Document and Records Management

Managing Information for Compliance, Efficiency, and Value

February 2005

Butler Group
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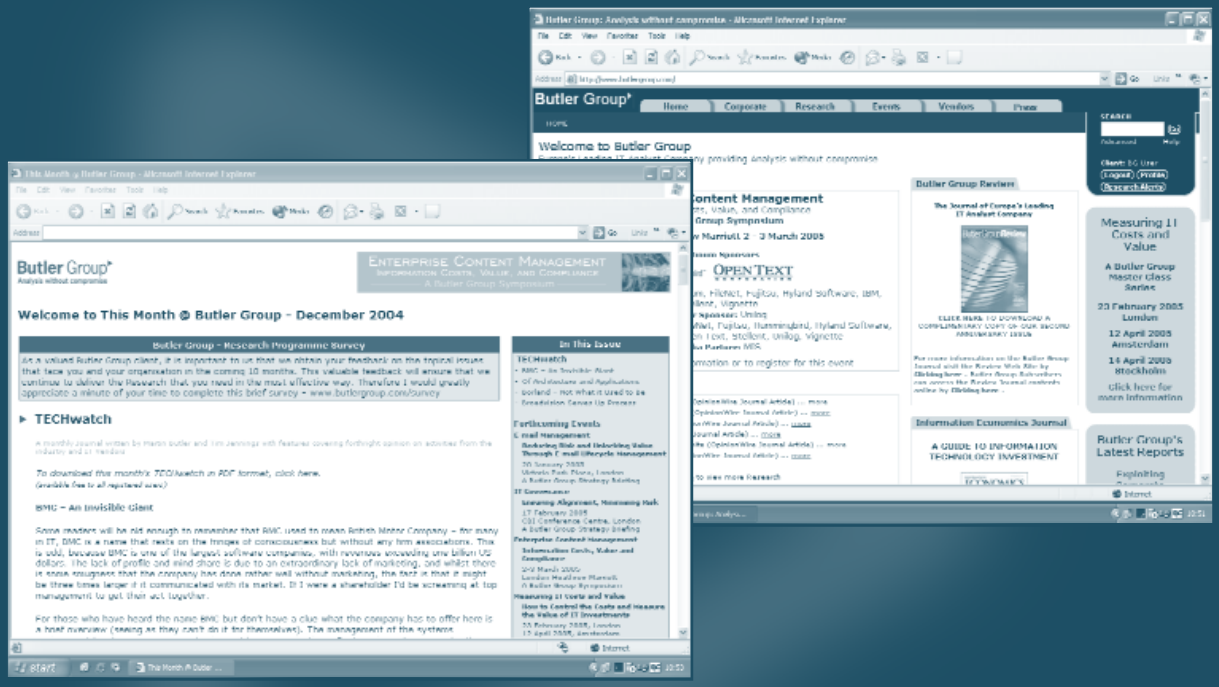

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SECTION 1: Management Summary

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1.1 MANAGEMENT SUMMARY

KEY FINDINGS

- An ignorance of the obligations under current and pending regulations to retain information will cost organisations dearly as regulators get tougher on companies that fail to discover and retrieve information.
- Document and Records Management (DRM) requires a change in culture from secretive to public, individual to corporate, and paper to electronic.
- 20% of the knowledge capital of any organisation is still in a paper format.
- Paper-based records have no built-in provision for disaster recovery.
- More requests for information are made for litigation than compliance.
- Far too much information is retained by organisations; records should be retained that are required to run the business, or to meet statutory requirements.
- Organisations need to balance the risk of disposing of information over that posed by retaining it.
- In the public sector information is more likely to become a permanent record than in the private sector.
- The selection of a DRM solution should be driven by the ability to address the organisation's requirements and not based on whether it conforms to TNA 2002 or other standards.
- Without a DRM system, knowledge workers spend up to 80% of their time looking for information.
- DRM should be available to all employees and not just a few, and must be transparent to the end-user.

Introduction

Butler Group does not believe that organisations in general have a clear understanding of their obligations, under current and pending regulations, to retain information. This is leading to confusion as to whether information should be retained, and if so for how long it needs to be retained. In our opinion, the only effective way to safely retain information, in a format where it cannot be altered, is to implement a Document and Records Management (DRM) solution. Unfortunately few organisations outside of the public sector have even a basic understanding of Records Management (RM), and how this differs to Document Management (DM). It is the view of Butler Group that this ignorance will cost organisations dearly as regulators get tougher on companies that fail to discover and retrieve information within the requested timeframe.

Business Issues

In Butler Group's opinion, much of the confusion over the difference between DM and RM arises because of the integrated DRM functions offered by vendors, which in turn means that the boundaries between the two are often blurred. Because of the ability to embed DRM into applications that users are familiar with, such as Microsoft Word, and drive many of the DRM features through automated workflow, much of the functionality is hidden from the end-user and even the organisation's management. Furthermore, because records can be automatically declared using the workflow capability, the user may not even be aware that the status of a document has changed to that of a record. We therefore believe that every organisation should have a professional Records Manager to provide oversight and control of all aspects of DRM.

The majority of private sector organisations have not implemented RM. Many will already have some form of DM, often within an Enterprise Content Management (ECM) solution, but there are still companies that have no system in place to effectively manage information. In these organisations up to 80% of the organisation's knowledge capital is stored on local hard disks, never backed-up, and unavailable to other users who could derive value from it. An absence of centralised management of information also results in duplicated information, multiple versions of the same document, and even inaccurate information, which may be sent to partners, or customers. Butler Group believes that the absence of an effective information management system can directly affect the bottom line of the organisation through lost business.

Numerous studies have shown that it can take information workers up to 80% of the time spent on a piece of information actually locating it, with the other 20% spent working on it. If the information being searched for is a record, and its retrieval is required for reference only, then this percentage can be even higher. Whilst not every person in the organisation, can be considered an information worker, this undoubtedly is a major area of inefficiency in organisations and one where demonstrable benefits can easily be seen.

For many organisations the RM policy is to simply finalise a document or other piece of information, archive it off to off-line storage (typically tape) and store the tape or other medium off-site. Retained e-mails are also archived to back-up tapes and again stored off-site. It is not until the organisation is asked to discover and retrieve information, typically for litigation, that it realises that this approach is naive and actually places the organisation at risk of a large fine for a failure to disclose information.

It is in this type of situation, as well as for compliance, that we feel RM has such a vital role to play. Many organisations fail to realise that unless information is stored in a RM system where it cannot be altered, it is difficult to prove to a regulator or a court that a piece of information has not been amended in any way. Therefore organisations must implement RM to provide this proof.

Many organisations have been put off implementing effective archiving or RM systems because they feel that the managerial overheads are too high. In Butler Group's opinion, this is an area where organisations can learn a great deal from the experience of the public sector. In many parts of the public sector there has been a position of Records Manager for many years. Traditionally, the role of the Records Manager was to file and manage the distribution of paper-based records. With the development of Electronic DRM (EDRM) applications, this role has evolved into managing electronic as well as paper documents, with the Records Manager becoming a corporate Information Manager. We believe that private sector organisations must take a leaf out of the public sector's book and appoint a dedicated person to manage information, as information is the greatest asset of an organisation and should be maintained as such.

"We believe that private sector organisations must take a leaf out of the public sector's book and appoint a dedicated person to manage information..."

Another prohibiting factor to the implementation of DRM is reluctance from users. Change Management is one of the trickiest areas that organisations have to overcome in order to achieve a successful implementation. DRM involves huge cultural change from secretive to public, as users need to become used to sharing information; individual-to-corporate, as information is no longer stored on local drives; and paper-to-electronic, as the organisation stores more information electronically. This is a problem that is experienced by both the private and public sectors.

Butler Group believes that many organisations considering implementing DRM are misguided in the belief that The National Archives (TNA) 2002, or another standards-approved RM solution will provide them with a superior product. The requirements of the organisation and how well the solution fits these needs should be the overriding drivers, unless an approved system is mandated as in the case of public sector bodies. The approved systems have been developed to address the requirements of specific sectors, and can be overly restrictive for general use, not because they lack functionality (which is extensive and manages all aspects of RM) but because some of the features required for general use are disabled.

Much of the information within an organisation, in both the private and public sectors, is still in a paper-format, despite the fact that we are supposedly in the era of the 'paperless office'. Storing records in a paper format carries inherent risks. Because there are normally no copies, there is no disaster recovery provision. We therefore urge organisations to implement some form of EDRM for its key information, and wherever possible to maintain all records electronically.

Technology Issues

It is the belief of Butler Group that organisations have failed to fully exploit technology to help in the management of documents and records. One of the major issues is the ability to discover and retrieve information. This may be for internal purposes, for regulators, the courts, or in the UK public sector for Subject Access Requests (SARs) under the Freedom Of Information (FOI) Act 2000. This requires the use of search and retrieval technology. For organisations implementing DRM, search techniques are normally included out-of-the-box, but for organisations that have not yet deployed DRM, searching the indexes of back-up tapes, or searching the hard disks of storage devices are not cost-effective or time-efficient search methods. We believe that it is inevitable that organisations will face increasingly large fines for a failure to disclose information when requested, through an inability to locate it. Organisations must therefore ensure that they have effective search technologies in place to provide them with the ability to discover information.

"It is the belief of Butler Group that organisations have failed to fully exploit technology to help in the management of documents and records."

However, search techniques alone are not sufficient to discover specific documents and records from what in the future may be many petabytes of information. Effective indexing and classification of information is also required. Again the public sector can teach the private sector a great deal. Its Records Managers have been creating fileplans or classification systems for records and documents for many years. An effective classification system will make searching for information much speedier and more effective. This is one reason why Butler Group believes that organisations implementing DRM must have a dedicated Records or Information Manager, who can develop and maintain a classification system or fileplan.

To date, many DRM implementations have been departmental, or delivered only to select users. We believe that DRM must be implemented enterprise-wide, with access to specific information and information-types via access rights and permissions. This is the only effective way that knowledge capital can be shared across the organisation. It also addresses the major issue faced by a large number of organisations, which is that of information being stored on local devices, where it is never backed-up or protected.

DRM runs much wider than simply creating and editing, and retrieving documents and records. It manages the entire lifecycle of information, including its storage. Information Lifecycle Management (ILM) is therefore an important element of DRM, and we believe that organisations must implement an ILM strategy for cost-effective DRM. Although only around 10% of ILM is related to technology, this does include the media that the information is stored on at any point in its lifecycle. It is our opinion that information must be stored on the media that best reflects the age and value of an item of information, and that the ability must exist to be able to move the information – even if it is a record – back up the storage hierarchy to higher-performance disk should it, once more, need to be accessed regularly. Butler Group believes that in the future DRM will support the ability to automatically move information up and down the storage hierarchy, based on user demand, but this level of sophistication is currently not generally available.

Market Issues

There are two types of products that provide DRM functionality, ECM solutions where DRM is a sub-set of much wider information management capabilities, and niche EDRM products. Butler Group believes that there is validity in both approaches and has reflected this by reviewing both ECM vendors with DRM functionality and EDRM vendors for this Report.

As the ECM market place continues to consolidate, we believe that the larger ECM vendors will acquire most of the niche EDRM players, particularly those that are TNA 2002 and other standards approved. We have already seen the beginnings of this through the acquisition of Tower Technology by Vignette, and Valid Information Systems by Hummingbird. One of the major benefits of this approach for the ECM vendors is that they gain immediate TNA 2002 approval, which enables them to bid for UK public sector contracts. The reason that many of the major ECM vendors are only now seeking TNA 2002 approval, is because they are US-headquartered, and therefore have chosen DoD 5015.2 approval first, which is the US standard, as a priority over international standards.

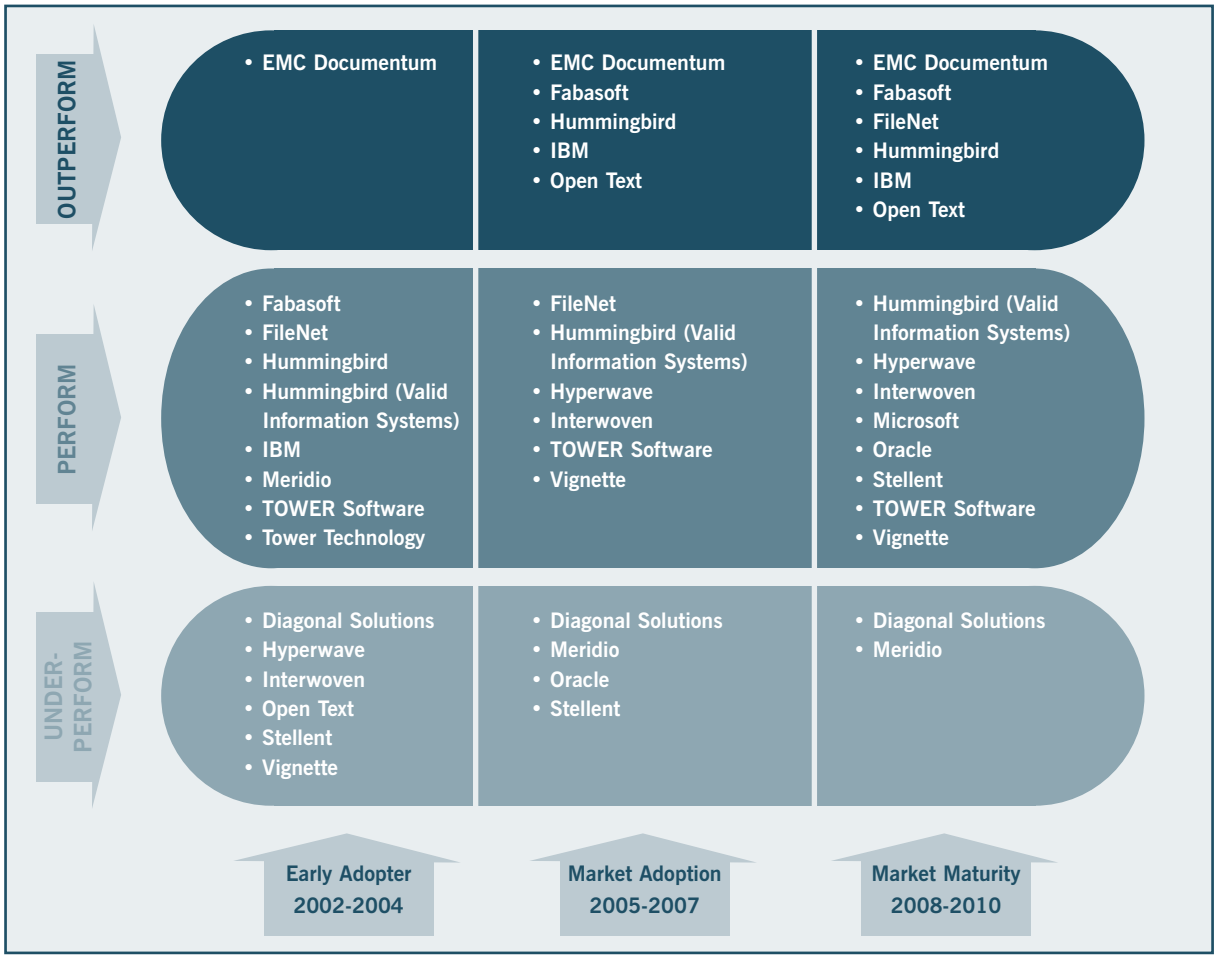
> *Butler Group believes that eventually there will be around six major ECM vendors, and some of these will comprise vendors that do not currently play or predominate in this space.*

It is not only the EDRM vendors that will be subject to acquisition. Many ECM vendors will also either be acquired, or will merge with other vendors to consolidate customer-bases and become more prominent players. Butler Group believes that eventually there will be around six major ECM vendors, and some of these will comprise vendors that do not currently play or predominate in this space. We expect Microsoft and Oracle to enter this arena through the acquisition of ECM or EDRM vendors. Furthermore, following the example of EMC, it is more than likely that other storage vendors will undertake vertical integration by entering this market, again through the acquisition of existing players.

