

# **How to implement an ECM/BPM strategy with IBM products in the SAP Environment**

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## Executive Summary

SAP understands the importance of documents underlying business processes and provides the ArchiveLink interface for linking them into SAP applications. This interface also provides the means to store SAP application data, reports and printed output into the attached archiving system.

Additionally, SAP provides some basic document management features within its broad product portfolio. Leading analysts agree that companies with the need for content-centric applications, document management, records management and Business Process Management (BPM) need to focus on Enterprise Content Management (ECM) system providers as SAP does not provide a holistic approach for central content management.

Unified management of content — as well for business processes complying with regulatory guidelines — is a critical demand for many enterprises. IBM's ECM portfolio contains numerous components and gives enterprises the possibility to establish comprehensive ECM.

Gartner views IBM as a worldwide leading ECM provider. Many SAP customers rely on IBM's ECM solutions to manage their mission-critical SAP content and integrate with SAP business processes for minimizing risk, optimizing system performance, and lowering their cost of ownership. Organizations are able to maximize the value of using an IBM ECM platform that unifies compliance, content and process management.

This paper shows how SAP customers, with the help of IBM's ECM products, are able to implement a unified content strategy. The paper also evaluates the advantages and disadvantages of certain alternative solution approaches.

## IBM and SAP Relationship

IBM and SAP have been strategic partners for more than 30 years, and IBM sees its SAP partnership as one of IBM's most important alliances. IBM adds value to SAP environments with a full breadth of services, infrastructure and software solutions. The company quotes the following as major highlights of the relationship:

- IBM has been a development partner of SAP since 1972
- IBM and SAP share more than 10,000 customers
- IBM's internal SAP implementation is one of the largest in the world
- SAP is IBM's premier application solution partner
- IBM maintains the largest SAP practice in the industry with more than 10,000 consultants worldwide
- SAP Pinnacle Awards recognizes DB2 as the best technology solution in 2006
- IBM and SAP have jointly established Centers of Excellence and an International Competence Center to ensure success of its joint customers

IBM has stated that it will follow the strategy of supporting any ECM-related technology or interface provided by SAP with its own products. Thus, customers can combine processing of SAP business data along with the management of any related content using IBM systems.

### ECM Challenges for Enterprises

As Gartner states, almost 80 percent of any information held by an organisation is unstructured, meaning bound in documents<sup>1</sup>. Enterprises are running as many as between five and 20 different Content Management systems to keep business related documents<sup>2</sup>. These companies might save large amounts of administration costs by implementing just one central Enterprise Content Management solution and be able to centralize their retention management for their records.

IBM is a leading provider of an ECM product portfolio containing products of the former FileNet as well as its own "Content Management & Discovery" operation. The portfolio contains functions for document and email archiving, document imaging (including scanning applications), advanced document management, records management and collaboration tools and – as a central building block – the BPM component of IBM FileNet P8 for content-centric Business Process Management.

SAP provides many ways to attach Content Management Systems to its products, and some SAP applications already contain basic document management capabilities. Also, the SAP system contains a comprehensive workflow component which, when combined with other SAP infrastructure components, enables enterprises to implement BPM solutions.

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<sup>1</sup> See Gartner Research, Pg. 4, "Consider Three Issues When Implementing an ECM Strategy"; ID Number: G00137164 from 21.12.2005

<sup>2</sup> Ibid.

SAP customers of IBM need to distinguish between SAP-contained document integration and process-management functions from the ECM- and content-centric Business Process Management functions provided by IBM. Because of the fundamental differences in the functional requirements between business applications compared to Content Management applications enterprises don't have to choose between SAP and ECM functions but have to implement the best fitting combination and integration of both infrastructure components. The challenge enterprises face is to establish and implement a holistic and strategic architecture for content-centric business applications.

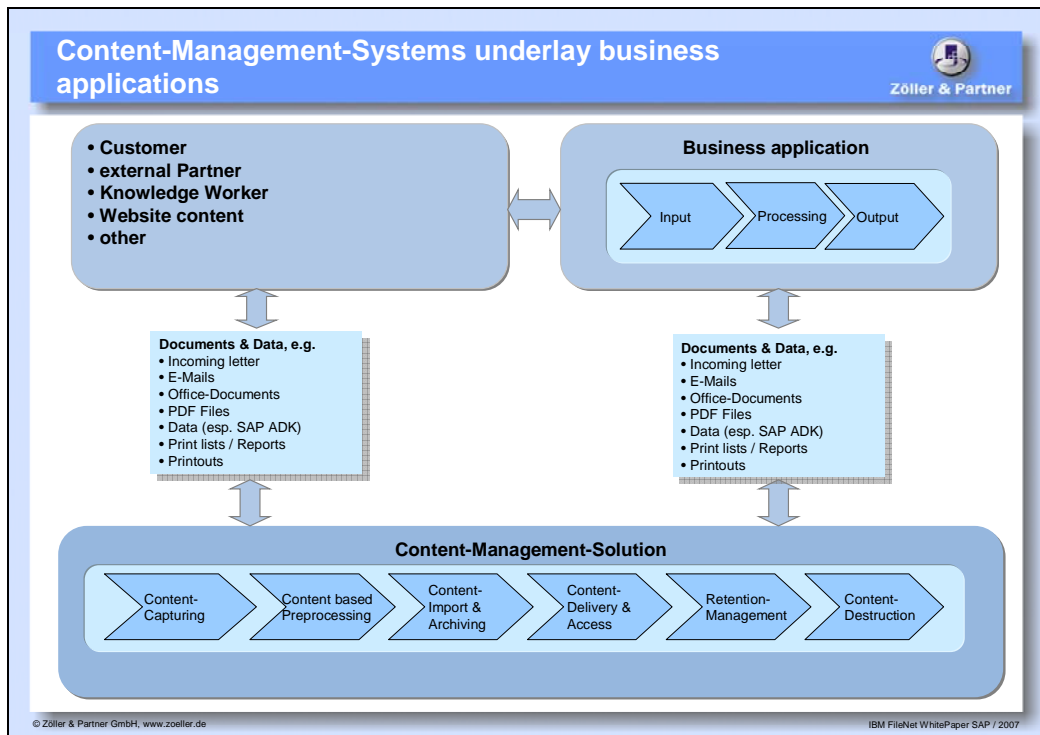
**Content Management Systems Support Business Applications**

Business relevant content has a direct relationship to business applications; an incoming order acts as a basis for entering the corresponding data into an order management application, and the incoming invoice acts as a voucher for the corresponding accounting data. Business applications get enriched if they provide their users the capability to directly access the corresponding documents from within that application. Integrating electronic documents into business applications provides the following business values:

<b>Business value</b>	<b>Details</b>
Cost Reduction	The time needed to access a document can be reduced dramatically. In a conventional, paper-based environment clerks often wait hours or days until a specific folder reaches their desk – in an electronic environment this takes just seconds.
Enhanced Business Process Quality	As more information can be accessed within seconds, users in an electronic document management environment can use all information available as a foundation for their decisions. In paperbound environments users often abandon access to files because this takes too much time.
Faster Business Process Execution	Since each single step can be finished earlier, the whole ECM-supported business process is executed faster. If companies decide not only to access documents from an electronic library but also to run the business process electronically (using BPM), in many cases the whole process can be finished within one day.
Automated Processing	Using ECM technology companies can implement fully automated process execution for simple, standardised processes without any user intervention. Fully automated document management or imaging processes can also be implemented. The workload for clerks is reduced, and they can be needed only for special or exception processing.

