Whitepaper for Government
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Activating Intelligence: The Role of Enterprise Content Management in Improving Intelligence Operations

Overview

Accurate and effective intelligence collection, analysis, processing, collaboration, and dissemination represents any country's first line of defense against national security threats, and reforming outdated, stove-piped intelligence infrastructure must be a top priority to meet 21st century challenges to national security.

Executive Summary

Today, intelligence professionals are challenged with using massive amounts of information from multiple complex sources to guide decision makers in life-and-death situations on a daily basis. Compounding the challenge, these information sources, and the intelligence organizations themselves, are in many cases not linked either electronically or through well-coordinated processes – slowing the analysis process, hampering the sharing of key information between agencies, and often standing in the way of the desired result – actionable intelligence.

Enterprise Content Management (ECM) systems not only manage many forms of content (e.g., electronic documents, email, rich media, records, etc.), but can "activate" that content by integrating it with process management to allow analysis and decision cycles to occur more rapidly. ECM systems can also automate the discovery and movement of information to free intelligence professionals from the time consuming task of "content management," where much of their time is spent today, in order to focus on more complex issues that require human intervention.

ECM has proven itself capable of assisting all levels of government with highly complex information management problems. By providing a foundation upon which to build intelligence analysis, production, reporting, and dissemination applications, ECM can enable intelligence officials to achieve key intelligence reform priorities, bringing together content and process – integrating information and delivering it to the right individual at the right time. A strong ECM foundation allows intelligence organizations to build and use applications without developing new information repositories for each application.

A Nation's First Line of Defense

Accurate and effective intelligence collection, analysis, processing, collaboration, and dissemination represents any country's first line of defense against national security threats, and reforming outdated, stove-piped intelligence infrastructure must be a top priority to meet 21st century challenges to national security.

Traditionally, the greatest amount of actionable information originated from three intelligence disciplines or INTs – SIGINT, IMINT, and HUMINT – each delivering critical intelligence data in a different format. Today, however, intelligence professionals are challenged with using massive amounts of information from

multiple complex sources, including imagery, video, voice recordings, documents, digital media, Internet/Web content, and email messages. Furthermore, non-traditional sources of intelligence, including banking records, shipping manifests, and other open-source information, today often provide more valuable insights than data collected through traditional INTs.

Compounding the challenge, in many cases neither the myriad information sources, nor the intelligence organizations themselves, are linked either electronically or through well-coordinated processes. Achieving real fusion within individual agencies and across intelligence communities can be accomplished only through refinement of data integration and business processes – a difficult but essential feat, considering the well-documented notion that intelligence agencies today regularly collect significantly greater quantities of raw data than feasibly can be processed and analyzed. Further, it is critical that organizations address both the content management and business process challenges, as addressing one without the other can actually slow the analysis process, hamper the sharing of key information between agencies, and stand in the way of the desired result – actionable intelligence.

Intelligence Reform on the Docket

President George W. Bush created the Office of the Director of National Intelligence and signed the Intelligence Reform Act, P.L. 108-458 into law in December 2004 – calling for the creation of an Information Sharing Council and the development of an Electronic Directory Services (EDS) infrastructure to lay the technical groundwork. Executive Order 13388, signed by President Bush in October 2005, created the Information Sharing Council to help establish an environment where terrorism information is automatically shared among appropriate agencies.

To achieve the important goals laid out by these documents, the Council and the intelligence community must work collaboratively to identify and deploy a highly secure technology infrastructure to support the collection, management, analysis, and dissemination of structured and unstructured data, from a broad range of sources, in myriad formats.

Creating the Infrastructure to Connect Information, People, and Processes

While the challenge is of unprecedented size and scope, the intelligence community can leverage well-tested best practices as it establishes a path forward. Technical priorities should include:

Priority 1: Establish, agree on, and enforce common data standards.

While many data standards exist, the intelligence community must engage with standards organizations to ensure its specific needs are addressed. Incorporating such standards into intelligence data gathering processes will provide the ability to transport and act upon information more quickly – ensuring that information, data, or content can be found when needed. Examples of such standards include Extensible Markup Language (XML) and associated languages such as Business Process Execution Language (BPEL) and Web Services Description Language (WSDL).

Priority 2: Deploy broad-based and reusable architectures and foundational infrastructures.

As the intelligence community looks to move from its current stovepipe environment to an interoperable community, it should look to commercial best practices and standards for architectures and infrastructure. These models, while different in function, offer proven approaches for development of IT infrastructures – reducing development time and decreasing project risk. With a single foundation in place, individual organizations are able to more quickly and easily share information – delivering critical, time-sensitive intelligence to the right person at the right time.