We do not, however, see major risks for customers in this shakeout. Experience has shown, for example with Vignette and IBM, that the existing customers of the acquired vendors are offered security, long-term commitment, and additional functionality/options for the future.

Butler Group Document and Records Management Market Lifecycle Ratings

Butler Group's vendor ranking and assessment model groups suppliers of DRM solutions into *Outperform*, *Perform*, and *Under-perform* categories, and shows the predicted progress through the three major market phases of Early Adoption, Market Adoption, and Market Maturity.



Product Performance Table

Rating	Company/Product	Butler Group Opinion
Outperform	**EMC Documentum** Documentum 5	An ECM platform which provides unified content services, such as RM, and supports a number of packaged solutions, including DM. It has an integrated approach to the management of all types of information, both electronic and physical.
	Fabasoft Fabasoft e-Gov-Suite Version 6	An EDRM solution designed specifically for public sector deployments. Highly scalable with an impressive range of integration tools, the RM functionality conforms to UK, German, Swiss National, and EU standards.
	Hummingbird Hummingbird Enterprise Version 5.1.05	An extensive ECM solution that includes DM and RM, which are part of an extensive, tightly-integrated suite of products that provide end-to-end management of the lifecycle of information.
	IBM DB2 Document Manager, DB2 Records Manager	Feature-rich products, Document Manager is a component of Content Manager, which provides extensive DM capabilities, and Record Manager is an engine that provides all of the functionality required to manage records efficiently.
	Open Text Livelink Enterprise Suite 9.5	An extensive, fully-featured ECM solution, which includes functionality in the areas of DM and RM. Open Text is particularly strong in search and retrieval, with its own in-house developed search engine.
Perform	**FileNet** FileNet Records Manager	Records Manager is a component of FileNet's P8 architecture, which provides comprehensive ECM and BPM capabilities. As a modular solution, P8 addresses a number of requirements of organisations, including a need to manage documents and records more effectively.
	Hummingbird (Valid Information Systems) R/KYV Version v9.1	R/KYV is an EDRMS that is built around open standards, and has been developed to address government-defined RM requirements. Highly modular, and using XML, R/KYV v9.1 is most suited to those public sector organisations that require a wide range of functionality on an open platform meeting UK TNA 2002 or EU MoReq standards.
	Hyperwave eKnowledge Suite and eRecords Suite	The Hyperwave eKnowledge Infrastructure (eKI) integrates many disparate yet related content-centric functions, such as DM, RM, asynchronous and synchronous collaboration, information discovery and retrieval, and e-learning.

Rating	Company/Product	Butler Group Opinion
Perform cont.	**Interwoven** EDMS Suite	This enterprise-scalable product provides a truly collaborative environment for DRM. With extensive workflow and optional Business Process Management, vertically aligned Collaborative Document Management business solutions can be constructed, giving an opportunity for rapid operational benefits.
	TOWER Software TRIM Context	This solution is based on Microsoft technology and, as such, integrates extremely well with many desktop and server products from Microsoft. It provides a number of modular features in addition to DRM: workflow; archival management; space management; and barcode tracking.
	Vignette Vignette Records & Documents Release 4.4	Vignette Records & Documents is a central component in Vignette's V7 ECM Suite, providing integrated DM, RM, and CM. It has an architecture that is most suitable for high-volume requirements, is built on open standards, and is API- rather than product-centric, offering transparent integration to existing systems.
Under-perform	**Diagonal Solutions** Wisdom	Wisdom is an integrated DRM system which is Microsoft-based. A strong architectural feature is the ability to store documents in either a Microsoft SQL Server database or within the Windows files system. It exploits the Microsoft .NET architecture.
	Meridio Meridio 4.2	Meridio 4.2 is a Microsoft .NET-based EDRM solution. One of its undoubted strengths is its tight integration with Microsoft products and technologies – such as Office and SharePoint Portal Server. It provides a wealth of functionality in a product that is easy to implement and simple to use, negating the need for lengthy training.
	Stellent Stellent Content Management Version 7.2	Stellent Content Server fully supports DRM functionality in addition to security, workflow, searching, archiving, and content distribution. It has been built from the ground-up using Java, and this architecture presents a single, logical repository and a set of core services that are easy to manage.

SECTION 2: Business Issues

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2.1 REPORT STRUCTURE

In recognition of the fact that this Report will be read by a wide range of senior management personnel, each with different areas of interest and expertise, the Report has been structured to separate-out the elements and issues to as great an extent as possible. The aim is to make each section as freestanding as is practicably achievable. However, we recommend that the whole Report is needed to give the complete picture.

A brief summary of each section of the Report is included below in order to help direct the reader to particular areas of interest.

Section 2 – Business Issues

This section provides the introduction to Document and Records Management (DRM) and puts the subject into context. It includes Butler Group's definitions of documents, records, Document Management (DM), and Records Management (RM), and sets the scene for the Report, examining the various business issues and drivers.

Section 3 – Technology Features

Section three of this Report looks at the various technology areas that Butler Group expects to see in DRM solutions and includes the core functionality of DRM; the lifecycle steps in a successful DRM strategy through from the creation of a document to the disposition of a record.

Section 4 – Architectures and Models

This section examines the various architecture approaches offered by vendors such as the combination of servers and repositories, the various client options, and the interface options. Also covered in this section are the different approaches to DRM from the specialist Electronic DRM (EDRM) vendors and the functionally larger offerings from the Enterprise Content Management (ECM) vendors.

Section 5 – Market Issues

Market Issues examines the various DRM implementation options, and makes recommendations as to the best way to address this daunting task. There are a number of case studies of organisations that have implemented DRM to provide guidance to organisations considering an implementation.

Section 6 – Tables

This section first presents Butler Group's Document and Records Management Features Matrix, which allows the selected DRM solutions to be seen side-by-side in terms of features and capabilities. A number of supplementary tables are also included in this section.

Section 7 – Comparisons

This section includes comparisons of the vendors featured in this Report.

Section 8 – Technology Audits

This section contains in-depth Technology Audits for the vendors reviewed in this Report.

Section 9 – Vendor Profiles

This section contains brief profiles of a number of relevant vendors and technologies not covered by a Technology Audit.

2.2 INTRODUCTION AND DEFINITIONS

Butler Group believes that the boundaries between documents and records have become extremely blurred, leading to much confusion amongst organisations, helped in part by unhelpful definitions and terminology from vendors, as well as multiple options for the creation of records. Organisations are also fuelling this confusion in the terminology they use. This is partly due to the fact that documents are declared as records at different stages in the lifecycle of individual pieces of information. For example, a record can be declared as soon as a document is created, which means that every version of the document constitutes a separate record.

Alternatively the record may not be declared until the document has reached the end of its lifecycle in terms of the fact that it will no longer be amended. If this declaration is totally seamless to the end-user, as Butler Group believes that it should be, then the end-user will often not be sure whether he or she should be calling a piece of information a document or a record.

To end this confusion, Butler Group has developed definitions for documents, records, DM and RM.

A document is an evolving item of information, which is not fixed, can be changed, and is owned and managed by individuals.

A record can take the form of a piece of information in any format, including documents, images, items of evidence, telephone calls, faxes, e-mails, and tape-recorded conversations. It is a statement of fact, is fixed, cannot be altered, has some sort of retention period attached to it, and is managed on behalf of the company/organisation (by an individual or small group).

Following on from this: **Document Management** helps individuals to manage the lifecycle of electronic documents from creation, through review, and storage to destruction or declaration as a record.

Finally **Records Management** is a policy-driven system for the management and control of records from the point of declaration through the review process to disposition or transfer to a permanent archive.

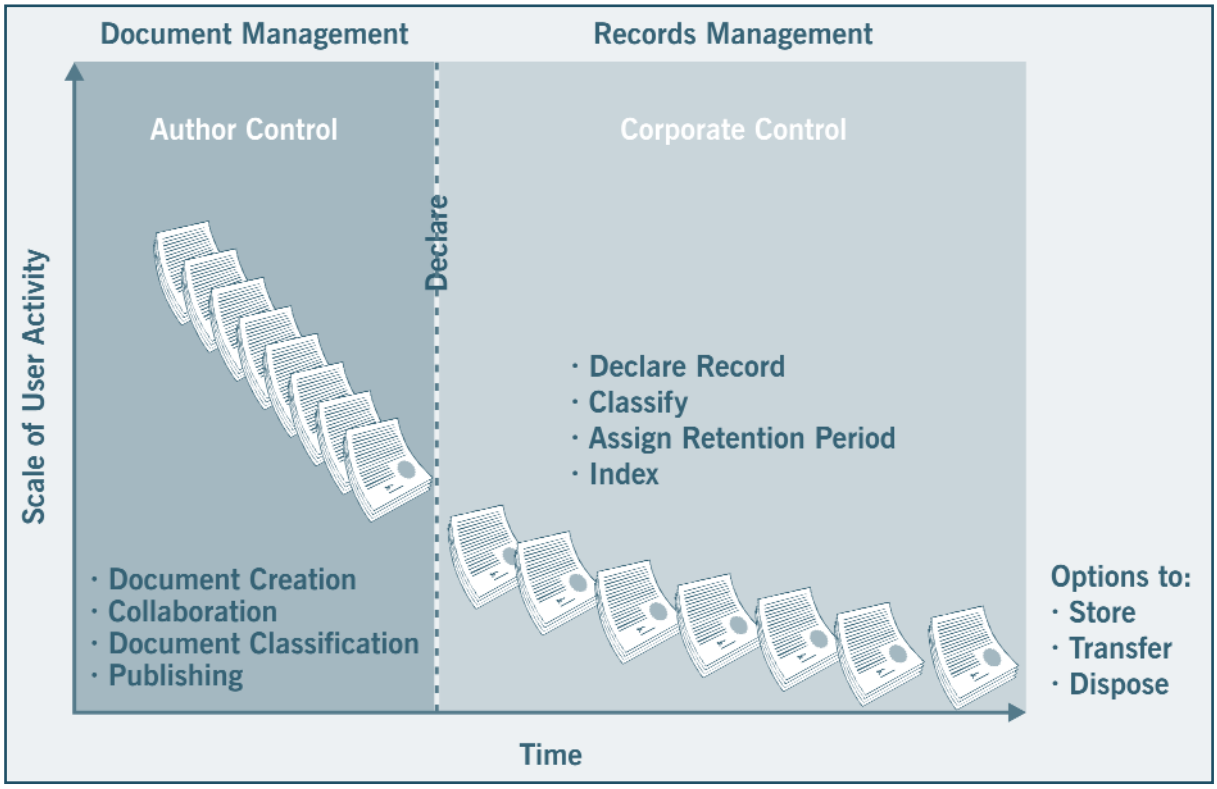


Figure 2.2.1: Definitions of Document and Records Management

Illustrative examples of document and record processes and lifecycles are described in Section 4.5 of this Report.

> ***"...the management of these strands should be the ultimate responsibility of a single person, either a Records Manager or an Information Manager."***

Documents have a variable lifecycle but this will generally include the creation, often a review process, some form of editing or document development, and deletion or declaration as a record. A record may be superseded, but this becomes a new document or record, and the original remains unchanged.

There are three strands to records management: a scheme for the capture of records, which includes supporting a wide range of applications, records with multiple components, and new applications; retrieval, incorporating the methods for search and discovery; and the disposal of records, which includes retention periods and the processes undertaken before the disposal of the record. Butler Group believes that the management of these strands should be the ultimate responsibility of a single person, either a Records Manager or an Information Manager.

In Butler Group's opinion, this dedicated Records Manager role is required because there is a great deal of confusion within organisations about the type of information that should be retained, and therefore needs to be captured or declared as a record, at what point in the lifecycle this declaration should take place, and the format in which the record should be stored. Butler Group believes that the public sector, which has had a role of Records Manager for many years, and is well used to declaring and managing records, is the leader in RM and can set a good example for the private sector.

In the UK, The National Archives (TNA) formerly the Public Records Office (PRO), has developed a series of standards and guidelines for records managers across government organisations to help them meet the requirements of The Freedom Of Information (FOI) Act 2000, The Data Protection Act 1998, and The Human Rights Act 1998, alongside their duty to maintain records in order to deliver services. These were originally introduced in 1999, and revised in 2002. TNA 2002 (PRO II) certification is awarded to vendors whose Electronic Records Management (ERM) systems TNA has tested, and that comply with the functional requirements for ERM systems in UK Government, and TNA 2002 certification is mandatory for ERM systems in UK Government organisations.

Other countries have their own standards, such as AS ISO 15489 and VERS in Australia, MoReq in the European Union, DOMEA in Germany, and DoD5015.2 in the US.

Such is the revere that these standards are held in that many private sector organisations also seek RM solutions that have TNA 2002, or other standards approval, without necessarily appreciating that a significant part of the functionality may add overhead without delivering appropriate business benefit. However, companies that are involved with Public Private Partnerships (PPP) of Public Finance Initiative (PFI) schemes in the UK need to be aware that they are also subject to FOI, and may need a TNA 2002 solution to meet those demands in relation to these projects.

Butler Group believes that the primary consideration of private sector organisations (not bidding for PPP or PFI work) must not be whether or not a solution is approved but whether it addresses the requirements of the organisation.

For example, many organisations have a hybrid system of paper-based and electronic records, which further confuses the issue, and therefore a DRM system must be capable of handling both electronic and physical records.

At present the majority of retained records are in paper format, and we feel that organisations must aim to reduce this percentage. Butler Group believes that, where possible, organisations should implement an EDRM system in order to store most or all of their records in electronic format, reversing the current trend.

> ***"Butler Group believes that, where possible, organisations should implement an EDRM system..."***

2.3 BUSINESS DRIVERS FOR DOCUMENT AND RECORDS MANAGEMENT

Until recently the major driver for DRM in the UK and Europe was a desire to improve efficiency and reduce cost through the better management of information, but there are now indications that compliance and litigation are becoming increasingly important, and Butler Group expects to see these become the predominant drivers over the coming months. Another driver is the need to improve the auditability of the lifecycle of information.

Compliance and Litigation

Compliance and the risk of litigation are forcing an increasing number of organisations to retain growing volumes of information. This information includes e-mails, documents, paper documents such as faxes, graphical images, and other multimedia files. To date, e-mail has been the type of information that is most associated with retention. This is because many of the high-profile cases of organisations – particularly in the financial sector – receiving fines has been due to an inability to retrieve e-mails when requested. However, it is not just e-mails that have to be retained, other business-related information also needs to be kept.