Table 1: Value of ECM Technology within business applications

Companies have optimum document availability if their users can freely choose between accessing documents through the given business application(s) or directly by searching within the ECM system<sup>3</sup>. The following picture shows that customers of IBM ECM systems can access both directly:



Picture 1: Integration alternatives of Content Management Solutions

**Content as Part of Business Processes**

It is typical for business processes to be initiated by documents (i.e. incoming letters) and more content is created during processing. The following example of an order process shows how business data and business content interact:

<sup>3</sup> "Accessibility must reach outside SAP applications," Gartner, SAP increases its Support for Information Workers, Research, ID Number: G00145153, 20 March 2007

<b>Business process step</b>	<b>Business data (example)</b>	<b>Business documents (example)</b>
Customer inquiry	CRM Data	Business letter / Fax E-Mail Electronic form phone call (voice)
Order creation	Availability date / delivery date Price calculation	Printed offer E-Mail-offer
Order acceptance	Order data Availability data – delivery date calculation	Order: Letter / Fax E-Form
Production	Production planning Parts lists Subcontracting	Production procedures Product descriptions Proofing certificates
Delivery	Delivery planning Delivery date	Delivery documentation / contracts Customs declarations Receipt vouchers
Billing / controlling	Invoice data Customer statistics / Revenue statistics Product revenue statistics	Incoming / outgoing invoices Reminders Collection documents
Customer Service	Problem calls Error data Production data Accounting data	Guarantee certificates Complaints (letter, fax, email) Cheques, means of payment

Table 2: Coexistence of business data and business content in a business process

SAP provides the ArchiveLink interface to its customers for easy integration of documents into SAP transactions.

### Archiving in the SAP Environment

#### **ArchiveLink interface of SAP**

The SAP ArchiveLink interface enables users to archive documents and print lists from SAP into an archiving system (called “storage system” by SAP). Additionally further documents can be archived and linked into SAP transactions using “archiving scenarios” supplied by SAP. Also, ArchiveLink enables companies to archive outdated SAP application data into the storage system using the ADK functionality.

One of the building blocks of ArchiveLink is the SAP link record that builds up a logical connection between an archived document from a storage system with an according SAP business object. Multiple links are possible meaning users can link multiple documents with one single SAP business object and may link one document to multiple SAP business documents. This way, organisations not only are able to attach a scanned invoice to the corresponding accounting voucher but also attach the corresponding delivery note and related documents to the same SAP business object.

Another building block is the so-called “archiving scenarios” that contain technical and organisational processes, which result in a corresponding link entry within SAP for any archived document. SAP provides the additional “ArchiveLink Monitoring” that enables companies to prove completeness of archiving.

The technical simplicity of ArchiveLink and its broad support within the SAP application modules allows organizations to easily integrate a certified storage system into the SAP environment. This already has led to a broad usage of this integration scenario within the SAP user community.

Also, the accompanying application scope is just as broad. Thus, IBM customers use the SAP interface across industries and support order processes (MM), audit processes (FI and MM), personnel processes (HR), technical design administration (DVS), assets management (PM) and for use in additional SAP applications. Industry-specific use of archives can be found, for example, for invoice archiving at power suppliers (IS/U), lease administration of real estate companies (IS/RE, IS/RE FX) and numerous other SAP industry applications.

### ***Limitations of ArchiveLink***

Besides the strengths mentioned, ArchiveLink contains some limitations that should be taken into account when planning an overall ECM solution. These include:

- Restricted clarity of storage system content: SAP only provides basic information about linked documents. As soon as multiple documents are linked to a single business object, a user loses the overview and this has negative impacts on access accuracy.

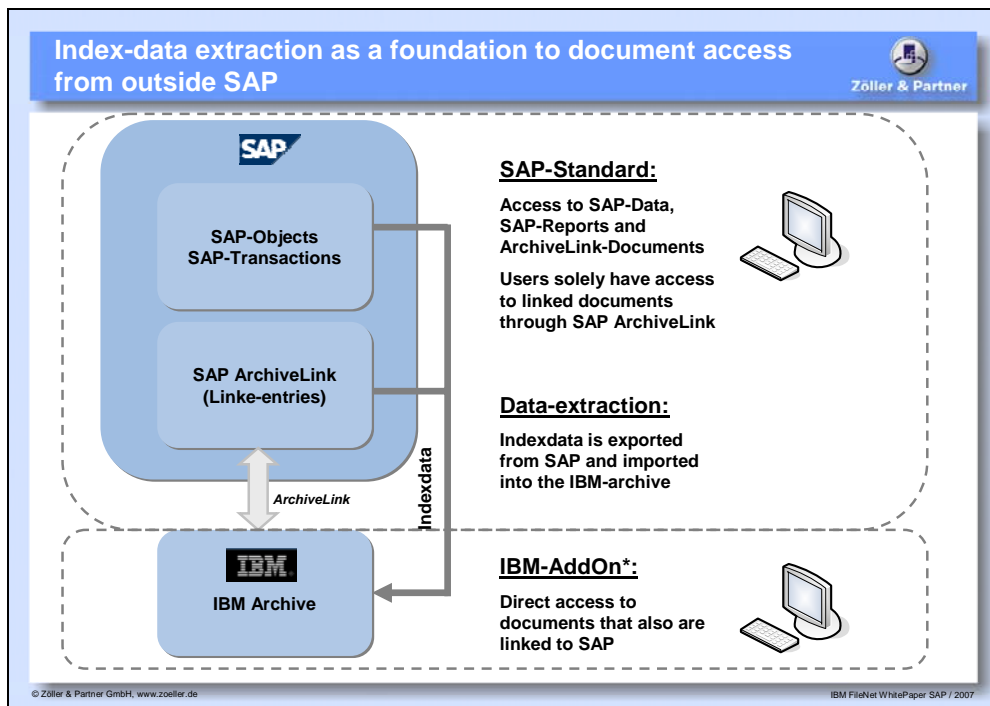
IBM FileNet uses the whole capabilities of ArchiveLink and can link single documents and also complete folders and stored searches into SAP as a single object. This enhances the overview when accessing content held in an IBM FileNet P8 storage system.