Priority 3: Deploy tools and processes to enable information management.

In an ideal scenario, intelligence agencies would consolidate dissimilar data types together in a single repository. Recognizing the practical challenges associated with this approach, agencies must leverage established standards to federate data from decentralized repositories. Utilizing active content automation techniques that have so greatly increased productivity in a number of commercial sectors, intelligence agencies will be able to retrieve, render, and present information gathered in one format into any other format. For example, Microsoft Word documents can be retrieved and rendered as PDFs or XML documents and presented via PDA or Web portal – a critical capability for users with limited bandwidth or tools, and a challenge for many field operatives.

Priority 4: Deploy tools and processes to enable knowledge management.

Knowledge management systems are double-edged swords – while they promote a high degree of communication, information sharing, and collaboration, ensuring rapid sharing of knowledge and best practices, they are largely uncontrollable within the context of the intelligence and operations cycles. A balance must be struck between allowing intelligence professionals to dynamically collaborate, while, at the same time, incorporating the resulting insights into established intelligence and operations processes to ensure knowledge is not only created, but also realized and captured. The intelligence community must implement systems to capture tacit knowledge held by all members of organizations, as well as integrate with other data to provide deep and robust visibility into potential threats, environments, etc. These systems will also work to address the problem of personnel rotation if knowledge and process are built into the technology systems themselves.

The Enterprise Content Management Foundation

ECM offers the intelligence community opportunities to achieve each of these priorities – bringing together content and process, automating information and knowledge, integrating and federating data, and delivering information to the right individuals at the right time.

A common analogy provides insight into the value of ECM in intelligence. In remodeling a kitchen, one would not begin by tearing out the foundation of the house, but rather focusing on addressing the specific desired outcome – a more modern room for cooking and dining. For many years, the intelligence community has looked at the foundation of the house rather than the

specific room – developing new analysis and reporting capabilities by building customized data repository for each application, a process that wastes both money and scarce information technology talent. Often the most valuable information resources – unstructured data such as captured documents, HUMINT reports, transcripts, and other text-heavy information – were left entirely out of the analysis process, or required extensive "gray-matter fusion."

A robust, fully-integrated, underlying ECM architecture provides the foundation for unified ECM and Business Process Management (BPM) solutions, removing the need to integrate disparate software packages that provide common services. This increases operational efficiency by reducing the number of vendors required to support an enterprise, while providing a common, unified foundation for building and deploying customized analytical, production, collaboration, and dissemination applications. By leveraging an EDS-based infrastructure, a well-designed ECM platform allows intelligence system developers to deploy fully-integrated applications faster than building from the ground up, while such a core platform can allow analysts, operators, and decision makers to create, manage, and federate information to make better decisions, bring control and consistency to agency processes, and fulfill agency mandates.

Specific components of a comprehensive ECM suite beneficial to intelligence communities include:

Enterprise Content Management

Intelligence gathering has little value unless the existence of the collected information is known to the appropriate analyst or operator. ECM improves an organization's abilities to manage, find, and share information – "activating" documents and content by automating actions such as alerts, routing, and collation. Launching processes based on predetermined criteria, ECM can speed analysis and production – improving decision-making at all levels of an intelligence community. Furthermore, content management allows departments and agencies to access information from numerous repositories across the organization, and federates critical information to provide a single source for content – providing intelligence analysts with visibility and access to all the available information, thereby allowing for more accurate and timely analysis.

Further, imagery and geospatial solutions work hand-in-glove with content management applications. Imagery and geospatial information can reside in the same repository with other types of content, or can be federated from legacy repositories designed to hold that specific data type.

Intelligence systems architects should seek out ECM products that deliver active content – content and documents that actively drive process automation to completion without human intervention. With active content, intelligence system architects can ensure that processes continue to progress toward task resolution, thereby reducing time, cost, and risk. With an integrated content and process foundation, intelligence organizations can respond immediately to events – setting critical processes automatically in motion upon arrival of new data or other thresholds, increasing organizational responsiveness and agility.

Business Process Management

BPM creates, manages, and enforces a unified process management infrastructure connecting intelligence gatherers, analysts, and decision-makers to one another and to applications. BPM controls the flow of work throughout an organization by streamlining, automating, and optimizing processes. By streamlining and automating critical information-sharing processes, a BPM system allows intelligence agencies to optimize operations and improve their ability to make fast and accurate decisions – all while reducing cycle time and improving visibility across the entire organization. A robust BPM system also allows managers to analyze their organization's processes and simulate changes to test results before implementing updates in the real world. Such process refinement has saved millions of work-hours in private industry – freeing humans to focus on higher-value tasks requiring human intervention.