In much of the private sector there is no heritage of RM. Butler Group believes that many large organisations will have implemented some form of DM functionality, but that this will rarely extend to RM. In the past this would not have been an issue, and information that was retained would typically have been stored on back-up tapes, often off-site.

However, the risk of litigation, and in Europe to a lesser extent compliance, are forcing organisations to review how they store this legacy information. It is certainly the case that there are currently more requests for the disclosure of information for litigation purposes than for compliance, and this can affect potentially every organisation, regardless of size or type. It has been estimated that Fortune 500 companies face an average of 125 non-frivolous lawsuits at any given time for which they have to locate information relating to operational decisions.

Without an effective RM system to manage information, it is impossible for an organisation to know whether or not it has the information requested – back-up tapes do not make an adequate retention policy. The fines are high for failure to disclose, and the cost is also high if outside consultants are required to locate the requested information.

Where regulations have been introduced, for example in the financial sector, there is a requirement to be able to prove that information retained has not been altered in any way, and this is where RM has a part to play in compliance, and the same feature is also useful in litigation.

Improved Efficiency and Reduced Costs

A desire to improve the efficiency of the business and reduce costs through better DM and recordkeeping is another important driver for DRM, and one that in Europe has been to date, in the opinion of Butler Group, the predominant reason for implementing DRM.

> ***"Information Lifecycle Management (ILM) has been touted as a way of helping organisations to better manage their information, and enable them to extract knowledge capital from it."***

Exponential growth in the amount of information that organisations store, increased storage requirements, and a requirement of administrators to manage "more with less" as organisations look for new ways to reduce costs, has resulted in many seeking to achieve savings in the management of information. Information Lifecycle Management (ILM) has been touted as a way of helping organisations to better manage their information, and enable them to extract knowledge capital from it.

A large proportion of the knowledge capital within an organisation is contained within information, and this makes information an organisation's greatest asset. Yet Butler Group believes that the majority of companies are not effective in managing their information, making it readily available to employees that require it. It has been estimated that up to 80% of the total time involved on a particular piece of information is spent locating it, which is clearly not an effective use of an employee's time.

Part of the problem is caused by the high number of documents that are stored locally on the desktops of individuals, which makes them unavailable to other users. In some cases this simply means that the knowledge capital is unavailable to users who would benefit from it – information cannot be exploited that users are not aware even exists. A more serious implication, in Butler Group's opinion, is that multiple copies of the same document can be created, resulting in multiple versions and also a repetition of work, so that users do not know which version they should be using. If this document happens to be a contract containing details such as terms and conditions this can have serious repercussions. Even with less sensitive documents, if different versions are sent out, this can result in inconsistent and even inaccurate messages being received by customers or partners.

There are also security implications of allowing information to be stored and managed locally, with the potential for sensitive company information to be passed to competitors or even individuals within the organisation who are not entitled to view this information. Even if the information is stored centrally, without proper controls, it is impossible to manage who has access to it, and what individuals are able to do with it – they could be sending it to competitors via Web-based e-mail accounts unbeknown to the company.

Often there is no clear idea of who should do which tasks in the lifecycle of a document, so that when a document is received from a customer, no one takes responsibility for it – with the result that it is not processed. A failure to service customers properly will directly affect the bottom line. A cause of this problem is that there is no one person in charge of information, which makes it difficult to formulate any policies over its management.

If there is no single person in charge of the management of information, the organisation cannot formulate policies for its management, or indeed have any idea of what information should be kept for its business value, resulting in a great deal of information with no value being kept and knowledge capital being deleted.

As an example, a company rationalised its staff a few years ago making redundant a large number of middle managers. There was then an emergency following equipment failure, which could have resulted in an explosion if it was not rectified speedily. Unfortunately, because the problem did not happen very often, no one in the company knew how to deal with it. To make matters worse there was no written documentation. The only people who had experienced the problem before and knew how to deal with it were the middle managers. The company ended up having to bring redundant managers – at great expense – out of retirement to explain how to solve the problem. If the company had implemented a retention policy, any documents or e-mails explaining how to solve the problem would have been retained, and the knowledge to rectify the problem would have been within the organisation, without having to buy in the knowledge.

Lack of Auditability in the Lifecycle of Documents

A lack of auditability in the lifecycle of documents is a common problem where there is no DM solution. With no audit trail of who did what to a document and when, there are problems in disputes or when things go wrong. Because of this it can be impossible to determine *who* made a contentious change to a document, and even *when* it was made. This makes it difficult to defend actions that were taken, if there is no record of who took those actions.

> ***"Ultimately the organisation is responsible for the content of any documents that are delivered to third parties."***

A lack of an audit trail can also render it impossible to ensure that a document has passed through all of the stages in its lifecycle, such as its review processes. Ultimately the organisation is responsible for the content of any documents that are delivered to third parties. Ill written or badly spelt documents sent to customers does not inspire confidence in a company, and can lose it business. Inaccurate terms and conditions or contracts have the potential to do much more damage.

Another potential problem with no audit trail is that it is impossible to see who has viewed a document. This is highly dangerous if there are no access rights applied to individual documents.

Under certain regulations, a full audit trail of the entire lifecycle of a document is a requirement. Therefore a lack of an audit trail facility will render an organisation non-compliant.

2.4 THE PROBLEMS OF MANAGING PAPER-BASED DOCUMENTS AND RECORDS

Despite frequent messages of the imminent arrival of the paperless office, we are actually generating more paper-based documents and records than ever before. Even when documents are created electronically, a hard copy is often taken and stored in a filing cabinet, increasing the amount of physical space required to store documents and records. Many documents will never become electronic, such as correspondence from customers received as letters. These hybrid systems comprising a combination of electronic and paper-based documents and records can be extremely difficult to manage effectively.

Butler Group believes that part of the reason behind the desire to retain paper-based versions of electronic documents and records is that it is much easier for an employee reviewing a customer history, or a public sector body examining a case, to view documents or records in the same format, rather than having to switch between looking at the screen and looking at a document on the desk.

This hybrid approach creates problems, particularly for organisations that need to retain information for compliance purposes. Firstly they must decide which is the corporate version of a document or record, which is the one that must be produced if requested. Secondly whichever format is declared as the corporate version must be accessible and therefore managed. Lastly there are two formats of the record to be managed and kept in line, with all the various events that can take place in a record's lifecycle such as the retention period, reviews, the movement of the record between storage media or locations, and the final disposition, ensuring that both versions of the record are destroyed. If it is to be transferred to a permanent archive then the redundant version of the record must be destroyed.

If a document is kept electronically and in a paper format its management is even more difficult than that of a record, because the document is more likely to be an evolving piece of information. If each version of the document is printed, then this adds to the paper mountain. The organisation also needs to decide if a copy of a changed document should be retained or just its final version. Documents go through many iterations before they are finalised or become records. Because a full audit trail is increasingly required for compliance, all versions of a document have to be retained alongside the final record, further adding to the paper mountain if the organisation has elected to use its paper-based versions as the corporate record.

If information held in an electronic system is adequately protected, then Butler Group does not see any need to retain a paper-based copy of a record, which can lead to legal problems as already mentioned of deciding which version is the corporate copy. There are also implications if the paper version of the record is superseded, but not the electronic one, or vice versa, and the people access the unchanged version. There are potentially more serious implications if the wrong version is then produced for compliance purposes.

Unfortunately there is often mistrust in the ability of IT to perform adequate and regular back-ups, and more importantly in the ability to restore information on demand. Butler Group believes that this is one of the reasons for reluctance on the part of staff to stop retaining a hard copy of electronic documents and records. This is where we believe that proper back-up and recovery, disaster recovery, and business continuity strategies are so vital and necessary. However, the organisation should go further and ensure that these strategies are fully documented and that all employees are made aware of them so that they can be sure that procedures have been implemented to protect their information.

"Unfortunately there is often mistrust in the ability of IT to perform adequate and regular back-ups, and more importantly in the ability to restore information on demand."

Butler Group does not believe that paper-based documents and records are any more secure than electronic ones, in fact they are often less accessible. While paper-based documents are stored in a filing cabinet they are easy to find, although not necessarily accessible to everyone who would benefit from using them. Unless there is an electronic index, people would not necessarily know of a document's existence or where to find it. However, because there are generally no duplicate copies of paper documents or records, while they are located in the general office they are not, in Butler Group's opinion, adequately protected from disasters.

"Butler Group does not believe that paper-based documents and records are any more secure than electronic ones..."

Once the filing cabinet is full, documents are typically put into storage such as a basement or warehouse, which makes it time-consuming to retrieve documents that are not necessarily stored on site. However, they are generally better protected against disasters if stored off-site.

Documents that are retained need to be protected, because they are normally not duplicated. This means putting in place elaborate measures such as humidity control, and gas-based sprinkler systems, in addition to physical security methods to prevent the theft of sensitive content – particularly pertinent to the public sector, but also in the private sector such as details of drugs trials.

The use of a warehouse, while affording better disaster recovery provision, does not necessarily improve accessibility. If multiple documents are required for litigation or compliance it is costly and time-consuming to retrieve them, particularly if there is no documented indexing system. Many organisations end up calling in outside consultants to locate information required for compliance or litigation. Even internally required documents can be time-consuming to locate, but not many organisations would actually call in external consultants to help locate information for internal users.

It is the view of Butler Group that most organisations do not know what paper-based documents they have, particularly if their 'archives' go back 10 or 20 years. We believe that these organisations should be asking themselves whether this information is actually required.

It is our opinion that organisations should consider retaining only historical, paper-based documents that have value to the business, unless they are required for compliance purposes. However, it would be a costly task for any organisation to review a warehouse of historical records dating back many years.

Some organisations have developed a policy whereby any information in a paper-based warehouse that is retrieved following a request from an end-user is scanned and stored in the electronic system, and this version replaces the paper version, which can then be safely destroyed.

Butler Group recommends that a sensible approach for organisations that generate large volumes of paper-based documents is to consider adopting a DRM system. To be effective, this must be supported by adequate disaster recovery provision to ensure that employees do not feel the need to print paper copies of electronically stored documents and records. A single discovery process can justify the cost of such an electronic system. Only when organisations have reduced or eliminated the creation of paper documents and records can they start to tackle the vast accumulation of historical documents and records, and review, which pieces of information should be retained and which can safely be deleted.

2.5 COMPLIANCE ISSUES

Compliance is becoming a major driver for the implementation of systems incorporating DRM functionality. Butler Group maintains that if organisations deploy systems that can help them to run their businesses more efficiently, then when they are required to comply with regulations and legislation they will already have many of the systems in place that will help them to achieve compliance, and therefore compliance will be delivered for free or at least at a reduced cost. DRM and in particular RM are systems that help organisations to manage their information more efficiently, but are a vital part of compliance when information has to be retained. RM is required because organisations have to be able to prove that information has not been altered in any way, and an effective RM system, in Butler Group's opinion, is the only way of proving that the information is stored in an efficient system where it cannot be altered.

It is not just the retention of information that is required for compliance, an increasing number of regulations require organisations to maintain audit trails of the lifecycle of a piece of information. This is one reason why some organisations create a record as soon as the original draft of the document is completed, and then a new record is created at each iteration of the document. Butler Group believes that unless there is a legal requirement to declare a record as soon as a document is created then there is little point in declaring it as a record before it is necessary. A more effective solution is to use DRM functionality, which includes a full audit trail capability that fully documents the lifecycle of the information both as a document and as a record.

Although the maintenance of an audit trail will address some compliance issues, organisations are leaving themselves vulnerable to increasingly large fines because of their inability to be able to discover information when requested. As already discussed, many organisations have a hybrid system of electronic and paper-based documents, which makes the discovery process much harder and can also create problems providing the regulator with records in a single format.

"There are numerous examples of organisations falling foul of the regulators and receiving hefty fines for a failure to keep adequate records."

There are numerous examples of organisations falling foul of the regulators and receiving hefty fines for a failure to keep adequate records. The Financial Services Authority (FSA) fined the Bank of Ireland UK£375,000 in September 2004 for failing to have adequate systems in place to detect a number of suspicious high-risk cash transactions that were worth approximately UK£2 million. A RM system and the appropriate monitoring of the information gathered would have highlighted these transactions as being suspicious and requiring further investigation.

In August 2004, the FSA fined the Shell Transport and Trading Company, Royal Dutch Petroleum Company, and the Royal Dutch/Shell Group of Companies UK£17 million for committing market abuse and breaching the listing rules by issuing misstatements of its proved reserves. Better recordkeeping would have made it much more difficult to misstate its proved reserves. Ironically much of the trouble that Shell found itself in, and the reason for some high-level resignations, was a series of deeply damaging e-mails, which had been retained between the sacked head of exploration Walter van de Vijver and the former Chief Executive Sir Philip Watts.

This leads to another issue raised by compliance, and that is what information needs to be retained. Butler Group maintains that it is highly dangerous to retain all information, both in terms of content, but also because it greatly increases the amount of information that needs to be stored and maintained. Legislation such as Sarbanes-Oxley demands that organisations be more transparent and open in their accounting and in their recordkeeping. There are new criminal and civil penalties from the Act, in addition to the enhancement of existing penalties, designed to catch a variety of corporate abuses. These include: false certification of financial statements; restatement of financial statements; blackout period violations; tampering with documents and records and impeding investigations; record retention violations by auditors; and securities fraud. The Companies Bill, when introduced in the UK, is expected to involve similar requirements. Sarbanes-Oxley requires the retention of any financial-related information, but there is often confusion about what constitutes financial or any other type of information that needs to be retained for other regulations.

One of the areas where there is a great deal of confusion is in the retention of e-mails. Some organisations err on the side of caution and retain all e-mails, while others just keep business e-mails. In many cases, the boundaries are extremely blurred between what constitutes a business e-mail and what can be construed as personal mail, particularly when an employee has a close relationship with a business acquaintance. There is also confusion whether e-mails and other records need to be retained beyond the retention period. Butler Group believes that organisations need to balance the risk of retaining information against that of the value that can be derived from it. Clearly, information that informs a person how to perform a task that no one currently working for the organisation has ever experienced has a value and should be retained. Similarly, information that has little value and may be regarded as contentious, should be deleted as soon after the end of its retention period as possible.

To date, many of the high-profile cases of non-compliance have related to e-mails, largely, Butler Group believes, because e-mails have not been stored in proper indexed systems where they are easily retrievable, and no thought has been given to which e-mails should be retained. It is also the most widely-used, inter-company communication method, and it is through e-mail that many disputes arise. Without effective DRM, many organisations will find themselves unable to fulfil the requirements of compliance by being unable to discover and produce information, in documents and records as well as in e-mails.

These high-profile cases have often arisen because of the inability of an organisation to produce requested records in the time allowed under the terms of the regulation or legislation. Because of the lack of indexed storage systems, many companies are forced to bring in outside consultants to help them locate requested information, both in electronic format where the information may be located on back-up tapes stored off-site dating back several years, or in a physical location such as a warehouse, where it may be a case of trawling through many boxes. One Fortune 500 company had to spend US$750,000 to locate e-mails from an archive in response to a subpoena for discovery. In the US, companies have been fined between US$10 million and US$100 million for not having adequate information retrieval procedures in place.