- ArchiveLink certification does not check storage system capabilities: SAP does not check storage systems for their general functionality but only checks whether they comply with the ArchiveLink interface defined by SAP. There is no general functional test contained within the certification process. Additionally, a performance check is available on a volunteer basis only. SAP does not take any responsibility for the general functionality or quality of the certified storage system.

Customers should check the overall functionality and the ECM strategy of any supplier prior to choosing a specific storage system. The ECM products supplied by IBM are running at many customers in high volume and business-critical environments. Customers can have IBM create a binding hardware sizing of their future platform.

- Document access through SAP solely: The standard ArchiveLink interface does not contain any means to give document access from outside SAP. But many customers have the need for giving access to SAP-linked documents to users that don't have access to SAP.

IBM CommonStore for SAP contains the additional functionality to export document index data from SAP into the document library, thus allowing these documents to be accessed from outside SAP. By this companies are able to save SAP license costs as well as SAP user administration and teaching effort.



Picture 2: SAP independent document access with the help of index extraction. (\*This Add-On functionality is only available within IBM CommonStore for SAP as a standard function.)

### **Data Archiving Using SAP ADK**

Data growth of SAP systems often is appraised as high compared to other IT systems. This can lead to the following disadvantages and problems:

- Lack of performance for SAP applications: Large amounts of data needs large amounts of server capacity. Unchanged server capacity leads to a decreased application performance when data volume grows.



- Enlarged hardware und IT infrastructure costs: To fight loss of performance SAP servers have to be equipped with higher hardware capacity (especially memory and CPU). Also faster disk storage systems have to grant faster data access. All in all more disk capacity is needed – not only for the production environment but also for the testing environment which often is a mirror of the production system.
- Increased risk in case of system failure: Restoring a huge SAP system will take more time than restoring a “small” one. Potential downtime is growing in parallel to the amount of data.
- Increased administrative costs: To prevent system downtime a large productive SAP system needs more attention. This increases the need for additional administrative precautions to lower downtime risk and downtime duration.

To avoid these disadvantages the SAP system contains a data archiving component called Archive Development Kit (ADK). Using this infrastructure, SAP customers can lower the amount of online data dramatically and thus lower their IT costs for running the SAP system.

The base concept of data archiving is to identify outdated SAP data, export this data and then delete that data from the SAP online database. During this process an administrator can keep some basic data in SAP, allowing users to retrieve some basic information about the archived data. It is not planned – and in many cases not possible – to afterward “load back” ADK data into an SAP system; this functionality is primarily for security reasons in case of an inadvertently run data archiving.

**Enhanced Archiving Administration When Using a Storage System**

Storage and administration of archived data can be handled with or without the help of a certified storage system. As IBM’s ECM products are certified by SAP, the ADK-based data archiving is fully supported by IBM. Using a certified storage system for data archiving has advantages for the SAP administrator as well as for the end user. The following table shows what is common and what is different when using or not using an attached storage system for data archiving:

	<b>Data Archiving <i>without</i> a certified storage system</b>	<b>Data Archiving <i>using</i> a certified storage system</b>
Export of data from SAP	Yes	Yes
Deletion of data within SAP		
Access to archived data from SAP		
Administrative tasks to execute for accessing archived data	Data has to be loaded back into a storage file	None
Access performance	Slow – manual intervention is needed if stored on backup media	Fast – Online access

Table 3: SAP data archiving: Comparison of using or not using a storage system

It can be recommended that SAP customers who already have a certified storage system in place should use this valuable infrastructure in combination with SAP data archiving to store archive files into that given system. The whole administration for storing and retrieving can be lowered considerably.

Many IBM customers – such as those with many users and high data volume – are using SAP data archiving in conjunction with IBM ECM products to keep their SAP systems running fast, keep their service obligations and save money for both SAP system administration and hardware.

**Look into the Future: XML Data Archiving**

Data archiving based on the SAP ADK uses a proprietary data format defined by SAP that only can be viewed by SAP applications. To allow a simplified and system independent access to archived data, SAP is starting to use the XML format for data archiving. But SAP has just started using this new format; basic functions like using a storage system for archiving are still missing as well as broad support within SAP. Currently there are as little as four XML archiving objects provided by SAP – opposed to about 300 ADK archiving objects.

SAP customers should keep an eye on which direction SAP will go regarding data archiving; at least when SAP supports important basic functionality and a broad range of data objects customers might consider to use this new functionality.

**SAP Content Server – Not an ECM System**

Starting in Release 4.5 of R/3 SAP introduced the “SAP Content Server” to the market, which is part of the basic SAP infrastructure and thus does not produce additional licensing costs for those who use it. The SAP Content Server is compatible to the SAP “HTTP Content Server Interface” – a reduced ArchiveLink interface as the following comparison shows:

	<b>HTTP-Content-Server-Interface</b>	<b>ArchiveLink</b>
Communication protocol used between SAP and the storage system	HTTP	RFC / HTTP
Support for SAP scenario “Early archiving”	No	Yes
Support for SAP scenario “Late archiving”	No	Yes
Support for SAP Barcode-Scenarios	No	Yes
Server based archiving and access	Yes	Yes
Client based Access (OLE linking)	No	Yes
Positioning / Usage	Use it within the document lifecycle	Long term archiving
SAP Certificate	BC-HCS	BC-AL

Table 4: HTTP Content Server Interface – reduced compared to SAP ArchiveLink

The SAP content server is oriented to server-based storage and access only. Neither the SAP content server itself nor the HTTP Content Server Interface is sufficient to support “classical” ArchiveLink scenarios – especially not early and late archiving.

The main usage of the SAP content server can be found in storing SAP documents during their lifecycle, meaning documents that originate within SAP and need to be stored anywhere. Archiving of these documents is done at a later point in time within an attached storage system.

The HTTP content server interface and the SAP content server mainly are used for these two usage scenarios:

- Storage of documents for SAP Records Management
- Storage of documents for mySAP PLM (Product Lifecycle Management)

Neither attachment of an irreversible storage system nor any scanning function is part of the SAP Content Server. It is also not possible to access any document from outside SAP.