As intelligence agencies evaluate BPM systems, they must seek those that are highly flexible and scalable enough to handle the most complex processes and workflows – involving millions of exchanges, thousands of users, and multiple data sources.

Beyond its individual benefits, BPM can work hand-in-hand with ECM solutions to activate content in an intelligence environment. For example, captured documents can be scanned at or near the point of capture with the resulting images automatically routed to the appropriate translators via secure communication. Translated documents can then be automatically routed to appropriate analysts based on pre-determined criteria identified by keywords in the documents. Alerts would then automatically be generated to notify analysts that new material in their inboxes or case folders requires attention. With these documents in hand, analysts can fuse the new information with data from other sources (also automatically routed to them) to produce targeting recommendations for strikes or operations. Once routing and approvals are complete, finished intelligence would then be sent to pre-determined recipients in the field, based on roles and/or individual identification. Leveraging this BPM/ECM fusion, turnaround time from capture to actionable intelligence is dramatically reduced.

Web Content Management

Web Content Management (WCM) enables and simplifies the creation, approval, and publication of Web content and complex documents to multiple Internet, intranet, and extranet sites, in multiple formats, and in multiple languages – an essential component in today's global threat environment. WCM can support officials' efforts to quickly respond to terrorist and military developments in the international and domestic arenas with a fast, secure, and widely-available means of information distribution. As intelligence systems architects evaluate WCM products for intelligence applications, they should seek solutions that provide strong multi-site management, personalization and support for localized content, in-context editing capabilities, multiple language environments, as well as support for Web content that needs to be delivered to multiple channels in varying formats. Together with ECM and BPM, WCM can convert Web sites and portals from information dumping grounds into drivers of productivity and effectiveness.

A WCM platform for intelligence must enable organizations to control vast amounts of Web content enterprise-wide and worldwide – providing integrated process management capabilities to ensure the secure and accurate publication of dynamic Web content and ensuring that content is published in a timely manner to relevant audiences. Further, WCM should allow

individual authorized users to manage their own content – enabling individuals to easily post content directly into a WCM platform, portal environments, Microsoft Office, or MS SharePoint environments from anywhere in the world with standard personal computers.

Records Management

A robust Records Management (RM) capability is a key component of any ECM suite. RM ensures compliance with regulatory, legislative, and organizational policies by capturing, archiving, and retrieving designated records. RM not only allows intelligence organizations to meet records retention requirements, but also provides a means to quickly respond to Congressional inquiries, Freedom of Information Act (FOIA) requests, declassification reviews, and other similar events. RM can also allow all the important documents to be reviewed post-event, in order to understand and improve decision-making and intelligence support to operations.

A truly transformational RM solution enforces RM policies at the technology layer – eliminating user-related error by removing the burden of records declaration from the individual. By letting the software system manage the creation, storage, usage, and eventual destruction of records, as defined by agency business rules – a process that is invisible to the end user – intelligence organizations can reduce risk, lower operational costs, and improve productivity. Intelligence systems architects should also look for systems that scour every hard drive on the network (including individual PCs and workstations) to identify and capture records. Further, they must demand that such a system scale to meet the RM and regulatory compliance needs of the entire intelligence community, regardless of threat or activity levels.

Email Management

The Email Management (EM) component of an ECM suite automatically indexes and archives email and attachments to a repository – reducing the chance of error and reducing the end-user workload. This action can be scheduled to occur during off-hours, or maintenance periods in 24-hour shops.

An EM system for intelligence organizations should automate the process of capturing email messages as official records, simplify the retrieval of messages, and effectively solve email storage issues, while also offering significant opportunities for improving business processes and access to information. An EM system must enable organizational managers to define rules so that email messages are maintained for required periods, destroyed when no longer needed, and available when it counts. This centralized capture capability allows for critical analysis of exchanges that may seem unimportant when examined alone, but revealing when combined with other exchanges or information derived from other sources. An intelligent EM system provides the means to effectively address both tactical and strategic email issues.