> ***"Many of these problems arise because organisations are not even aware whether the information they are being asked to produce still exists..."***

Many of these problems arise because organisations are not even aware whether the information they are being asked to produce still exists, which goes back to the issue of which types of information organisations should retain. In a court case in which Burst.com is suing Microsoft over patent infringement, Microsoft has been accused of requesting that its employees routinely destroy internal e-mail every 30 days, despite a court order that states the company should retain such documents. Microsoft is claiming that any documents relating to lawsuits is not included in its deletion policy, but it does demonstrate the difficulty that organisations have if they leave RM to employees, and e-mails that need to be retained must be treated as records in Butler Group's opinion. Furthermore, the management of records must not be put in the hands of users.

Assuming that organisations do retain requested information, the request may require pieces of information from various sources – for example, documents, e-mails, faxes, and voice messages – to be produced. In a well-managed RM system, if these pieces of information are related – for example, a case in the public sector – then they should be stored together in a single folder and be easily accessible. However, without a centralised information management system it is very difficult to gather all of these pieces of information together, and also be sure that all the individual items have been discovered.

The difficulty that many organisations experience in discovering information has resulted in some preferring to pay the fine rather than search for information, or bring in outside consultants to undertake the task. Butler Group believes that the reason for this has been that the fines have been smaller than the cost of discovering and retrieving the information. As the regulators become tougher we do not believe that this will be a viable option in the future.

Much of the focus of non-compliance has centred on the issue of not being able to find requested information, but there is one issue that many organisations are largely ignorant of, but potentially is more damaging; that is a lack of awareness of the content that employees are sending to external parties in the name of the company. Ultimately it is the company that will be held responsible for non-compliant or contentious material, yet many lack the ability to check outbound content. DRM with proper review procedures at least ensures that documents adhere to company standards.

Butler Group believes that any organisation that has a large amount of information to manage, and wishes to gain competitive advantage by exploiting the knowledge capital within this information, must implement a DRM solution, even if there is currently no requirement to retain records for compliance. With the number of regulations and legislation that companies are subject to increasing in the coming years, including the Companies Act (which will have a huge impact on British companies) and similar legislation in other countries, we believe that now is the time to act and implement DRM. By acting now before they are forced to, organisations have the relative luxury of being able to fully evaluate products that support DRM, and plan the implementation so that the solution is optimised and delivers full value.

Too many organisations leave an implementation of this nature until the last minute when the company is forced to act quickly to be compliant, and this is when implementations are more likely to fail, because the objectives have not been thought-out properly, nor the requirements of such a system determined. Implementations that are rushed also tend to be more expensive because a higher level of external expertise is required to meet tight deadlines.

2.6 BUSINESS CHALLENGES FACING ORGANISATIONS

There are a number of business challenges facing organisations that can be addressed by implementing DRM. These challenges include how to audit information, storing documents and records centrally, better search and retrieval capabilities, and also how to deal with records when they reach the end of their retention period.

One of the major challenges facing organisations is how to address a growing requirement to fully audit all actions and events associated with a piece of information throughout its lifecycle. This creates a requirement for the better auditability of the lifecycle of documents and records. Although the main reason for a full audit trail is compliance, it also has other benefits. Knowing who made changes to a document and when can be used to settle disputes, or prove that events did or did not take place. It can also be proved what version of a document was sent to a particular person, on a certain date.

Another challenge for organisations is managing all of their information. By adopting a centralised repository for documents currently stored on remote devices, protection is provided for the documents in that they can easily be backed-up, are easily accessible to employees who do not need to spend hours looking for the information, and access rights can be applied to individual pieces of information. This in turn increases employee productivity. In addition, with all information stored centrally, RM can be put into the hands of a single person or small team, the responsibility for the management of records can be taken away from individuals, measures can be put in place to ensure that records are correctly classified, and the security of records can be tightly managed.

The greatest challenge for organisations, and the one that Butler Group believes poses the highest risk of failure to achieve, is the ability to locate information. The key to being able to discover information is detailed metadata. Even if DRM is not implemented, the deployment of a search and retrieval solution will help an organisation locate information. However, one of the major search criteria used by search engines is metadata.

"The greatest challenge for organisations, and the one that Butler Group believes poses the highest risk of failure to achieve, is the ability to locate information."

Part of the functionality of DRM is the creation of metadata both automatically (to enter information such as an author of a document and date of creation), and manually (to enter organisation-nominated information). Although metadata is created by other systems – for example, Microsoft Word and other Office applications – it is often limited and may not have the level of detail required for complex searches. Therefore, DRM provides a more effective way of creating metadata.

Another technique that makes searching a repository easier is to index and categorise each item of information. DRM supports this ability and also allows individual items of information to be associated with other pieces of information, through the ability to utilise sub-categories. For any organisation that needs to retain information, and therefore requires RM to manage information that must not be changed in any way, the capability to be able to classify records is vital, as this will help in the discovery process. A huge challenge for organisations in the future will be the ability to discover and retrieve information dating back many years. With some organisations planning to retain information indefinitely and others having to retain information for upwards of 80 years, search and retrieval technologies will become much more important to organisations than they are today.

All organisations have a requirement for some form of search and retrieval capability, but this becomes absolutely vital if there is a requirement to retain information for compliance. Without the ability to retrieve information there is no point in retaining it. As already mentioned, the regulators in many industries are demanding higher fines for an inability to produce requested information.

Compliance and good business practice are driving organisations to implement different retention periods for different types of information. The challenge is deciding which pieces of information are subject to certain pieces of legislation and regulations, the types of information that have no regulatory obligation to be retained but contain knowledge capital, and finally which types of information do not need to be retained at all, but may be of value to an individual, such as an e-mail. Once this decision has been taken, the retention periods need to be decided. For some pieces of legislation and regulations the retention period is set, but with others it is not so definite. For example, the FSA states that information should be retained for at least six years, leading some financial institutions to delete their business records as soon as the period is up, while others hold on to it for a bit longer in case litigation is pending. Another challenge is deciding when to delete the information, balancing its value against the risk of it being requested for litigation.

For organisations needing to comply, there is a requirement to take some form of action at the end of a retention period. The choice is to either dispose immediately and automatically of records at the end of the retention period, or to enter some form of review. Disposition schedules therefore do not match those of a retention period. A disposition schedule could trigger an event, such as a review, or the transfer of the record to a permanent archive, or to set a new retention period. The challenge for the organisation is deciding how to deal with records that have reached the end of their retention period.

Although it will not always be feasible, Butler Group recommends that organisations should review information before destruction if possible. This could be undertaken by firing off a report of records for review to the original author of the piece of information, or the owner if it is not the Records Manager. Alternatively there could be a review panel that checks records due to be destroyed. DRM may support the ability to flag records for destruction, allowing the actual deletion process to be batched.

Some regulations demand that a record should be destroyed at the end of its retention period so that it cannot be recreated even by forensic methods. Again this is a challenge for organisations as it is claimed that data can now be restored that has been overwritten at least 14 times, and that total is rising rapidly. Although not all systems that incorporate DRM overwrite the data that many times, most do several overwrites – enough to satisfy the various RM standards, and also the regulators.

Even where organisations have been forward-thinking and have already implemented DRM, or are well down the procurement process, there are still big challenges to face, and Butler Group believes that the one that is potentially most damaging is a reluctance to change by staff. Any new system is likely to attract some reluctance to embrace new technologies and learn how to use new applications, but this can be reduced by involving all departments impacted by an implementation in the planning and selection choice. By ensuring that the entire company buys into a project, resistance can be reduced or even eliminated altogether.

Butler Group believes that one of the drivers for DRM should be a desire to improve business processes and promote efficiencies that will invariably result in process changes for users. One way to improve acceptance of the new system is to embed it in an application that users are familiar with, for example Word, and many DRM systems integrate tightly with popular applications that are widely deployed.

Butler Group believes that one of the drivers for DRM should be a desire to improve business processes and promote efficiencies that will invariably result in process changes for users.

Organisations face many challenges, which DRM can address. However, many of these challenges require some action on the part of the organisation in order to adequately address them. DRM should not be seen as functionality that can simply be implemented, it requires careful planning to ensure that it provides the optimum benefit to the organisation. In Butler Group's opinion, organisations must address all of these challenges before the implementation stage. Once implemented, it is often too late to start addressing challenges that the application was supposed to solve.

SECTION 3: Technology Features

Butler Group
Analysis without compromise

3.1 LIFECYCLE STEPS TO SUCCESSFUL DOCUMENT AND RECORDS MANAGEMENT

To affect a successful Document and Records Management (DRM) strategy some form of DRM system is required, Although the majority of records held by an organisation are still in a paper format, Butler Group would urge any organisation to consider implementing an Electronic Records Management (ERM) system, because we believe that records are better protected within an electronic system and they are easier to discover. This section details the steps that organisations need to undertake to manage documents and records within a DRM system. Not all of these steps will be relevant to every type of document or record, but they provide a general guide to DRM.

Most organisations will have some form of Document Management (DM) system, even if it is only a word processing package such as Microsoft Word, with basic DM functionality. While this may be sufficient for a company that creates very few documents, and only has a small amount of information to manage, it will certainly not be satisfactory for an organisation with more extensive DM requirements. Butler Group strongly recommends that these organisations should implement a DRM solution.

Content Capture/Creation

DM must provide the ability to import previously-created documents as well as allowing for the creation of new documents. For many organisations most documents will be created internally, but not necessarily within the DM system itself. Enterprise applications may be the originator of many documents, and so the ability must exist to import these into the DM system, which is often achieved by having the ability to save the document directly into the DM repository. For this to occur, tight integration is required with the enterprise application.

Integration is also required with standard word processing packages, to allow users to create documents in the applications they are most comfortable with. Again the documents are generally saved directly into the DM repository, through additional menu options. However, not all documents will be in a standard word processing format, so other creation tools need to be supported such as spreadsheet packages, Quark, and Adobe Acrobat.

Integrating with standard packages addresses a major issue faced by organisations, that of a reluctance to use new applications often voiced by employees. By making the use of an application totally transparent to an end-user, Butler Group believes that change management issues can be avoided.

> ***"By making the use of an application totally transparent to an end-user, Butler Group believes that change management issues can be avoided."***

Electronic documents originating outside the organisation also need to be supported, so the DM tool must support all of the common formats. Many products claim to support 200+ formats, although Butler Group is sceptical of this claim, as it is not just a case of being able to store a document in the repository, but being able to view it, and perhaps even edit it. Some products provide generic viewers for this purpose.

Documents should be stored in their native format, particularly if they are declared as records, as it could be claimed that to render a record into a different format was tantamount to altering it. The ability to store a document in a different format should be a user option.

Many documents originating outside the organisation will be paper-based, such as forms, correspondence, or legal documents, in both structured and unstructured formats. If these are to be stored electronically, they will need to be scanned and stored in a visual form in the repository. There may also be a requirement to extract information and populate databases. Therefore the ability to integrate the DM application with scanning and data capture products is vital.

Data capture can work by taking incoming document images (typically from a scanner or fax server) and subjecting them to full-text Optical Character Recognition/Intelligent Character Recognition (OCR/ICR), such that both machine- and hand-printed text is read from the entire document.

One data capture product is INDICIUS from Neurascript, which automatically extracts data from a wide variety of paper-based documents with minimal human intervention. It uses Bayesian Character Modelling (BCM) and probabilistic feature-extraction to give a probability that a feature is present in a particular character, greatly reducing a high degree of inaccuracy that has been present in such products in the past when attempting to identify hand-written characters.

Imported and scanned documents need to be classified into document type and also by content. This can sometimes be performed automatically using the document's metadata, or the text of the document, but it will sometimes require manual input.

Metadata Creation/Classification/Taxonomy

As soon as a document is created, metadata will be associated with it. It may also be classified at this stage, and some organisations require that users create metadata and classify the document before it is actually created. This requires a classification scheme, which Butler Group believes must be established as part of the implementation of the system that supports DRM before documents or records are created or captured within the system. Classification is a requirement for effective Records Management (RM), but even for organisations just implementing DM, Butler Group strongly recommends using some form of classification system or taxonomy to help in the indexing and retrieval of documents.

> ***"...Butler Group strongly recommends using some form of classification system or taxonomy to help in the indexing and retrieval of documents."***

The classification system, according to The National Archives (TNA) guidance, should have a minimum of four levels including the root level, and should support varying numbers of levels. All DRM vendors that are either TNA 2002 approved, or aspiring to it, support unlimited levels, although classification systems can become extremely complex to manage once they exceed six or seven levels.

Flexibility is an important requirement of DRM, with the ability to add extra classifications as required and also move classes around the scheme. It is also a necessity to support multiple classification schemes, as different parts of an organisation might use different schemes, particularly where there is a heritage of mergers and acquisitions.

Taxonomy is the science of classifying information using a pre-defined system, and therefore provides the classifications used. In the public sector the term used is generally 'classification', whereas in the private sector 'taxonomy' is a more common term. However, with the heavy focus for DRM vendors operating in the UK currently on TNA 2002 approval, most of these vendors are now using the term classification rather than taxonomy. There are industry-specific taxonomies or classification systems, some provided by DRM vendors while others can be purchased from third-party vendors. Taxonomy has been covered in detail in previous Butler Group Reports, including Enterprise Content Management published in February 2003, and Solutions for Compliance published in June 2004.

Metadata is an integral part of information management as it provides information about a document that helps in its retrieval, such as date created, author, classification area, and subject. It may also hold an abstract of the document's content. Also often stored with the metadata are the details required for an audit trail, such as who viewed or edited a document and when, although audit trail information is sometimes held in a log.

As already mentioned, part of the metadata should comprise the class of the document or record. Under TNA guidance the metadata should support numeric as well as alphanumeric names so that numeric codes can be supported. Also required by the TNA is inheritance of metadata by lower levels of the classification scheme, so if a new class is created in the hierarchy, all classes below it inherit its attributes. In the same way any changes should also be inherited.

Metadata needs to be created at the time of document creation or importation into the DM system. Multiple metadata standards must be supported, as imported documents may not have used the same standard. However, Butler Group believes that a single standard should be used for documents stored within the repository, as it will be simpler to manage the metadata for information that needs to be retained and will eventually be converted to a record.

However, different format types, such as graphical images and multimedia, support different metadata standards. Butler Group believes that the way forward is to have a single metadata standard that will support all formats – but this is a long way off. Some vendors are creating their own metadata standard that supports all of the major standards. Metadata standards are covered in Section 4.3 of this Report.

"Butler Group believes that the way forward is to have a single metadata standard that will support all formats..."

Check-in, Check-out, and Version Control

Check-in and check-out functionality is important to ensure that only a single person works on a document at a time, and it prevents problems created by changes being overwritten. Check-out is achieved by locking the document, either through the use of a flag or a lock file. Users are normally able to view documents that are checked-out in read-only mode.

The granularity of the check-out facility varies between DRM solutions. Some products support editing at the paragraph level, enabling different users to work on different parts of a document simultaneously. Others only support editing at the document level. However, most DRM vendors support the notion of compound documents – the ability to break down a document into smaller components, which could, for example, be sections of a report or even individual paragraphs of a document. The sections of a compound document are often treated as separate documents with their own version control and workflow to control creation, review, and editing. Rules may be deployed to control which versions of each section are used in the completed document, at any given time. This allows individual sections of the document to be updated without affecting the rest of the document. A rollback facility, and an audit trail of the version control of each section means that the document can be rolled back to how it appeared at any time in its history.