The following table clarifies the possibilities and limitations of the SAP Content Server compared to IBM ECM products:

	<b>SAP Content Server</b>	<b>IBM ECM Products</b>
Can be attached via ArchiveLink – including storage scenarios early and late archiving	No	Yes
Can be attached via HTTP Content Server interface	Yes	Yes
Independent use of the library for accessing documents from outside SAP	No	Yes
Direct integration into SAP Enterprise Portal	No	Yes <sup>4</sup>
Scan-Software as part of the product	No	Yes
Active management of storage system	No	Yes
Records Management i.e. retention management	No	Yes
E-Mail-Management	No	Yes
Licenses needed	SAP Base licenses	IBM ECM licenses

Table 5: Comparison SAP Content Server – IBM-ECM-Products

<sup>4</sup> As well through iView integration as well as through the Knowledge-Management-interface.

SAP itself does not position the SAP Content Server as an alternative to any certified storage system in a “real” archiving environment. The SAP help documentation (<http://sap.help.com>) explicitly states that the SAP Content Server is no substitute for an optical storage system or any other long-term storage medium for documents.

### ***DMS application with mySAP PLM***

When developing technical products, documentation plays a significant role from a technical view as well as from a business view. Often carriers of technical facilities are obliged to create and keep documentation in a specific manner. From a technical view it is important to always have the latest version available. From a business standpoint often it is important to have access to the documentation from a project standpoint, including any contracts, to enable revisions and obligations.

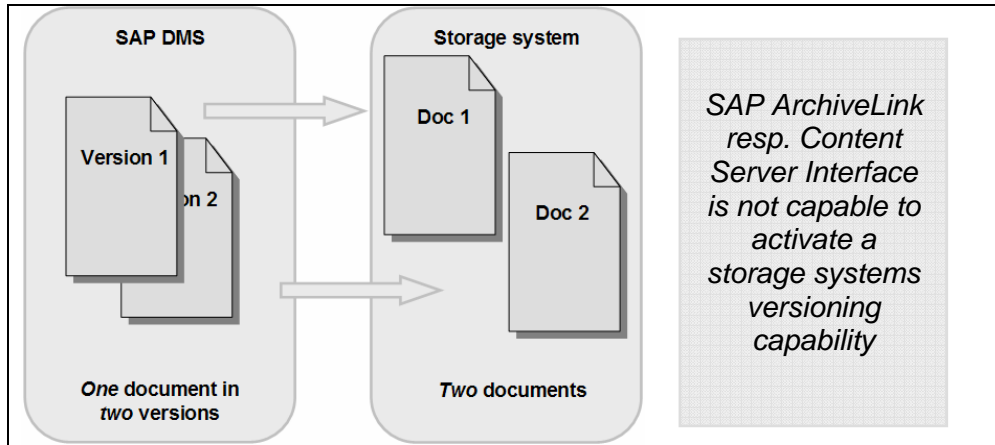
The SAP module to fulfill these needs is called mySAP PLM (Product Lifecycle Management). It allows a shared planning, creation and maintenance of technical facilities and related documentation. mySAP PLM is used to integrate and manage documentation into production and development data held in mySAP PLM.

To achieve this mySAP PLM uses the DMS interface of the SAP system. The SAP DMS has a long history; its roots go back into R/2 and it is currently part of SAP's MM (Material Management) module.

With the introduction of mySAP PLM, SAP integrated its DMS into this application suite. The DMS is suitable to fulfill that task because it allows the integration of document storage systems via ArchiveLink as it contains a defined interface to CAD systems.

Besides its ability to act as a simple document storage system, the DMS is able to manage different versions of a document.

\* Notice: The IBM FileNet Content Manager also is capable of managing different document versions. But, the SAP ArchiveLink interface is not capable to activate the versioning capability of any storage system. Thus, the different versions of a single document managed by mySAP PLM becomes different documents within the storage system as shown in the following picture:



Picture 4: ArchiveLink can't activate a storage system's versioning capabilities

With EasyDMS SAP makes a direct integration of the SAP DMS into a certified storage system available and gives the end user easy and intuitive access via Microsoft Windows Explorer.

It is recommended that IBM ECM customers put those documents that are managed by SAP's DMS into the storage system via ArchiveLink. This way it is possible to fulfill the two major tasks integrating the documents into a business application as well as keeping this content under uniform guidelines.

#### **DMS applications with SAP Records Management**

ISO 15489 defines Records Management as an integral management of any record within an organisation and claims for fixed rules and policies for the acquisition, protection and the obeying of retention periods.

SAP has a different interpretation of this term and with SAP Records Management offers an extensive construction kit for building file-oriented document management applications with the possibility to uniquely manage SAP data, related documents and further information objects.

This compares SAP Records Management more to a classical DMS application than to a typical records management solution supplied by ECM vendors. However, SAP Records Management offers more sophisticated filing functions than many other DMS offerings.

SAP Records Management keeps files in XML that additionally contain links to further information sources. Within Records Management SAP offers its own interfaces to common information sources (called "service provider"). For other information sources (e.g. MS Access databases) customers have to implement their own service providers.

The licensing model of SAP Records Management is very unusual. SAP sells licences on a file base. Gartner points out that this makes it hard for budget planning when implementing an SAP Records Management solution.<sup>5</sup>

The user interface into SAP Records Management is either the SAP GUI or an Internet browser. In the case of using an Internet browser SAP Records Management is limited to read-only access, which limits its use within the SAP Enterprise Portal.

The integration of Office documents into SAP Records Management is possible by using the integrated template management. This allows users to create Word documents InPlace, directly within SAP Records Management. On the other hand, SAP Records Management only contains basic integration for documents that are created outside the system — for example email and desktop files. For storing these documents into SAP Records Management the user might use the given “upload” function with the need for navigating through his file store first.

The size of an SAP Records Management project depends directly on the demands of the end users. You can say that with growing demand for active process support, the size of the project will grow also.

During the planning phase of an SAP Records Management solution, it is recommended to first create a basic concept of the solution, especially to define exact filing structures. By storing files in the already explained XML structures it becomes hard and time consuming to change the defined structure afterward. Also, searching for files with substructures of defined characteristics (e.g. files with indigent bank credits) will also be possible only if the structural information is stored within a database redundantly.

Choosing SAP Records Management presupposes that all users have access to SAP and are entitled to access all integrated SAP modules. Users without SAP access stay outside the system by necessity.

