric, audio, video, and image recognition software — and with a commercialized HPC infrastructure — to create intelligent sense-and-respond systems. Big data analytics that use real-time monitoring and analysis techniques will change the way the public views privacy: A new generation of consumers will increasingly give up their rights to privacy to commercial entities in exchange for more personalized services.

Benefits

Most ECM repositories are not, in and of themselves, big data systems by IDC's definition. They are not high *volume* (they are typically smaller than 100TB), and they store and manage documents rather than high-*velocity* streaming data — although they certainly manage a wide *variety* of information types, including documents, images, audio, video, multimedia, illustrations, and engineering content.

However, there are two ways that big data and ECM potentially intersect to provide value to the organization: The ECM system is a potential source of information for big data applications, and — as a platform for business process automation — it is also a potential consumer of big data analytics.

The goal of big data is to harness information for decision making, whether human (e.g., a doctor making a diagnosis) or system driven (e.g., real-time decisioning). Enterprise information that resides in the organization's transactional systems (i.e., its ERP, CRM, HCM, and other enterprise applications) and ECM system provides essential context for big data analytics.

Big data analytics make other IT systems smarter and can make the process management capabilities in the ECM system smarter, too. In transactional processes, such as insurance claims handling, big data analytics can reveal opportunities to automate work that is currently performed manually. Additionally, big data can help inform decision making in case-oriented work. Case investigations are often unpredictable and exploratory in nature, and they can be driven more by human judgment than process rules. Quantitative and predictive insights derived from big data can bring structure and consistency to these challenging applications.

Trends

ECM systems have become increasingly strategic to the enterprise as a platform for automating content-driven business processes. There are dozens of them in every organization. Some of them could be considered gaps in the organization's enterprise applications as they help to automate specific workflows within end-to-end business processes (such as procure to pay, order to cash, hire to retire, and so forth) that are governed by the enterprise application, improving visibility into those processes. Others are industry specific.

Traditionally, these business processes were automated using the parameterized workflow capabilities provided by ECM solutions in conjunction with capture technologies that digitize paper documents, classify them, and intelligently extract data from them. More recently, ECM vendors have acquired business process management (BPM) vendors to augment their native workflow capabilities. Indeed, ECM and BPM are converging today in a platform that enables rapid development of a whole class of document-intensive business processes that has been dubbed case management.

Case management applications manage the process of assembling a dossier of information necessary for decisioning, including managing the dossier (or case file) to completion through various business process steps and notifying collaborators about the degree of completion of that dossier (alerting participants where documents are missing); supporting the decisioning process itself (typically a human decisioning process); and providing documentation for the case after the fact that encompasses the document dossier, the business process steps, and the decisions that were made (with a full audit trail). This is a very common application pattern. Examples include claims processing, loan processing, patient case management, legal matter management, investigative case management, incident management, customer complaint management, employee onboarding, and so on.

Big data offers the chance to transform case management applications — and content-intensive decisioning applications in general — by helping automate what are, today, largely human decisioning processes and by further optimizing them. As repetitive tasks, human decisioning processes are often fraught with errors and inconsistencies and turnaround time quickly degrades when there are spikes in the workload. The quality of human decisioning processes is also heavily dependent on training: Staff turnover has a big impact, and human decisioning processes are never as "smart" as the smartest case worker. Big data analytics also help uncover insights that individual case workers would miss and discover trends based on historical and current data that can make the overall process "smarter."

The result is better decisions, more satisfied customers, reduced fraud, and so forth — all of which add up to significant economic benefits for the organization, not to mention the impact on brand and customer retention. The natural affinity between big data and cloud computing — that is, the opportunity to leverage the elasticity of the cloud for big data analytics and storage — will help make these benefits available to organizations of all sizes.

Considering Hyland Software

As one of the 10 largest enterprise content management vendors in the world (and one of the fastest growing), Hyland Software has focused on managing document-intensive business processes for many years. Hyland's flagship offering, OnBase, is an ECM software platform that natively combines document and process management capabilities in a single product.

Hyland made its name selling OnBase to midmarket organizations with limited IT resources, primarily through its reseller channel, and OnBase was designed from the start to be highly configurable and easy to integrate — minimizing or eliminating the need for costly customizations that can also make upgrades difficult.

Hyland has continued to address the needs of midmarket customers even as the company has steadily moved upmarket over the past decade, building up a direct sales force that targets specific industries (such as healthcare and higher education) and transforming OnBase from a departmental imaging product to a content and process management platform capable of meeting the high-performance requirements of larger enterprises. The company backs its direct and indirect sales channels with a sizable professional services organization staffed by employees with business process and industry domain expertise.

Highlights of OnBase's capabilities include:

- **Comprehensive ECM solution.** OnBase combines document management, workflow, forms, and reporting.
- **Mobility.** OnBase provides native mobile clients for iOS, Android, and Windows in addition to responsive browser-based experiences.
- **Cloud solution.** Hyland offers private cloud solutions that enable customers to fully customize their OnBase implementation while realizing the benefits of subscription-based pricing and solution hosting.

From a business process automation perspective, OnBase readily integrates with all of the organization's business applications — whether vendor supplied or custom built — via Hyland's Application Enabler Live, Enterprise Integration Server, APIs, and Web Services. These interfaces enable OnBase to support big data applications — both as an enterprise information source and as a consumer of big data analytics to automate and optimize human decisioning.

Challenges

The biggest challenge for Hyland lies in replicating its success outside the United States as it seeks to grow internationally and within new market segments. With its recent acquisitions, Hyland has expanded its presence to the Nordics and has branch offices in Brazil, London, Switzerland, and Tokyo, as well as support organizations in Australia, Canada, France, Germany, India, Italy, Singapore, South Africa, and Spain.

Still, the company lacks the global operational infrastructure of the large IT platform vendors and must be selective when picking its battles internationally. Hyland must leverage its domain expertise in industries such as healthcare and insurance and focus on growth in specific regions. Hyland also has an opportunity to leverage its OnBase Cloud services to jumpstart its penetration of targeted international markets.

Conclusion

Big data technologies are already a multibillion-dollar market, and IDC expects spend on these technologies to double over the next three years. Although large organizations account for much of this spend today, big data solutions lend themselves well to cloud computing, which will make them increasingly accessible to smaller organizations. Big data is, therefore, an important technology trend for organizations of all sizes to consider.

Big data promises to make organizational business processes — and entire industries — smarter and more cost effective. By helping companies make smarter decisions — and automate many decision-making processes that defied greater automation up to now — big data analytics have the potential to be transformative.

Now is the time for organizations to prepare. The first step is ensuring that enterprise information is digitized so that it is readily available to big data analytical applications. Organizations should prioritize replacing their paper-based workflows with electronic business processes. Eliminating paper will deliver a short-term return on investment (ROI) while positioning organizations to take advantage of big data in the future.

The second step is to leverage big data analytics to improve ad hoc and human decision-making processes. IDC believes that organizations have a significant opportunity to improve the quality, consistency, and speed of these processes and institute a culture of continuous improvement that could transform their relationships with their customers, suppliers, and partners.

A B O U T T H I S P U B L I C A T I O N

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