Some solutions create a new revision or version of a document every time the document is edited, while with others users have to specify if they wish to create a new version. In either case, a full audit trail should be maintained detailing the changes that were made to the document. In some solutions only major versions are supported, while in other cases minor revisions are also allowed.

Rollback

Many organisations develop a new version of a document – for example, a contract before it is actually required – and start using the new version from a pre-arranged date. In some cases, an organisation may have multiple versions of the same document, with each specific to particular partners, suppliers, or customers. In many solutions the default is to automatically pick up the latest version of a document, but there is clearly a need to sometimes use previous versions. This requires a rollback facility, which all DRM solutions should support.

Automating Tasks

This is covered in greater detail in Section 3.3 of this Report – Workflow and BPM – as it is important in the management of the lifecycle of a document. For example, when an editor has checked a document back in, an e-mail can automatically be sent to the reviewer to inform he or she of the need to review the document, and the task can appear in the task list of that person. It can also be used to trigger the declaration of the document as a record.

Publication

Publication and content delivery is a separate area, and is often provided for through additional modules within an Enterprise Content Management (ECM) solution, but DM capabilities will provide the ability to print the document or render it into different formats for publication.

Audit Trail

Full auditability is a requirement of compliance, which comprises a full audit trail covering the entire lifecycle of a piece of information. This is regardless of whether the information is a document or a record. The audit trail must include details of all changes made to a piece of information, including when the changes were made and by whom, and also who accessed the information, particularly if it is a record. It is also necessary to document when a document was declared as a record.

This audit trail should also extend to physical items, including a complete record of who checked out the item and when, as well as detailing the physical location of the item, and its dates of movement.

There are two approaches to auditing. The first is to use the metadata of the item. The second is to use a separate audit log. Some systems keep a record of all versions of a document, so that it can be restored to a previous version, and this is sometimes maintained as part of the auditing process.

All audit information should be reportable, enabling users to produce histories of pieces of information, administrators to examine access to information over its lifecycle, and also to track the process of a piece of information through its workflow.

Creation of Records

Organisations require a scheme for the declaration of records. Records can originate from a variety of different applications and in different formats so the declaration process needs to cater for the applications deployed, such as standard office applications, operating system directory management facilities, e-mail client applications, and images from a document scanning system (if documents are received in paper format, which need to be stored electronically). Some records are declared as soon as a document is created, while others are declared at a specified stage of the lifecycle of a document.

The declaration process may be performed automatically through the workflow, or manually by a user. Butler Group strongly recommends that organisations have a dedicated person in overall charge of RM, who has the ultimate responsibility for the declaration of records. Some solutions support the ability for the semi-automated declaration of records, where a user declares the record, but it is placed into a list, which the Records Manager can pick up and confirm that it should be declared as a record.

During the declaration process records are classified. This can also be performed automatically or manually. Butler Group believes that the Records Manager must take the ultimate responsibility for this.

There is a requirement for DRM solutions to support new office applications, and other business applications, through the inclusion of native connectors or Application Programming Interfaces (APIs), to allow integration so that transactional records from operational systems and other business applications can be declared.

Also required is the ability to support the declaration of records made up of multiple components, for example, cases in the public sector or customer interactions in the private sector, which could be documents, faxes, e-mails, telephone calls, and video clips. Examples of document types that may be declared as records include XML documents and forms, word processing documents, spreadsheets, e-mails with and without attachments and e-mail receipts, encapsulated Web pages, PDF documents, and multimedia files.

A RM system must, in Butler Group's opinion, manage physical records as well as electronic records. The location of physical records, retention periods, and check-in and check-out can all be managed through the RM system.

Management of Records

A record must, in Butler Group's opinion have a retention period, which is the minimum length of time for which the record needs to be kept. If no retention period is set then it should be assumed by the system that the record is to be kept indefinitely. However, most solutions insist that a retention period is entered. At the end of this period, we do not believe that the record should be automatically deleted, but that a review must be allowed. Many RM solutions do not allow the automatic deletion of a record without at the very least a review, and some support two- or three-stage dispositions.

During the retention period the destruction of the record must be prevented. However, if a court demands the early destruction of a record, then the ability must exist to override the system in order to dispose of the record before the end of its retention period, although the right to do this must be tightly controlled. Butler Group recommends that this task should be limited to the Records Manager.

Some records will have very long retention periods, and 100 years is already being spoken of, particularly in the public sector where health records, for example, will enjoy long retention periods. Therefore, organisations need to ensure that records are retrievable in 100 years or more. In Butler Group's opinion, this requires regular reviews during the life of the record to ensure that the metadata is adequate to allow the discovery of the record as search technologies evolve. (See figure 3.1.1 on the next two pages for examples of retention periods).

Records also require disposal schedules, which are not the same as a retention period, which is generally date based, while a disposal schedule lays down what will happen to the record when the retention period is reached. Disposal schedules are often policy-based, controlled by workflow such as initiating a review process, followed by deletion.

During the life of the record, events can be triggered, often based on time elapsed or dates. These may be regular reviews of the record, or could be the movement of the record from one type of storage to another. In the case of physical records the system will state when the record should be moved from one location to another. RM systems have varying degrees of automation built-in when it comes to actually moving electronic records. Most RM vendors support EMC Centera as an archiving platform, and are able to automate the process of archiving records to Centera.

An archiving and storage capability is a requirement of successful RM. This should be hardware independent (allowing the RM solution to support any storage medium or vendor and not just Centera) and it should be easy to migrate between platforms, to ensure that the hardware platform used is always current and it is therefore possible to retrieve records from.

Retrieving Information

In Butler Group's opinion, the absolute key to the success of a RM solution is in the ability to discover records and the ease and speed with which they can be retrieved. This requires the use of a good search and retrieval technology, which is covered in the next section of this Report. The solution should also support redaction to ensure that the regulator or other viewer of the record only has access to the information he or she requires, or is entitled to view. Another requirement is the ability to put retrieved records onto the chosen media of the regulator and in the format requested.

▶ 3.2 SEARCH AND RETRIEVAL

As already mentioned the key issue facing companies is having the ability to discover and access retained information, which requires search technologies, detailed metadata to aid the search process, and measures to ensure that the performance of the search tool is adequate to retrieve information within the timescale allowed under the various regulations. Conversely, search technologies also allow users to leverage value from retained information.

In order to discover information in what can be very tight deadlines the use of powerful search capabilities to search through what in the future will be many millions of individual items or records, and petabytes of information, is required. The driver for this will be the need to retain information for longer periods for compliance purposes, but also for litigation. This will necessitate an evolution of the search technologies available today to cater for the retrieval demands of tomorrow.

Search tools are relevant for every type of application where large volumes of unstructured information are stored, but have particular relevance for DRM systems with huge repositories of information that require optimum performance from a search engine. Compliance and litigation may be the chief reasons for retrieval from the system, but there may still be business value in information, particularly in customer-facing organisations and public sector bodies.

Figure 3.1.1: UK Retention Periods

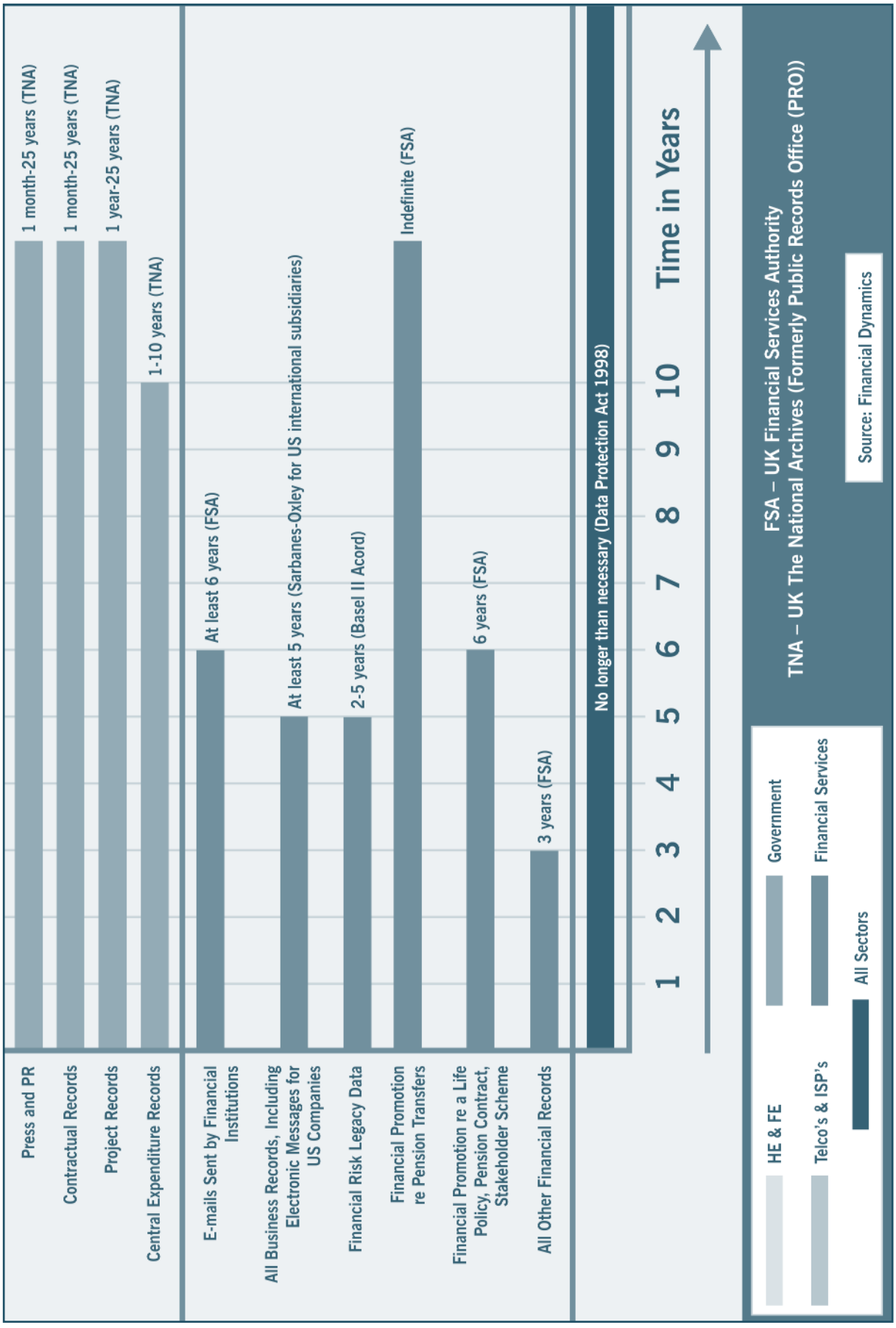


Figure 3.1.1: UK Retention Periods cont.

Although there are a variety of different search methods, ranging from simple keyword searches to more complex text-mining techniques, key to the retrieval of information is the metadata. Therefore, successful search techniques involve not only effective search and retrieval tools, but also the creation of metadata, which is a key constituent in the ability to locate information. There are different metadata standards for different types of information – for example, for items of multimedia – thus search engines must support multiple standards. Metadata standards are covered in more detail in Section 4.3 of this Report.

In Butler Group's opinion, organisations must not only update their search tools to ensure that they have the appropriate functionality to search current as well as historical repositories, but must also review the metadata stored alongside their information on a regular basis, and especially each time a new or updated search tool is deployed, to ensure that the information is still retrievable using the metadata.

A requirement of a search process is the ability to locate not only electronically-held information items but also paper-based ones, perhaps indexed electronically. In this case the index should contain the type of information that would be contained in the metadata for an electronically-stored item. It is conceivable that a compliance or litigation request could require the production of electronic and paper-based documents and both types should be discoverable as a result of the same search process. An increasing amount of information is also not in written format, but comprises video, other multimedia formats, and graphical images, and these must also be searchable within a single search.

With the amount of information being retained growing at an exponential rate, the success of the discovery process may depend on a combination of search methods rather than a single search. Also important, where multiple searches are concerned, is the ability to provide full documentation of how the results of a search were reached.

Simple keyword searches, such as those provided by a corporate e-mail system, for example, will provide reasonable results when searching through a limited number of items, or using a unique term, but it is not very effective when searching through millions of items, also it only searches on metadata. However, it may provide a good starting point if the search can then be refined using other techniques.

A conceptual search examines the content of information items, which in terms of time will be more suited to searching through fewer information items.

Boolean searches use the terms AND, OR, and NOT, which are useful for refining a search, and they support complex searches. Natural language searching enables the user to enter a word or phrase using everyday terms and this returns broad results, which may require some refining. A text search assesses the relevancy of text, and a concept-based search uses concepts, and can provide a higher level of accuracy.

The performance of the search technology in terms of the speed of retrieval needs to be taken into account as the size of archives grows. The larger the size of the archive, the longer it will take to discover the appropriate information to satisfy the requirements of a search.

An example of a search using multiple techniques to locate details of a particular contract with a partner, may be to start with a keyword search on the company name. This could then be refined using a text search on the concepts within the text of documents and other information items.

With organisations only having a limited timeframe in which to complete the discovery process, Butler Group believes that the search must be speedy, which is an advantage of using a number of search techniques. It also provides regulators with evidence that the search criterion was wide enough to capture all the relevant information.

> ***"...Butler Group believes that the search must be speedy, which is an advantage of using a number of search techniques."***

The downside to multiple search methods is a complicated audit trail of how the search result was reached, which is difficult for the administrator to document. Therefore a useful ability, and one that will become necessary – and probably a part of all future regulations – is the provision of a full audit trail of how the result set was reached. This will include documenting all of the search methods deployed, how the search was refined, which of the original items were rejected, and the reason for the rejection. Only by going through this process can an organisation be satisfied that it has made its search sufficiently wide to capture all the required information.

As information becomes increasingly disparate, search techniques must be able to undertake searches across federated repositories of several petabytes, as if it was a single entity.

As records age and the size of the repository grows, the time taken to retrieve information will lengthen and the effectiveness of the search method will diminish. Butler Group believes that organisations therefore need to test the effectiveness of their retrieval methods on a regular basis to ensure that they are able to retrieve historical and current information within an acceptable time, adopting new search tools and techniques if their current ones fail to perform in a satisfactory manner.

3.3 WORKFLOW AND BPM

Butler Group's definition of BPM is: BPM concerns the software and tools required to model and execute an organisation's business processes, through the orchestration and integration of the necessary people, systems, applications, and application components.

Two years ago very few ECM vendors had full BPM capabilities in their products, and most only had basic workflow, of a linear nature. This situation has now changed and most of the vendors provide at least comprehensive workflow and BPM capabilities and some even have full-blown BPM products. Butler Group does not believe that organisations necessarily have to select a vendor with full-blown capabilities. What is important is having the ability to develop processes that span multiple applications, and provide the flexibility to enable the organisation to effectively manage its information. For example, when a user saves a form that has been created in the Word environment, the ability must exist to be able to automatically populate any databases that the information entered into the form touches.