With IBM ECM products many customers have implemented applications that are comparable to an SAP Records Management solution. The following comparison clears up the differences between solutions based on SAP Records Management as opposed to solutions created with IBM FileNet P8:

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<sup>5</sup> “Second, it makes anticipating a yearly budget for records management difficult.”  
Source: Gartner Research ID G00141420, Pg. 3, „SAP Document and Records Management“, Nov. 15th 2006

	<b>SAP Records Management</b>	<b>IBM FileNet P8</b>
File management	Yes	Yes
File modeling	Given modeling frame	Open object model
Fixed file plan	Standard	Project
Email-Archiving	No	Yes
Scanning Software	No	Yes
Integrated file processing and BPM	Yes	Yes
Managing retention periods	Project	Standard
Direct integration of SAP transactions within file content overview	Yes	No
Ability to call SAP transactions including exchange of application data	Standard	Project
Integration of individual applications	As a project solution: Development of service providers	As project implementation: Via Java / J2EE
Access via Web browser	Read-Only	Full access
Integration into SAP EP	Read-Only	Full access
Usage precondition	SAP license	IBM license

Table 6: Comparison SAP Records Management – IBM FileNet P8

The choice of SAP Records Management can be recommended in general if all users have SAP licenses and are used to working with SAP.

The alternative approach of an IBM-based ECM application for file management that is integrated into SAP can be recommended if (in addition to SAP users) non-SAP users have to be integrated into the business process. Also this approach may be recommended if a higher level of flexibility is needed in the forming of the application; if the (full) usage within an Internet browser is needed; if a more flexible integration into the desktop environment is needed or a faster reaction to any change within the document library is valuable.

When choosing SAP Records Management, IBM customers should attach their ECM system via the HTTP content server interface or ArchiveLink and use this infrastructure for storing the documents. By this they can establish a uniform management of all electronic documents.

#### ECM Integration into SAP Portal

The SAP enterprise portal is part of SAP NetWeaver™ and offers users new access possibilities for SAP applications and also integration possibilities to third-party applications that may run within the SAP portal. Users access the portal through a standard Internet browser.

The SAP Enterprise Portal allows users to directly store documents within the portal and provides additional document-based collaboration functions like discussion and document processing. In a standard environment the portal itself takes over the management of the documents provided by the users. Documents managed by the Enterprise Portal can be searched full-text with the help of the TREX search engine which is contained in the SAP product.

In October 2006 Gartner did a research of the ECM market and described the document management functions contained within NetWeaver™ as “basic content management capabilities”<sup>6</sup> and also states in another report that “in content management, collaboration and information access, its (the portals, author) capabilities are limited and users will find better products elsewhere.”<sup>7</sup> To be recognized as a full-blown ECM solution, important basic functions are missing like records management, archiving, input management functions and email archiving.

Unfortunately the SAP Enterprise Portal does not support the HTTP content server interface nor ArchiveLink for storing and managing documents in an attached storage system.

Organizations that want to implement systematic document management in a content management system have to integrate their ECM solution by other means into the portal. For this SAP supplies two alternative approaches which both are supported by IBM FileNet P8:

- iView Integration: SAP enables a portal integration of any application via iViews; in this scenario the integrated applications are made available in separated areas of the portal and thus are accessible within the portal.
- Knowledge Management Interface: Especially for integrating content management systems, the SAP Enterprise Portal provides a separate interface named Knowledge Management interface. Within this integration alternative, users see the attached content management system as part of the SAP Portal and the document-related portal functions like full-text search, search list viewing, collaboration and more are spanned over the content management system.

By integrating IBM FileNet P8 using the Knowledge Management interface, organizations can achieve the following advantages:

- Uniform management of all documents in a dedicated IBM content repository
- Usage of the SAP portal interface for any document management – especially portal collaboration – independently from whether or not the document is stored within the IBM FileNet P8 system or directly within the portal.

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<sup>6</sup> See page 10, Magic Quadrant for Enterprise Content Management, 2006, Gartner Research, ID Number: G000143653, Oct. 11th 2006

<sup>7</sup> See page 3, SAP increases its Support for Information Workers, 2007, Gartner Research, ID Number: G00145153, March 20th 2007



**Business Process Management**

Managing business processes electronically gives organizations many advantages, for instance:

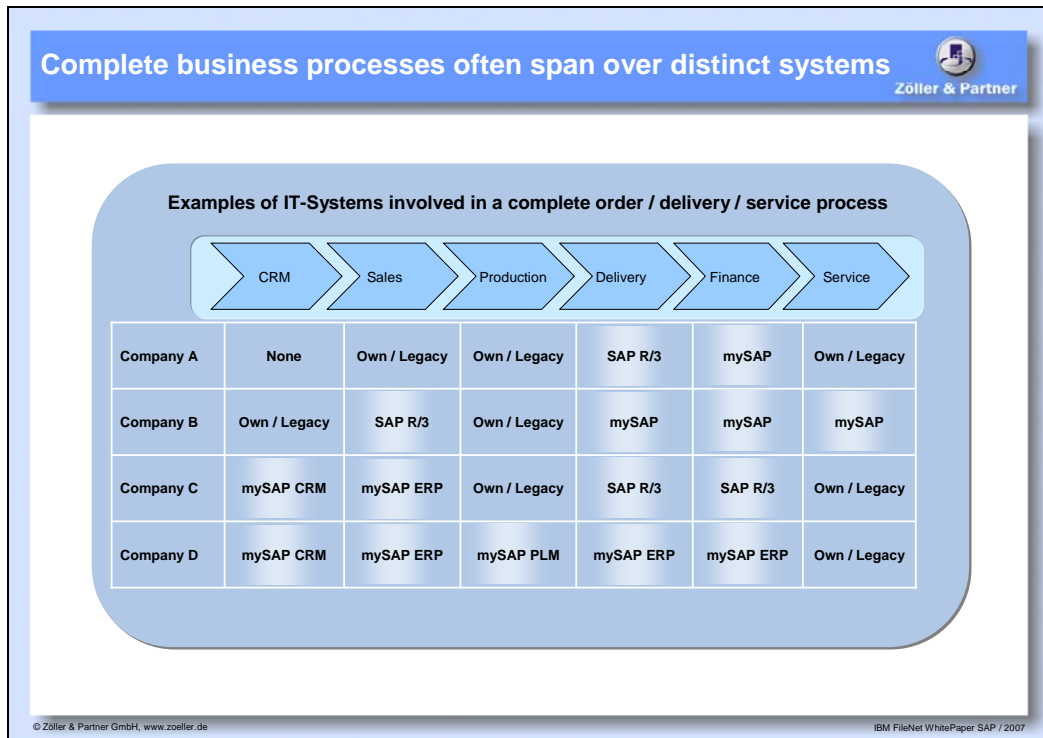
<b>Advantage</b>	<b>Explanation</b>
Cost reduction in administrative processing	By automating individual administrative tasks the work effort needed can be reduced. This includes the electronic transfer of data from one application systems interface to another application, which has to be accomplished by hand otherwise.
Enhanced quality in administrative processing	By implementing electronic rules, organizations can make sure that business processes run in a unified manner. By this it can assured that company rules are considered.
Faster case handling – enhanced customer satisfaction	Through delivering all relevant data and documents fby electronic means the whole processing can be accelerated extensively, which may result in higher customer satisfaction.
Faster process adjustment	Electronic business process management allows faster adjustment of process rules according to changed market situations compared to conventional organized business processing. Just by changing the software environment with adjusted rules, an altered processing takes places both instantly and fully automatically.
Enhanced reporting capabilities	Within electronic business process management it is possible to track and protocol every single processing step, making it possible to prove the processing steps of a decision.
Enhanced capacity planning	The business process management tools of IBM contain modules that allow for a statistical analysis of processes and to build up a capacity planning for the business expected.