Forms Management

Forms Management (FM) technologies can reduce an intelligence organization's paperwork burden by facilitating the design and deployment of electronic forms (eforms). Eforms speed operations and compress decision-making cycles by transforming

cumbersome paperwork into fully interactive documents. Eforms enable users to view any form, anytime, at any given point in a process. In addition, eforms support digital signatures and tracking for audit trails to meet regulatory requirements. With eforms, intelligence organizations can more quickly produce formatted messages, reports, and other such documents without losing the flexibility of being able to change templates as needed. Tasks such as security clearance applications, investigations, verifications, and "ticket passing" for visit requests can be automated to a large degree. In addition, lookups minimize errors by reducing the amount of data that must be entered manually.

A robust FM solution for intelligence organizations must provide data validation that ensures users fill out forms with the proper data, in the proper format.

Why IBM for Enterprise Content Management?

Today, more than 1,300 government organizations at all levels, in more than 80 countries worldwide, use IBM ECM solutions to streamline and automate business processes, connect with information systems, and access and manage content enterprise-wide.

IBM's ECM solutions are built on IBM FileNet P8, a reliable, scalable, and highly-available enterprise platform that integrates content and business processes across individual organizations and inter-connected communities. Key benefits include:

Improved Foundation to Manage Risk and Ensure Compliance: Controlling the use of and access to information, FileNet P8 enables agencies to protect and authorize content access as dictated by clearance level, individual identity, or role. Further, by utilizing the advanced security, comprehensive auditing, events, lifecycle management, and workflow capabilities of IBM FileNet P8, agencies can comply with record keeping, declassification, and security regulations.

Increased Agility and Responsiveness: The IBM FileNet Content Engine, a key component of the FileNet P8 platform, manages a full range of structured and unstructured data, and processes information securely and reliably. An object-oriented metadata repository, the FileNet Content Engine provides maximum flexibility in setting up document and folder classes, as well as content storage options. This service provides agencies with the agility they need to adapt to a constantly evolving threat environment in real time, and provides the tools necessary to manage the continuous influx of large amounts of intelligence data.

Maximize Existing IT Investments through Support of Industry Standards: The FileNet P8 platform is based on industry standards, such as J2EE and XML Web Services, to enable agencies to maximize their existing IT investments. Extensive testing with industry-leading infrastructure products is regularly conducted to ensure FileNet P8 applications can be deployed rapidly in any environment.

Real-time Performance and System Monitoring: The FileNet P8 platform provides a comprehensive set of system and performance monitoring features including integration with leading Enterprise System Management (ESM) tools. This enables system administrators and data center operators to view system health and welfare in real-time – identifying potential problems before they occur and ensuring optimal uptime for intelligence professionals regardless of geographic location. In addition, IBM supports the leading clustering, high-availability, and disaster recovery products – providing further support for intelligence professionals deployed around the globe.

Broad Range of Integration Options: The FileNet P8 platform provides a powerful set of capabilities for integrating with desktop and packaged applications, content repositories, and legacy systems – enabling intelligence organizations and field offices to communicate with one another, regardless of installed platforms.

Unparalleled Support for Storage Media Types and Vendors: IBM solutions support the leading storage vendors in the industry and a comprehensive range of both hardware and software offerings over all popular media types. This allows maximum flexibility when choosing the best-fit storage solution, and can lower data storage costs – regardless of the quantity or type of data. Both rewritable and write-once technologies are supported for magnetic disk, optical and magnetic tape media, and overall relevant storage networking topologies, including SAN, NAS, and iSCSI.

Support for Global Deployments: The FileNet P8 platform provides multilingual system capabilities to enable users worldwide to operate in the language of their choice, share content, and collaborate with agencies across intelligence communities, allies, coalition partners, and other nations. This critical capability enables analysts to immediately leverage intelligence – regardless of source language.

Conclusion

ECM offers intelligence communities an opportunity to accelerate the drive to become more effective, efficient, and collaborative. By embracing ECM technology, intelligence agencies can quickly build the desired enterprise-wide architectures, platforms, and applications that have so greatly increased productivity in private industry around the globe. The intelligence communities can learn great lessons from such companies that, because of mergers and acquisitions, have learned to more efficiently manage information across business units and more effectively manage and use disparate information sources spread throughout the enterprise. Analysts, operators, and policy-makers will gain a more holistic view of the decision-making environment, armed with best available knowledge, by leveraging leading-edge ECM solutions.

About IBM ECM

As the clear market leader in Enterprise Content Management (ECM), IBM's ECM solutions help organizations make better decisions, faster by managing content, optimizing business processes and enabling compliance through an integrated information infrastructure. IBM's ECM portfolio delivers a broad set of capabilities and solutions that integrate with existing information systems to help organizations drive greater value from their content to solve today's top business challenges. The world's leading organizations rely on IBM enterprise content management to manage their mission-critical business content and processes.

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