Many of the tasks involved in the management of the lifecycle of information can be automated through the workflow capabilities within the products that support DRM. These include the automatic movement of records or documents from one storage medium to another based on a time elapsed or date, or the declaration of a record at a specific point in the lifecycle of a document.

"It is through the workflow that DRM functionality can be made transparent to the end-user"

It is through the workflow that DRM functionality can be made transparent to the end-user. The user may be working in an environment that he or she is familiar with, creating, editing, or reviewing documents that are automatically routed to them via the workflow, and displayed in a task list, often through an e-mail client.

There are various routing mechanisms used for workflow steps, and these include routing by role, by named individual, or by group. For example, a task may be sent to a named individual, but this is restrictive and therefore not used too often, as each time a person leaves the organisation the workflow has to be changed in order for the task to be sent to another person. More common is the assignment of a task to a group or role. With integration to a directory service such as Lightweight Directory Access Protocol (LDAP), there is no work required on the part of an administrator each time there are staff changes. There are various methods of routing work to a group or role, which include sending it to, for example, the least busy person in the group or 'round robin'. Escalations must be supported, in Butler Group's opinion, with the ability to route tasks to another user if it becomes overdue, and the prioritisation of tasks is also important.

Most workflow systems support more complex routing models such as voting logic, where a pre-determined number of the members of a group or role have to undertake a task such as approving a document. This could be based on majority voting, or all participants, as well as an actual number. Other complex tasks that must be supported by the workflow capabilities include conditions, branching tasks, sub-processes, and parallel processing.

Workflow can also be used to manage the Information Lifecycle Management (ILM) of documents and records, enabling such tasks as moving information between storage media. The extent to which the workflow is able to trigger the actual movement of information depends on the extent of the integration of the ECM or Electronic Document and Records Management (EDRM) system with the various hardware platforms. The workflow should, at the very least, be able to flag which records are due to be moved.

One of the more important tasks for the workflow is the ability to automatically declare records, which Butler Group believes must not be put into the hands of ordinary end-users, as they cannot be expected to always remember at which point they should declare a record. However, some organisations prefer the record declaration to be performed manually by the Records Manager, and in this case the workflow could put all records to be declared into a list for the Records Manager to review and manually declare.

At the time of declaration many records are classified – although this task can also be performed at the time of the creation of a document. Again, classification can be automated, based on the information type, the existing metadata, or subject. Alternatively it can be performed manually. A compromise is partial automation, where the workflow automates the classification of the record, but then puts the classified record in to a list to allow the Records Manager to check that it has been correctly classified.

Many automated workflow tasks are event-driven, often by dates or elapsed time, but also by user actions; for example, a customer sending requested information to the company, which may trigger an automated action.

Workflow can also be used to manage physical items, although human intervention is required to handle the actual records. An example may be the movement of physical records to a new storage location based on elapsed time. The workflow may flag that the task is due, and also indicate the new location for the records. When they have been moved, the system may then update the metadata relating to the location of the records.

"...Butler Group believes that it makes sense to use the BPM capabilities within the DRM supporting system to create these complex processes..."

Workflow within DRM fits into wider BPM functionality. DRM cannot be used in isolation, and information stored within the system will impact other applications and may even have originated in other systems. Correspondence between an organisation and external parties will invariably result in information being dispatched and received, which needs to reside in the DRM repository but also requires databases in other systems to be updated. This is where BPM plays a part in providing the integration with other applications including external systems. Many processes are multi-stage, impacting many applications, involving many users, and may take weeks or months to complete. As information is the factor that often links all of these interactions, Butler Group believes that it makes sense to use the BPM capabilities within the DRM supporting system to create these complex processes, which is why we believe that it is important that the BPM and Workflow capabilities are capable of spanning multiple applications.

3.4 SECURITY

There are three key elements to DRM security; the technology, the organisation's security policy, and the people using the systems.

Butler Group believes that documents and records are assets, which, like any other important business assets, have a value to the organisation and consequently need to be suitably protected. Within DRM this involves ensuring that information is only made available to those that are entitled to access it. Butler Group therefore contends that comprehensive and granular security in DRM is of vital importance.

Security and privacy should be a primary concern when planning and implementing DRM. DRM potentially requires a huge change management process with the move from secretive to public, and individual to corporate, or the sharing of information and its storage in a central repository. But this must be balanced with the concerns of authors that they no longer have direct control of their documents and records. In order to convince users that they should give up ownership of information, and that it can safely be stored in a central repository and be made available to other users, it is vital that access rights and permissions are assigned to each piece of information, to ensure that only authorised users have access to it.

Organisations must consider this issue during the planning stage of an implementation. This is often considered as part of the fileplan, with general access rights and permissions set at the classification level, with specific rights applied to certain items of information. Therefore it is imperative that any DRM solution should support the ability to apply access rights at both the classification and the document level.

Butler Group believes that multiple levels of permissions should be available, and many solutions support nine or ten levels of security including read-only, edit, create, and delete. There are also other levels of security, which are deployed in the public sector and include such terms as 'top secret'. These security levels override all others and further restrict access to highly sensitive items of information.

The easiest way of developing a security model is to assign access rights and permissions to roles. If the DRM supporting solution is integrated with a directory service such as LDAP, then the roles can be applied straight from the LDAP directory. Each time an employee starts at the organisation, and is assigned a role, their access rights and permissions for DRM are automatically assigned.

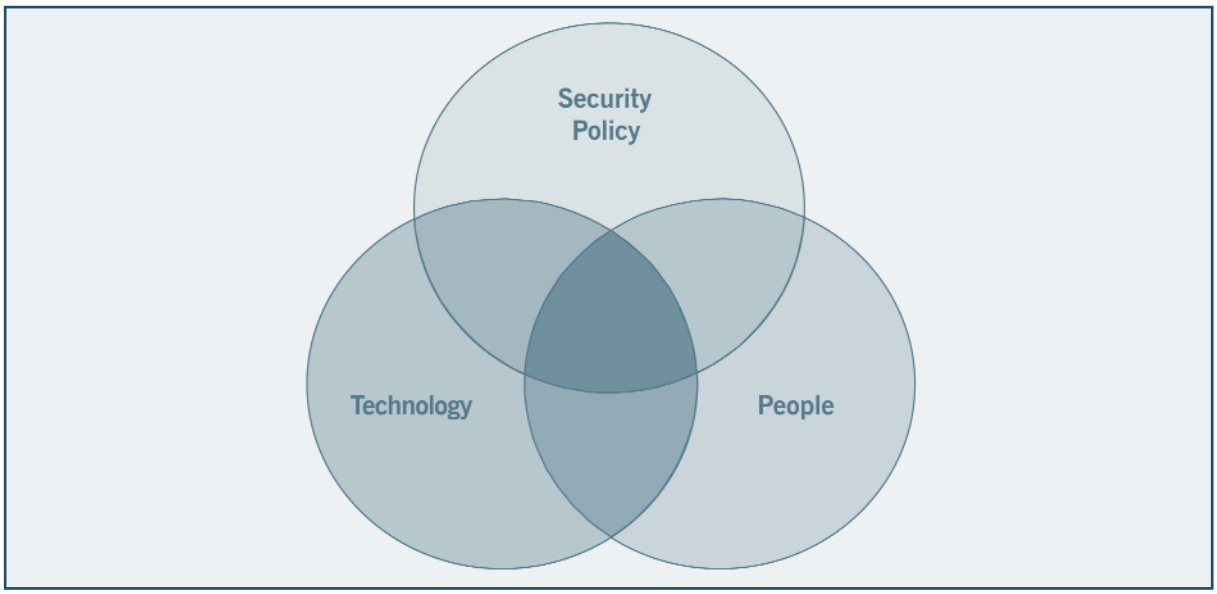


Figure 3.4.1: Components of a Security Framework

Butler Group believes that roles-based access rights are preferable to assigning rights to individuals. As the lifecycles of documents and records are controlled by workflow, if rights are applied at the individual level then changes have to be made to the workflow each time an employee joins or leaves the organisation.

The granularity of access rights and permissions is generally at the document level. However, most solutions support compound documents. These are individual documents that when put together form a larger document. Each of the individual documents can have different access rights applied to them, enabling different people to work on each document. A compound document could be an Annual Report, which is made up of multiple sections. It could also be a document that is made up of multiple paragraphs. By setting up the document as a compound document, different users can be assigned to each paragraph.

Once a document is declared as a record, its access rights and in particular permissions change. It is through permissions that users are prevented from amending it, as its status changes to read-only. A user accessing DRM functionality through another application may not even be aware that the document they have been working on has just been declared as a record, as the only difference will be that he or she is no longer able to update it.

Access rights and permissions are an administrative role. It is the belief of Butler Group that organisations must consider very carefully whether they wish their Records Manager to administer the security of the information, or whether this should be a separate role.

Although very important, access rights and permissions are not the only security aspects that organisations implementing DRM need to consider. As more and more sensitive business is conducted via electronic means there is a growing need for documents and records to be transmitted securely. One way of achieving this is to deploy encryption and Digital Certificates. However, many vendors providing DRM are only now considering the importance of this functionality and accommodating it into their products, although some of the ECM vendors have supported this functionality for some time. Electronic signatures and digital certificates also play a significant role in non-repudiation – a cryptographic service that legally prevents the originator of a document or record from denying authorship at a later date.

Another aspect of security that organisations need to consider, as more information has to be retained for longer periods, is redaction. This ensures that only people entitled to see information are allowed to read it. This may mean blanking out part of a document. Butler Group expects this to become more of an issue as the number of regulations requiring information to be retained for disclosure increases, and also as more and more companies are asked to produce information for litigation. Redaction is not yet commonplace in DRM, but some vendors support it by allowing specific areas of a document or record to be blanked out.

> *"Butler Group believes that if an organisation gets its security model right, then this will protect access to its information in all situations..."*

Butler Group believes that if an organisation gets its security model right, then this will protect access to its information in all situations, including in distributed environments, and also amongst mobile users. However, accessing information in an Internet Café or one of the new WI-FI hotspots may pose additional risks if users access sensitive information on devices that can be seen by other people. To counter this, a growing number of DRM solutions support restricted IP address ranges for document and record access, and in the future Butler Group expects more systems to add support for so-called 'trusted devices' that mandate secure authentication.

Responding to the need to apply strict access rights to documents and records, Microsoft for example has developed Information Rights Management (IRM) technology, which it has embedded in Microsoft Office Professional Edition 2003. This enables policies that wield greater control over who can open, copy, print, or forward information created in Microsoft Office products.

In due course Butler Group expects to see all major DRM vendors adding full support for this new technology, thereby helping enterprises protect commercially sensitive, and often valuable, documents and records.

Security can be contusing for organisations considering DRM. To help organisations in this situation, the International Organisation for Standardisation (ISO) published a standard entitled: Code of practice for information security management in 2000. This code of practice (known also as ISO 17799/BS 7799) provides organisations with a great deal of information on information security management, and in conjunction with other guides and codes of practice provides organisations with an ideal base upon which to plan and implement DRM solutions.

▶ 3.5 TECHNICAL INTEGRATION

Butler Group believes that organisations should carefully consider their integration requirements when making DRM procurement decisions, as extending DRM functionality to line-of-business systems and enterprise applications may be more readily accomplished with solutions that have been designed with integration in mind.

Enterprise Application Integration

As with all enterprise-wide IT projects, organisations should look well beyond their immediate requirements, as documents and records are central to all businesses and organisations. Enterprise Resource Planning (ERP), Customer Relationship Management (CRM), and Supply Chain Management (SCM) all depend heavily on DRM services, and Butler Group would encourage all organisations to take an enterprise-wide view of integration requirements before commissioning DRM.

> *"...we believe that DRM should fully embrace Web services as a means of integration."*

Given that documents and records are created and consumed by so many different business applications, we believe that DRM should fully embrace Web services as a means of integration. Most vendors in this area understand the importance of standards when it comes to integration. However, the degree to which vendors have implemented and provide support for Web services within their solutions does vary significantly – even amongst ECM vendors.

Generally speaking, most vendors expect to expose a substantial amount of product functionality through Web services within the next two years. For several Microsoft-based solutions, this will come as vendors re-architect their products and solutions to exploit Microsoft's .NET Framework.

The integration of DRM with line-of-business applications is one way of managing unstructured information alongside structured transactional data. DRM vendors have targeted enterprise applications, such as those from SAP, Siebel, and PeopleSoft, as they present an identifiable target for their products and services, delivering in effect an integrated information management solution, and accelerating time-to-value.

When evaluating the application integration claims of a vendor, organisations should always seek hard evidence through site visits to existing implementations. Many ERP, SCM, and CRM vendors now publish lists of 'approved' or 'certified' integrations along with 'Partner Solutions', and while these may provide some insight, Butler Group would still recommend that organisations take the direct approach and ask their enterprise application vendor to comment on the integration options afforded by specific DRM solutions.

Enterprise Portals

DRM solutions have a natural affinity with enterprise portals, and therefore Butler Group expects vendors to demonstrate their support for emerging standards such as Web Services for Remote Portlets (WSRP) and Java Specification Request 168 (JSR 168) Portlet Specification. A number of DRM solutions based upon the Microsoft technology stack offer out-of-the-box integration with Microsoft's own portal solution – SharePoint Portal Server. While organisations that have committed to this particular portal will have a broad range of DRM solutions to choose from, enterprises that have adopted portals from Plumtree, IBM, and Vignette, for example, might want to consider DRM solutions built using Java technology so as to minimise development headaches while at the same time optimising the organisation's investment in the J2EE platform.

Portals provide the environment to bring together structured, semi-structured, and unstructured information. This is an argument for adopting a DRM solution from an ECM vendor – many of whom provide a portal interface as part of their ECM solutions.

Build, Buy, or Integrate?

The ability to embed or utilise DRM functionality within existing applications is a factor that needs considering when trying to calculate the Return On Investment (ROI) expected of a DRM solution. However, the means by which this is achieved can vary significantly from solution to solution, thereby making the decision to build, buy, or integrate a difficult choice to make. This is where System Integrators (SIs) and DRM consultancy firms can add value – but at a price. DRM solutions have been around long enough now for vertical solutions to emerge. While industry-specific solutions are sometimes available for DRM vendors, the more likely option is to find the solution on offer from a SI partner or boutique software house. Either way it is well worth considering a pre-built solution, as even if it needs some tweaking, the overall cost is likely to substantially less than a bespoke build.

Although DM and RM functionality are commonly found integrated within the same vendor solution offering, it is still quite possible to combine functionality from two distinct products into a single DRM solution. Usually we see RM functionality added to DM systems, and while there are now relatively few pure-play RM vendors around, it is still worth considering this as an option – especially if the DM system is itself part of a collaboration system built around the likes of Lotus Notes or Microsoft Exchange. A number of ECM vendors that are now offering RM solutions have themselves acquired stand-alone products to fill-out their product portfolios, and so we believe that implementing such a solution is still a viable option in many cases.