Table 8: Advantages of electronic business process management

***Support for holistic business processes by IT systems***

Typically organizations use more than one IT system for processing a complete business process. Within these systems supplemental or sometimes even redundant information is processed, e.g. in separated applications for CRM, calculation, sales, production planning, logistics, accounting and support. Even SAP customers often use different SAP and non-SAP systems. Reasons are mostly company specific and in most cases can be found in functional requirements and the companies' history.

The following illustration shows examples of IT systems that support a whole business process chain based on four fictional companies:



Picture 5: Examples of supporting business processes through distinct IT systems in organizations

Both SAP and IBM provide solutions for implementing a holistic business process management and surveillance over distinct business applications. Business Process Management is a building block to enterprise content management which helps to implement a holistic management of business processes over distinct business applications. Thus, SAP customers who are using IBM ECM products have to decide whether to choose the BPM component contained in SAP or the BPM component contained within IBM FileNet P8. The decision can't be made on a general level because both products are successfully implemented by numerous companies in high-volume, mission-critical environments.

Besides differences in technical details, the main differences lie in their BPM approach: While the SAP-based BPM is mainly capable of integrating different application systems, the IBM FileNet P8 BPM component is targeted to combine this capability with a broad support of content-centric BPM. This is achieved by supporting special means for integrating documents stored in an IBM managed document library and to react instantly on whatever change happens within that IBM FileNet P8 library.

**Content-centric BPM as a Foundation for Holistic Business Process Management**

Holistic Business Process Management not only must establish a link between different business applications an IT systems but also to integrated documents of different kinds (content) into these business processes.

Many customers have chosen a content-centric BPM approach to best meet these requirements. The difference between content-centric BPM as supplied by IBM FileNet and a “classical” data-oriented BPM as supplied by SAP lies in the fact that content-centric BPM is capable to react instantly on any change that happens to content that is stored in an IBM FileNet P8 content repository. The change might be a new document archived into the library or any other change of document content (especially new document version), metadata or filing structure.

Within this concept – IBM FileNet calls it “Active Content” – the P8 system creates a BPM link for any change within the library and thus gives the chance to react to that instantly. The main principle might be compared with the SAP contained message handling – however, there are no messages within SAP for any changes in an attached content management system.

The value of this kind of business process management lies in the ability to instantly react on any external event which changes the libraries’ content with appropriate procedures to either change an existing process or start a new one. For example, in this scenario a user doesn’t have to actively wait for an incoming letter but will instantly and automatically be informed by the content management system once the letter arrives. This way he can proceed with the business process soon after arrival.

In another example, a CRM-system initiated order and delivery process a document-centric process management is capable to build up a clip to combine all associated business applications and react to any change within the document library (e.g. order change) as well as to establish a processing connection between the specific applications and thus to manage the whole process. Further transactional, data-oriented workflows might be implemented within these business applications to support the processing within the given application (e.g. order-entry workflow).

The following comparison clarifies typical advantages and disadvantages of an application internal workflow solution approach compared to an extensive content-centric BPM component:

	<b>Workflow within business application</b>	<b>Content-centric BPM</b>
Integration into current business application	High	Middle
Integration into other business applications	Low	Middle
Access to transaction data outside the given application	Middle	Middle
Document access across system borders	No	Yes
Instant reaction to any change within the content library	No	Yes

Table 9: Comparison of content-centric BPM with data-centric BPM

To make a decision of whether to choose the SAP NetWeaver™ BPM or the IBM FileNet P8 based BPM, the specific customer situation has to be taken into account. The following comparison shows differences in the preconditions for either choosing SAP NetWeaver™ BPM or IBM FileNet BPM for managing business processes:

	<b>Use SAP NetWeaver™ BPM, if...</b>	<b>Use IBM FileNet BPM, if ...</b>
Licenses	SAP licenses are available for all affected users.	IBM FileNet BPM licenses are available for all affected users <sup>8</sup> .
Application environment	within the given business process mainly SAP transactions have to be combined and all users are allowed to access these transactions <sup>9</sup> .	different business applications have to be integrated into the business process.
Application environment of different business processes	all important workflow supported business processes mainly run within SAP.	different business processes run in different application systems.
Application Know-how	all affected users know how to use the SAP system in a sufficient manner and are using the given applications on a regular basis <sup>10</sup> .	users have to work with different application systems.
Business Process / Workflow activation	the given business process is mainly activated and driven by data change.	the given business process shall react actively to any change within the document library (e.g. new documents or content changes).

Table 10: Requirement specification for SAP NetWeaver™ BPM or IBM FileNet BPM

Forming a BPM solution always needs corresponding project effort. It is not possible to give a general statement on whether a solution based on IBM's or SAP's BPM solution might be easier to implement and supported than compared to the alternative solution.

SAP supports its customers by accelerating projects with the provision of Workflow Wizards for typical application scenarios: These standard components help to embed typical partial processes like underwriting, four-eyes-check principles and more into a concrete workflow process to speed up the implementation project. However, these wizards do not contain a holistic approach for supporting the whole business process.

<sup>8</sup> SAP Licenses are sold on a per-user basis. Companies need to buy a dedicated license for every user. The IBM FileNet licensing allows the use of "concurrent" licenses. This type of licensing allows more users attached to the system than licenses; only the maximum number of concurrent users accessing the library needs to be licensed.

<sup>9</sup> If a given user does not have access to a certain transaction, the accompanying document cannot be accessed either.

<sup>10</sup> Experience shows that users with irregular usage of SAP often are overstrained by the functionality of SAP.

IBM's ECM group follows the approach to reuse project solutions derived from one project into another – as an add-on to the core product and mainly distributed by partners. Within the ValueNet organization – the IBM FileNet partner organization – there are numerous preconfigured filing and workflow applications available, which in some cases are products and all come from concrete customer implementation scenarios. Every additional customer profits from a community-driven development. However, it is not realistic to assume there will be no customization efforts needed within a given project.