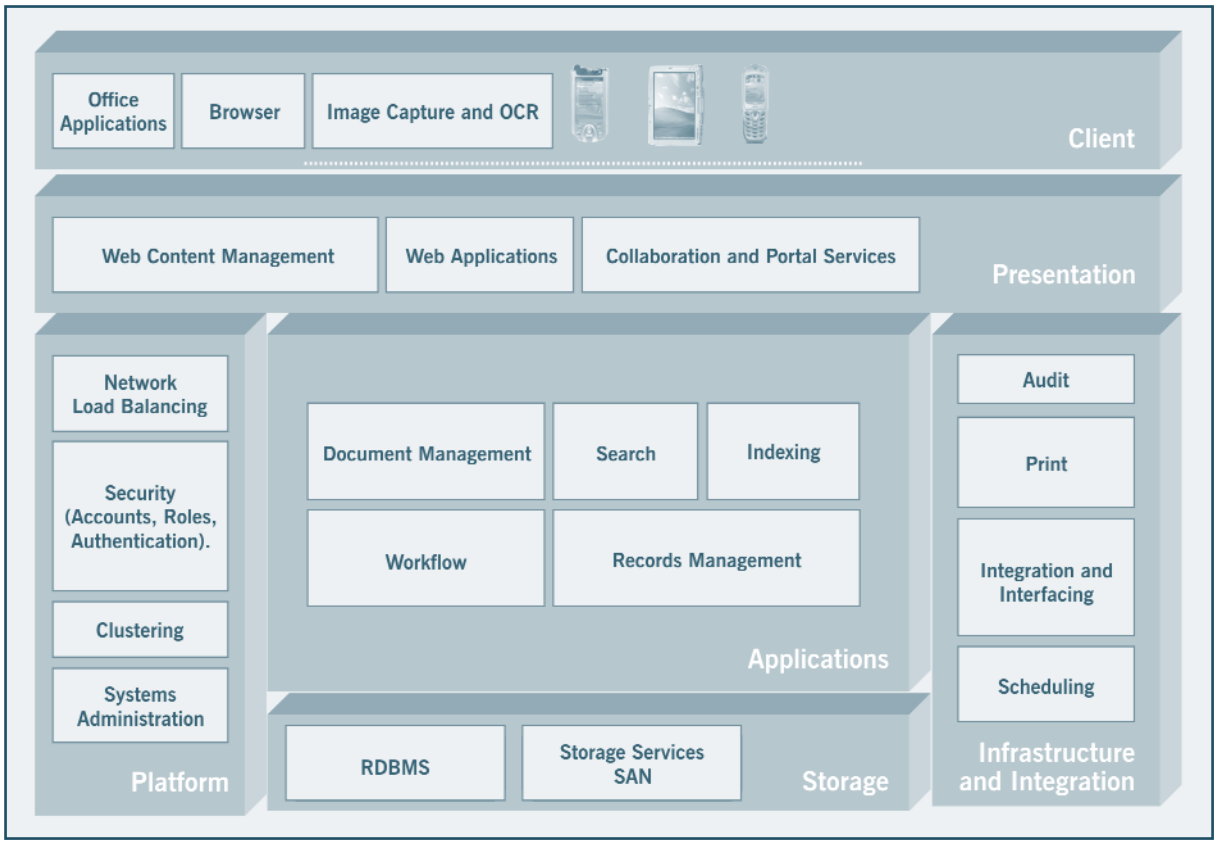


Figure 3.5.1: An Example of an EDRM Solution Framework

Building bespoke solutions is often considered a risky business these days, and so most organisations look for a solution that they can tailor and/or customise to fit their business requirements. Often this results in a decision to go for an integrated 'best-of-breed' solution, or a suite of products that have already been integrated by a single vendor. The frenetic merger and acquisition activity dominating the ECM space at the moment has resulted in far fewer independent DM and RM vendors, and as a result many organisations feel compelled to select DRM from an ECM vendor. While Butler Group does not believe this to be a poor strategy in itself, we still believe that 'best-of-breed' ECM solutions can be built from combinations of products from different vendors.

> ***"...we still believe that 'best-of-breed' ECM solutions can be built from combinations of products from different vendors."***

The holistic approach to content management espoused by vendors of ECM suites makes them very appealing to larger organisations. However, organisations should not be overly concerned if their existing Web Content Management (WCM) solution and enterprise portal come from vendor A but they favour DRM from vendor B. Despite the fear, uncertainty, and doubt spread by vendor sales and marketing departments, most ECM vendors now accept that multi-vendor ECM environments are more likely than not to be the norm, and so are prepared, willing, and able to support this approach.

Application Programming Interfaces

Many DRM solutions provide APIs, which can be exploited through the use of relatively simple development environments such as Visual Basic. Exploiting APIs through the use of languages such as C and C++ may provide the tightest way of integrating DRM with other applications, but the long-term maintenance of these pieces of code may become something of an issue. As we have seen in the ERP market, excessive customisation of an off-the-shelf package can result in 'version lock-in' – i.e. the inability to upgrade swiftly and easily to a new version due to the over-customisation and product tailoring. Upgrading from this situation is seldom cheap, and often results in a 'rip-and-replace' strategy being adopted after numerous abortive attempts to upgrade have failed.

When it comes to software development and integration, the DRM vendors appear to be polarised in favour of either .NET or J2EE. All vendors purport to support integration and interoperability between these two approaches through the use of Web services. However, Butler Group predicts that most vendors will not be in a position to deliver a fully functional Web services interface to their products and solutions for another 18 to 24 months.

XML Import and Export

The ability to move information into and out of repositories is important if organisations are to avoid vendor lock-in. Fortunately, the overwhelming majority of DRM solutions appear to be fairly adept when it comes to using XML and information exchange. The demands of the Web and the need to easily exchange electronic content between partners and affiliates has lead to the development of Information and Content Exchange (ICE). The ICE specification provides businesses with an XML-based common language and architecture, which facilitates the automatic exchanging, updating, supplying, and controlling of assets in a trusted fashion without manual packaging or knowledge of remote Web site structures. While ICE is not directly related to DRM per se, it is an important standard within the context of the 'content-driven enterprise', and serves to illustrate the importance of XML where the management of content is concerned.

Integration With Other ECM Components

Integration of both content and applications is one of the defining characteristics of an ECM solution. If DRM is to form part of an enterprise platform, then integration with other content management technologies is vital. These include; search and categorisation, Knowledge Management (KM), archiving, workflow, WCM, collaboration, portals, and Digital Asset Management (DAM). Management of documents at the workgroup level is the most important aspect of ECM, as it is at this level that document collaboration is at its most fervent.

> ***"If DRM is to form part of an enterprise platform, then integration with other content management technologies is vital."***

E-mail Management

E-mail is used by almost every organisation. However, although e-mail is very simple to use, it is becoming extremely difficult and time-consuming to manage for one reason: volume. E-mail now constitutes a significant proportion of all documents created within the enterprise, and for this reason integration of the corporate e-mail system with an effective and efficient DRM system is vital. There are enterprise-messaging systems available from high-profile vendors that incorporate DM functionality, although these solutions do not currently constitute significant market share, and often provide only basic DRM functionality. Butler Group contends that DRM should now be considered as a key component of any enterprise e-mail solution, as without it, this pervasive technology will ultimately become unviable.

SECTION 4: Architectures and Models

Butler Group
Analysis without compromise

4.1 SOLUTION ARCHITECTURE

Various choices are available to organisations wishing to implement Document and Records Management (DRM) functionality. Firstly there is a choice between an Enterprise Content Management (ECM) platform incorporating DRM functionality, or a specialist Electronic DRM (EDRM) solution from a niche player. This subject is discussed in detail in Section 4.2 of this Report.

The decision of which option to select may depend on the scale of the implementation, and the distribution of end-users. For example, with an ECM solution there are often a number of options, ranging from a single server and single repository configuration at one end of the scale to multiple servers and multiple repositories at the other end of the scale. There is also the choice of client-type to take into consideration with a choice between a thick-client and a Web-based client. Finally there is a choice of user interface ranging from the DRM functionality being embedded in the application most widely used by the user, to using the ECM or EDRM system interface.

Server/Repository Configuration

An ECM solution will generally offer more flexibility in terms of server and repository configuration, compared with an EDRM application. The simplest configuration is to have a single server and a single repository that contains both documents and records. The advantages of this approach are that it provides easier administration and management, and requires fewer hardware resources. However, it does not provide resilience in terms of failover should the server become unavailable. Butler Group recommends that this configuration should only be considered by organisations that only have a small number of users that are not distributed.

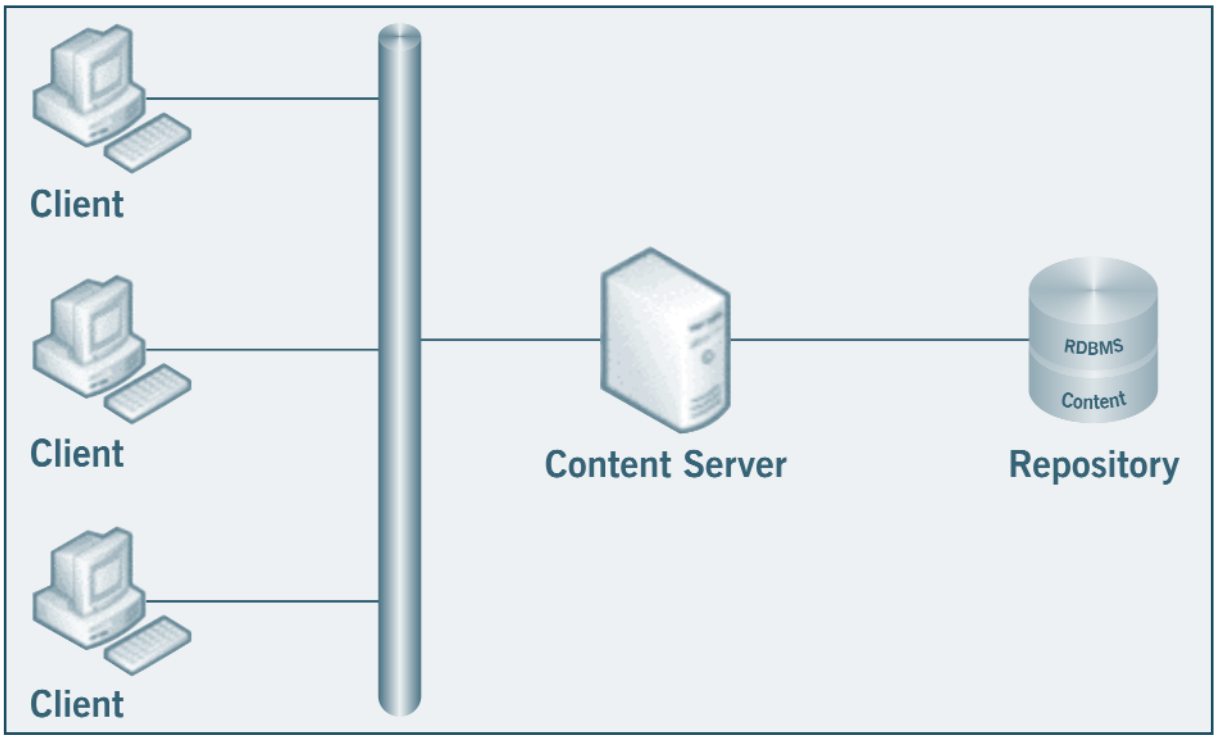


Figure 4.1.1: Example of a Single Server, Single Repository Environment (Source: EMC Documentum)

For scalability and resilience, additional servers need to be deployed to provide failover and varying levels of load balancing. Some ECM solutions support automatic load balancing while with others the administrator needs to manually state which clients will use each server. In this case the system will only automatically re-assign users to another server if the server that they are connected to fails. Using this configuration a single repository may again be deployed. In Butler Group's opinion, this option is again most suited to organisations in non-distributed environments, although it will support greater numbers of users.

Additional servers may also be deployed in distributed environments, with a server in each location. This allows users to place requests with a local machine, which then accesses the central repository. This improves performance for remote users who communicate with a local server, but the actual information still has to be accessed via the central repository. Butler Group believes that while this improves performance for users in remote locations, because it still requires interaction with a single repository each time an item of information is required, performance may still be an issue.

A better option in our opinion, in distributed environments, is to place repositories as well as servers locally. Users are then able to view documents and records that are stored locally, which improves access times. There are two approaches to this. The first is to allow read-only access on locally stored information, and download a document from the central repository if a user needs to update it. The second approach is to store the permissions for the document in the central repository, but allow documents to be updated locally, and then the updated version is synchronised with the central repository, which synchronises it with all the other repositories. Although the second option has benefits in that the information to be updated is available locally, it is less efficient if there are multiple repositories to be synchronised every time a document is updated. The first alternative also requires the synchronisation of copies, but this could be performed the first time a document that has been updated is requested by a remote user, which would trigger the synchronisation. Therefore, Butler Group believes that the preferable option is to make local copies read-only, and edit the centrally-held versions.

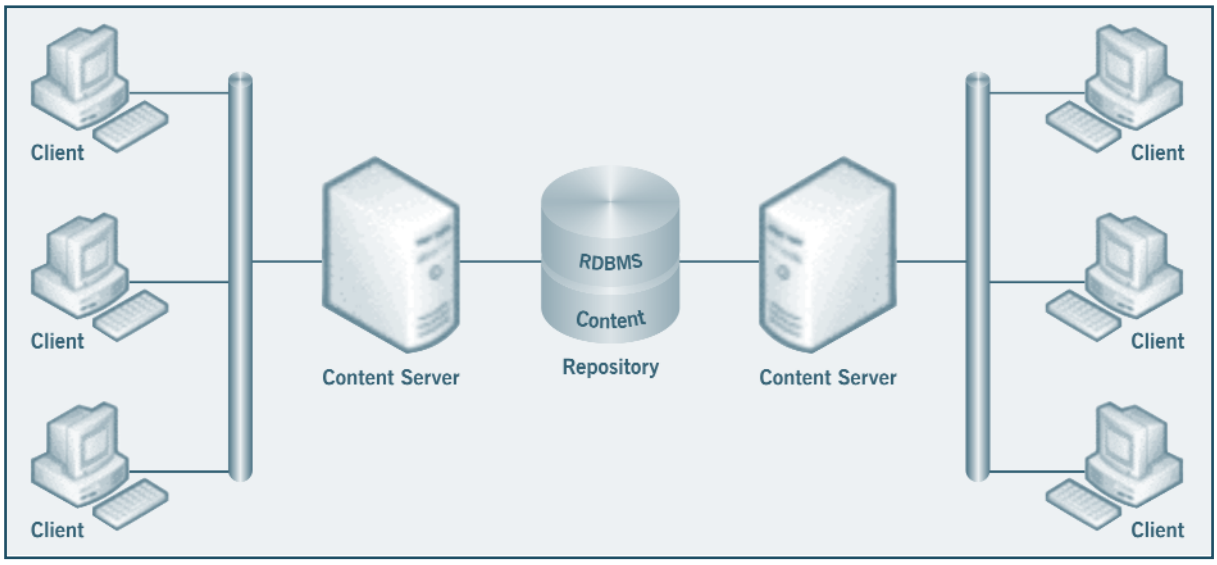


Figure 4.1.2: Example of a Multi-server, Multi-repository Environment (Source: EMC Documentum)

All of the above options use a repository for the content. Another approach is to leave the content in its native repository and just store the metadata in the ECM repository, using pointers to the physical location of the information. The actual information may then be stored in either a file system or a relational database. This means that structured as well as unstructured information can be managed through the ECM solution.