Examples and reasons for choosing the IBM BPM component instead of the SAP BPM component are for instance:

- Connecting different SAP systems with IBM FileNet BPM: Some IBM customers use IBM FileNet BPM for handling business processes that span different SAP systems. One customer said the reason for choosing the IBM infrastructure was that the SAP independent infrastructure was easy to implement and could take control over several SAP systems that run under different SAP releases.
- Easier data entry for SAP transactions: Other SAP customers use the IBM FileNet BPM components to allow their users to enter SAP-related data into specific entry forms that in later process steps get automatically transferred into SAP. Capturing of the data and the data release into SAP is managed by the BPM solution. Customers claim the process is easier compared to SAP GUI and it also lets people enter data while not yet connected to SAP (for example, accounts payable data).
- Provide access to SAP related and non-SAP related business processes from one single in-basket: Organizations that use other business applications besides SAP often have to implement multiple BPM solutions. It is a proven choice to use a "neutral" in-basket application where the users can find all relevant business processes, those with and others without SAP relation instead of having multiple separated in-baskets for different business processes.
- Enhanced information ability related to documents and active processes: Organizations often are confronted with the need to supply information about running processes. The information supplying organization unit (e.g. call center) in a growing number of cases is not the organization unit that handles the case (specialized department). Information users need integrated query capabilities to documents and processes which can better be handled in an integrated ECM / BPM solution than from within a separated SAP / Archiving solution.

### Compliance

There are two primary reasons for establishing enterprise content management systems in organizations:

- Business motivation to keeping complete files: Organizations often want to make all documents, emails and files needed for a business process available in a single uniform electronic system. Users can have easy and immediate access to the complete process documentation. This enhances reproducibility of decisions; derived decisions can be understood easier; deriving further decisions becomes easier, faster and secured.

- Juridical evidence (“compliance”): Different areas of economic life create ever-growing demand for juridical evidence. In most cases these contain an obligation to create and keep a complete processing file and process documentation. Almost any industry and country has specific but different guidelines. Not complying with these guidelines may lead to juridical consequences like increased legal liability, tax penalty or even consequences according to civil law.

Complete file keeping in most cases originates internally in a company and serves the main target of saving costs. Companies have the freedom of choice and in extreme cases might decide to act uneconomically and / or omit further optimizations.

The freedom of choice is far lower concerning the judicial evidence. As soon as legal obligations exist to create and / or keep records, companies only have the freedom of choosing how to accomplish this record keeping obligation in the specific case.

Legal obligations restrict the freedom of choice for companies. In Germany, for instance, it is not allowed to keep an incoming electronic invoice in paper only. Companies that want to get back their sales tax from the tax office have to keep electronic incoming invoices in the original electronic format along with the electronic signature.

With the obligation of keeping records, further demands include:

- Completeness of record keeping: Companies often have to prove that the amount of records kept is equal to the amount of records received and / or created and that every single document is archived. In some cases – for instance in case of email archiving – evidence of completeness is essential.
- Unchangeability of record keeping: Archiving of documents that have to be archived only is accomplished if the records are stored using technology that guarantees unchangeability. Sometimes it is problematic to prove evidence and companies have to show what protecting mechanisms are used to prove write protection of archived content.
- Retention management for storage and destruction of records: The obligation to keep documents and records in most cases is restricted in time. However, for a single document or record often there exists multiple juridical obligations – for instance from a trade law, tax law or private law perspective (e.g. product liability). On the other hand companies have the need to destroy outdated documents soon after the end of the retention period – in some cases there is an obligation to that kind of destruction.

These additional obligations on content management can't easily be accomplished with tools contained in SAP only. To accomplish this, storage systems are attached. It becomes more and more important for organizations to check if and how the archiving system attached to SAP fulfills the requirements.

IBM's ECM products have some different means for proving compliance:

Using IBM Records Management in combination with IBM's BPM, customers can create an environment that proves the completeness of archiving and destruction according to archiving rules and retention periods.

Unchangeability of stored content is managed with different means within an IBM document library – typically by attaching storage media that guarantees unchangeability by according technology or protection mechanisms. Dependent on the chosen storage media IBM supplies special and in some cases certified driver interfaces for its integration into the library environment.

In the SAP area, it is important to make sure that completeness of archiving not only is guaranteed within the content management system itself (i.e. IBM) but also that there is a link record stored within SAP for each and any single document kept in the library. SAP ArchiveLink contains some basic mechanisms with the "ArchiveLink monitor" for checking completeness. In combination with content-centric BPM customers are able to close any gap and realize the highest level of processing security for completeness of archiving in this complex system environment.

### Conclusion

Thanks to many interfaces and technologies supplied by SAP, organizations are able to integrate documents into its business applications in an easy manner to establish a holistic business process. Additionally SAP contains powerful BPM components already within its core system.

This paper has shown that document integration alone can't satisfy the demands of full enterprise content management. Ovum appraises this with the following statements: "What SAP does not currently provide is a holistic concept of how information (unstructured data) is managed. ...What SAP does ... is no overall strategy to tie all the elements in place."

META recommends companies rely on partners' ECM products in conjunction with SAP to meet advanced ECM requirements.

An enterprise content management system allows organisations to handle very different business related content in a unified manner. This allows complying with rising legal obligations for capturing and archiving of documents and data, and supplies the additional value to integrate that content in different business applications. Content-centric Business Process Management allows organizations to instantly react to any change in a document library and to start a holistic business process that is integrated into different business applications.

IBM FileNet P8 contains many Enterprise Content Management products that allow companies to manage content of any source and format in a unified manner. This puts organizations in the situation to comply with internal and external obligations on storing content and integrating it into business processes. IBM FileNet P8 delivers content-centric BPM

functionality that is used by customers for managing very different kinds of business processes and it also takes over the integration of different business applications into one business process.

Organizations are faced with the challenge of finding their ideal combination of SAP and IBM technology for supporting integrated Business Process Management. Within all ECM-related SAP scenarios (archiving, SAP Records Management, SAP NetWeaver™, Enterprise Portal) an ensemble of SAP and IBM ECM components is possible as all relevant SAP interfaces are supported by IBM.

Application functions that allow for alternative solution approaches either on the SAP or the IBM side need a dedicated analysis prior to answering the platform question. An unconditioned prerequisite for SAP-based solutions is that all users have full access to any integrated SAP function. Organisations that only need “light” document integration into business processes and meet the SAP preconditions in most cases are advised to use the given SAP functionality.

Companies that have decided for a unified content management system based on IBM's extensive enterprise content management products can profit from using integrated content-centric BPM. This approach allows organizations to implement central management of any content and its integration into SAP, and utilize business applications to save costs and to create process advantages in the market.

### Appendix

The following addendum contains comparisons and recommendations to complementary and alternative ECM and BPM approaches.

The following table contains those ECM functions with (apparently) overlapping offerings from SAP and IBM. The comparison contains selected ECM functions and names the according SAP and IBM function or interface. It also contains a classification whether the relationship is either “C” (Complementary) or “A” (Alternative). The last column gives some explanation to that classification.



<b>ECM-Function</b>	<b>SAP</b>	<b>C/A</b>	<b>IBM</b>	<b>Explanation</b>
Document archiving	SAP Content Server	A	CommonStore for SAP attached Repositories, z.B.: IBM FileNet CM IBM FileNet IM IBM Content Manager	SAP: Content Server is only a reference implementation and not positioned as a long-term archiving system IBM: Optimized for long-term archiving and enterprise content management
	HTTP Content Server Interface	C	CommonStore for SAP IBM FileNet ACSAP R/3-J2EE	SAP: Support for HTTP CS Interface IBM: SAP-certified interfaces with the named repositories as storage systems
	ArchiveLink Interface	C	CommonStore for SAP IBM FileNet ACSAP R/3-J2EE	SAP: ArchiveLink interface IBM: SAP-certified interfaces with the named repositories as storage systems
Data archiving	SAP Data archiving & ADK	C	CommonStore for SAP IBM FileNet ACSAP R/3-J2EE	SAP: ArchiveLink interface IBM: SAP-certified interfaces with the named repositories as storage systems
Workflow	SAP WebFlow / BPM	A	IBM FileNet BPM	SAP: Focused on SAP internal data-centric business processing IBM: Focused on business processes that span over distinct systems
	SAP WebFlow / BPM	C	IBM FileNet BPM	SAP: XI to integrate foreign business systems on basis of XML IBM (planned): Direct data exchange between SAP XI and IBM BPM
Portal	SAP Enterprise Portal	C	IBM FileNet ACSAP J2EE EP-KM	SAP: Portal and interface IBM: 1. IBM FileNet P8 iView-Integration; 2. IBM FileNet P8 KM-integration which makes the content management system part of the Portal (including Portal-Collaboration and SAP Full-text Search for P8 Objects).
Records Management	- No solution -	A	IBM FileNet Records Management	SAP: The SAP Records Management is positioned to solve file-oriented management needs and not for complying with ISO 15489 Records Management IBM: Defining and running retention rules for archiving and disposing content.

File handling	SAP Records Management	A	IBM FileNet CM	SAP: SAP-centric filing application with fixed filing structures und integrated transactions, reports, workflows and documents IBM: Web-based document and file-management with flexible structures and integrated content-centric workflow capabilities based on open Java (J2EE) interfaces
	SAP Records Management	C	IBM CommonStore	SAP: Support for HTTP CS Interface IBM: SAP certified interfaces with the named repositories as storage systems

Table 11: FileNet vs. SAP – Complementary and alternative interfaces and technologies

**ECM-scenario comparison between SAP and IBM**

This second comparison shall serve as a fast entry into the question which of both systems – SAP, IBM or both together – can provide the single ECM function:

ECM-Function	Use SAP [component], if...	Use IBM [component], if ...
Archiving	mySAP ERP: SAP Content Server Low-volume archiving None or low-volume paper archiving needs	IBM FileNet CM & IM, IBM Content Manager High-volume document archiving Paper bound documents in a central office Content originated from many different sources has to be archived (data, emails, documents, files)  IBM Content Manager OnDemand High-Volume COLD-Archiving (esp. AFP-data)
Additional archiving scenarios / input streams	None	IBM FileNet Capture Capturing (scanning) of paper documents is important; High-volume print data has to be archived; List archiving and access is important;  IBM FileNet Email Manager Complete rule-based management of any email with lifecycle management (needs add. IBM FileNet Records Manager) is important, for instance for compliance reasons  IBM CommonStore for Lotus Notes / for MS-Exchange Complete archiving of any email is important, for instance for compliance reasons
Output Management	None	IBM Products Output-Management (e.g. postage optimization) is important
E-Forms	None There exists a strategic alliance between SAP and Adobe to use Adobe Forms as preferred product	IBM FileNet Forms Manager Forms based input means for high quality data input, esp. in conjunction with BPM-processes is needed;
Records Management	SAP Records Management a complex file management application is needed highly integrated into SAP GUI with further access to SAP transactions, workflows and reports;  Note: Be aware that SAP Records	IBM FileNet Records Management IBM Records Manager the possibility to define and enforced compliance to retention rules for content is important as well as its timely destruction  evidence has to be presented whether a

	Management is not meant to be a tool for supporting ISO 15489 “Records Management”;	given content ever was stored within an organisation or not;
Web Content Management	None	FileNet IBM Web Site Manager IBM Websphere WCM a central management of websites (including complex ones) is needed; if website content has to be taken from a content repository incl. format rendition (esp. HTML / PDF)
BPM / Workflow	SAP WebFlow the management of complete business processes supported by SAP transactions is important	IBM FileNet BPM the management of content-centric business processes spanning different business applications is important

Table 12: Decision matrix for ECM-functions in the SAP-environment

### Customer Scenarios

There are numerous examples of IBM customers that use IBM ECM products in the SAP environment. The following table contains links to published success stories of IBM customers:

Customer	Use Case	Products involved (SAP / IBM)
Halliburton	SAP-Datenarchivierung	SAP ADK SAP ArchiveLink IBM FileNet P8 IM

### About FileNet

FileNet, an IBM Company, helps organizations make better decisions by managing the content and processes that drive their business. FileNet's Enterprise Content Management (ECM) and BPM solutions allow customers to build and sustain competitive advantage by managing content throughout their organizations, automating and streamlining their business processes, and providing a spectrum of connectivity needed to simplify their critical and everyday decision-making.

FileNet ECM products are designed to deliver a broad set of capabilities that integrate with existing information systems to provide cost-effective solutions that solve real world business problems.



Since the Company's founding in 1982, more than 4,300 organizations, including more than three quarters of the FORTUNE 100, have taken advantage of FileNet solutions for help in managing their mission-critical content and processes.

Headquartered in Costa Mesa, Calif., the Company markets its innovative ECM solutions in more than 90 countries through its own global sales, professional services and support organizations, as well as via its ValueNet® Partner network of resellers, system integrators and application developers.

To learn more, visit <http://www.filenet.com/> or call 714-327-3400 or 1-800-FileNet.

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