Some vendors offer flexibility by offering a choice of storing documents and records in the same repository or different repositories. An advantage of using a single repository is that it enables records and documents to be managed from a single location, makes manageability easier, and there is no physical movement of a document when it becomes a record. It also means that searching is undertaken on a single repository, and a single search can return a combination of documents and records more easily.

Most of the above options use a relational database. Another option is to deploy a solution that utilises a file system instead of a database repository. There are arguments that this provides a better store for large files. However, the database vendors have improved the storage of larger files over the past few years, so any differences in performance are not as great as they once were.

Client Options

Client options vary depending on the solution implemented. Some offer a single client-type while others provide a choice. The choice most often offered is between a thick client requiring an installation on the desktop, or a Web-based client. In many cases the Web client will be the preferable choice, particularly in large organisations with high numbers of clients. In Butler Group's opinion, this type of client is suited to organisations with distributed and remote users, particularly larger companies where it is difficult to maintain every desktop. It is also suited to situations where users share a single PC or terminal, as the configuration for each individual using the Web client is downloaded at the beginning of each session, and this can be personalised for the requirements of the user.

"An advantage of a Web client is that the screen presented to the user can be built and downloaded on-the-fly..."

An advantage of a Web client is that the screen presented to the user can be built and downloaded on-the-fly, based on the access rights, permissions, and possibly preferences of the user. Other advantages of a Web client are ease of management – everything is handled from a single console (not necessarily central) – and also the speed of deployment of new versions of the solution.

However, a Web client is not suited to all situations. For users with heavy use, requiring extensive functionality, it may be preferable to use a thick client, which may speed up performance but has the downside of requiring an installation on the client, which must be upgraded when new versions are released. This does not necessarily mean a visit to every desktop. More sophisticated ECM or EDRM solutions check at the beginning of a session that the user is running the latest version of the software, and also has access to all of the latest templates and other features that the organisation has introduced. If an upgrade is required, this is downloaded to the client. Many solutions also now support centralised deployments to desktops.

User Interface

There are generally multiple options available for the user interface. All of the products reviewed support tight integration with at least one major application, most commonly Microsoft Word, and some integrate with multiple applications, enabling users to work within the application of their choice.

"This integration, in Butler Group's opinion, is of vital importance and should be one of the key considerations in the selection of a DRM solution."

This integration, in Butler Group's opinion, is of vital importance and should be one of the key considerations in the selection of a DRM solution. Many end-users use a limited number of applications that they are familiar with. By embedding DRM functionality into one of these applications, users may not even be aware that they are using a DRM-supporting solution at all. With automated workflow performing many of the DRM tasks behind the scene, the user experience of DRM is totally transparent. This minimises the amount of training required. To the user, it may simply involve using a few additional menu options, such as saving a document directly into the DRM repository, filling in a form for the metadata at the start of a document creation process, or declaring a record.

Another client commonly used is the e-mail client, typically Outlook, but Lotus Notes is also often supported. This allows the user to use Outlook as the entry point to the DRM functionality and as a task list, with tasks received as e-mails. The user is able to open up parts of the DRM solution and also other applications required from within Outlook. For example, if the user needs to edit a document, by clicking on the item, Word will automatically be opened and the document loaded.

Some DRM solutions can also be accessed via a portal, which provides a single interface into all of the application accessed by the user. Butler Group believes that this option would benefit users in such industries as the financial sector or other customer-facing sectors that may need to access several systems to deal with customers.

The final option is to use the product interface itself, which is likely to find most credence amongst administrators or Records Managers that need to utilise a wide range of functionality within the product, and where transparency is not necessary, or possible.

4.2 ECM PLATFORM VS. SPECIALIST EDRM SOLUTION

ECM products have evolved over the years. Some solutions originated from a Document Management (DM) background, while others started as Web Content Management (WCM) solutions. Gradually, these vendors have strengthened their products, adding additional functionality, typically through acquisition, to become true ECM players, offering extensive functionality including DM, WCM, Collaboration, Workflow, and Records Management (RM). There is very little differentiation between ECM vendors in terms of the range of functionality they provide, differentiators occur through such factors as scalability, supported platforms, ease of installation, and go-to-market strategy.

ECM solutions generally provide a platform that comprises the repository and core functionality, including DM and workflow, and then offer a number of modules that are optional. In some products RM is one of these options, while in others it is a part of the core functionality, and is sometimes provided as an engine that RM-enables other applications, rather than being an application in itself.

EDRM solutions provide more limited functionality, in that they do not include applications that are taken for granted in an ECM solution, such as WCM, although some provide collaborative tools, and they will all include some form of workflow. Therefore an ECM solution or another niche product may still be required to provide functionality in other areas of information management. This will require integration with other applications (for example, WCM) and the ability to capture information (for example, to declare as records) from within these applications, or the ability to work on information across multiple repositories.

Because EDRM vendors tend to be more specialised and smaller than the ECM vendors, it is more difficult for them to build a market profile that matches that of a large ECM vendor, and so they are therefore less widely known – with the exception of one or two vendors. This can make it difficult to compete for large contracts, and so they do not always have such large deployments as reference sites. Therefore the scalability of an EDRM product is an area that Butler Group believes potential customers should investigate closely.

Another element of scalability, where we believe organisations should examine the options is between scaling out by adding additional servers, and introducing such features as load balancing, and scaling up by putting in more powerful servers. The option selected may be dependent upon the licensing options offered by the vendor, the configurations supported by the product, and the number of users that the organisation has.

There are also other technology-related differences between ECM and EDRM solutions. Operating system support is a potential difference between product types. Many of the EDRM vendors support Microsoft platforms, going down the .NET route, while ECM vendors often support a range of UNIX and Windows platforms. These vendors often support J2EE, although some also support .NET. The advantage of supporting J2EE is that being Java-based it will support multi-platform environments.

Integration options are another area that should be considered. It must be possible, in Butler Group's opinion, to integrate the solution with any applications that contain information that needs to be managed by the ECM or EDRM solution. ECM vendors in general will provide more packaged integration options, because they have a wider diversity of customers for which they have needed to provide specific integrations. However, APIs should be provided by both types of vendors to allow custom integrations to be built.

It is not just technology and platform issues that need to be considered in the choice between a Specialist EDRM application and an ECM solution. EDRM vendors, which are UK-based or UK-focused, are more likely to have been The National Archives (TNA) 2002 and other standards approved for longer than the larger vendors. Because many of these products are heavily targeted at the public sector in the UK, the vendors have elected for TNA 2002 approval as a priority rather than international standards.

By contrast, the large ECM vendors, which are US-headquartered, have elected to become DoD 5015.2-certified for RM and as a consequence have large numbers of US-based public sector clients, and are only now working to achieve TNA 2002 approval.

Butler Group believes that because of the heritage of the EDRM vendors, their experience and expertise of RM will be greater than that of the ECM vendors.

Butler Group believes that because of the heritage of the EDRM vendors, their experience and expertise of RM will be greater than that of the ECM vendors. Many of these vendors have worked with public sector organisations – who are the real experts in RM – implementing EDRM applications for many years. Therefore they have a level of knowledge that cannot be matched by ECM vendors just moving into this market. The exceptions are where a major ECM vendor has acquired its RM functionality by buying a specialist EDRM vendor, and has therefore purchased the knowledge and expertise of its staff.

At an architecture level, the differences between an EDRM application and ECM solution are more clear-cut. As already mentioned, the EDRM vendors tend to provide the RM functionality as an application and part of the overall product. By contrast, ECM vendors have various approaches to RM. In some cases RM is provided as an application or optional module, but in others it is offered as an engine. In addition to records-enabling other applications, an engine is also flexible in terms of customer configurability, and the organisation is able to use existing or 'best-of-breed' tools, such as a search engine. RM applications can be limiting, if an organisation has highly individual requirements, in that they only provide a standard deployment model. However, RM applications are delivered with built-in tools including a search engine, which can be advantageous if the organisation does not already have a suitable search engine.

Butler Group believes that the decision as to whether to implement an ECM or EDRM solution will depend on many factors. These include the scalability required, the distribution of end-users, whether the product selected has to be certified by a particular standard, and whether the organisation requires EDRM functionality, or wider ECM features not present in an EDRM application. Although the latter will not preclude the deployment of an EDRM application, careful consideration needs to be taken of the level of integration provided by separate products, and also the cost of a 'best-of-breed' approach compared to an integrated ECM solution, where additional functionality can be added as required.

▶ 4.3 STANDARDS

It is important that vendors adopt standards in all of the areas that their solutions touch, in order to enable integration with other applications and allow the import and export of information with multiple systems including DRM. There are a number of different types of standards that are pertinent to DRM. These include metadata standards and DM standards.

Metadata

...the creation of a metadata model to support all standards is the best way to provide support for metadata standards...

A major problem that has faced organisations in the past is that there are multiple metadata standards, each catering either for a particular market sector or different types of information. For example, there is a specific metadata standard for multimedia files. Many ECM vendors have addressed this issue by developing their own metadata model that supports all of the major metadata standards. These include the eGovernment, standard eGMS, and also Dublin Core, the most common metadata standard, upon which eGMS is based. Butler Group believes that the creation of a metadata model to support all standards is the best way to provide support for metadata standards, rather than offering multiple options.

e-Government Interoperability Framework (e-GIF)

The UK e-Government Interoperability Framework (e-GIF) is one of the UK's e-Government standards. These standards have been based upon existing de facto standards used on the Internet to reduce cost and risk to UK public sector organisations. Version 5.1 was published in October 2003.

e-GIF is a set of policies and standards to enable information to flow seamlessly across the public sector, and provide citizens and businesses with better access to services. It specifies a standard format for all communication and storage of data in UK public sector IT systems.

It applies to all UK public sector organisations and authorities, including central government departments, the armed forces, local authorities, the NHS, and those organisations providing services on behalf of authorities; for example, CAPITA providing outsourced services.

All new IT systems should be specified to meet the standards of e-GIF. The framework, whilst prescriptive, is also advisory. e-GIF is revised on a six-monthly basis and all developments in e-GIF are disseminated through the UK GovTalk Web site run by the Cabinet Office (www.govtalk.gov.uk).

There are two significant outcomes of non-compliance with e-GIF, firstly that the organisation will not be able to interact with citizens, businesses, and other public sector organisations electronically. Secondly, public sector organisations are regularly monitored and audited against performance indicators set by Government; for example, the Best Value Performance Indicators (BVPIs) for local authorities. Adoption of e-GIF will be part of the conformance check for the release of funding from the e-Envoy and HM Treasury.

e-Government Meta Data Framework (e-GMF)

The e-Government Meta Data Framework (e-GMF) is one of the UK's e-Government standards. e-GMF is the central 'plank' of e-GIF, which describes how information and other content can be used consistently across Government IT systems. It lists the elements and refinements required to create metadata for information resources. In addition it gives guidance on the purpose and use of each element. It has been designed to ensure that metadata is consistent across government departments and to aid the public in the search for specific information.

e-GMF was introduced in May 2001, and is the policy that states that UK public sector organisations should apply metadata conforming to the e-Government Metadata Standard (e-GMS) to all information systems. The e-GMS describes the way that metadata should be structured. The e-GMS is based upon Dublin Core, an internationally-recognised system for describing information resources. It applies to all UK public sector organisations and authorities, including central government departments, the armed forces, local authorities, the NHS, and those organisations providing services on behalf of authorities; for example, CAPITA providing outsourced services.

Compliance to the e-GMF is mandated on all new IT systems, and is required for all existing systems which link to the UK Government Secure Intranet (GSI), the UK Government Portal (Gateway and UK Online), the Knowledge Network, or other systems which are part of electronic service delivery or Electronic Records Management (ERM).

Compliance with e-GMS is required in the project approval process for public sector organisations and thus forms part of the overall corporate governance regime. Implementation of the e-GMF is also recommended for all system procurement and upgrades that fall outside the mandate.

Dublin Core

The Dublin Core Metadata Element Set is a common semantic building block of Web Metadata. It has 15 elements that provide broad categories for describing most information resources. Often, additional semantics are required to fully describe resources, and other pieces of metadata can be combined with it to create richer descriptions. Dublin Core metadata can reside in XML, HTML, or Resource Description Framework (RDF). It has been used by museums, libraries, government agencies, and commercial organisations.

Its key characteristics are that it is simple to use, has semantic interoperability between other and often more complex formats, international support from 20 countries in North America, Europe, Australia, and Asia, and some of those involved in the Dublin Core effort also helped to develop the RDF. RDF applies knowledge representation techniques to the management of information, allowing different metadata packages to coexist.

Document Management Standards

There are a number of DM standards that include both standards to make it easier to integrate DM with other solutions, and also bodies that specialise in certain areas of DM.

The Open Document Management API (ODMA) makes it easier to integrate applications with document management systems. Using ODMA, desktop applications are able to seamlessly access and manipulate documents stored in document management repositories.

The Association for Information and Image Management (AIIM) is an organisation that aims to help users make contact with suppliers that can help them implement DM and ECM technologies.

The Workflow Management Coalition (WfMC) is a not-for-profit organisation comprising workflow vendors, users, analysts, and university and research groups, whose mission it is to promote the use of workflow by establishing standards for software terminology, interoperability, and connectivity.

The International Digital Enterprise Alliance (IDEAlliance) is a non-profit organisation that strives to advance user-driven, cross-industry solutions for all publishing and content-related processes. It aims to achieve this by developing standards, encouraging business alliances, and identifying best practices. Its membership is made up of companies, governmental agencies, and consultants; groups that have a vested interest in the advancement of cross-industry solutions for ECM.

The Document Management Alliance (DMA) has developed a comprehensive standard for interoperability among electronic DM systems. It enables users to search multiple document libraries and repositories using a single client.

4.4 INFORMATION LIFECYCLE MANAGEMENT

Information Lifecycle Management (ILM) is most widely associated with storage and it is a term that is used extensively by the storage vendors to describe the process of ensuring that information is stored on the most appropriate medium to reflect its age and value at every stage in its lifecycle. Butler Group believes that ILM goes far beyond this, being more about putting the policies in place to manage information throughout its lifecycle, which the storage medium is just one element of.

"Butler Group believes that ILM goes far beyond this, being more about putting the policies in place to manage information throughout its lifecycle..."

Because of this, DRM fits well into the ILM model, as a piece of information, be it a document, a physical item, or a form received by a customer, must be managed from its creation or receipt by the organisation, through its declaration as a record, to its disposition by deletion or transfer to a permanent archive such as TNA.

Much of the ILM related to DRM should be automated. Butler Group believes that this is imperative. ILM must not become a burden to an organisation; rather it should be seen as a strategy, driven by policies, which is supported by technology. For example, one of the tasks that should be regarded to be part of ILM is the declaration of a document as a record. In many cases this process will be automated and completely transparent to the user, but it will result in new access rights and policies being assigned to the record as part of the retention period. Many vendors support multiple-stage retention periods, whereby the record may automatically be moved down the storage hierarchy as it ages, and the frequency with which it needs to be accessed decreases.

For this to be successful, the ability to automate the lifecycle of information needs to be available. The workflow and BPM capabilities of DRM are now sufficient to support ILM, as many of the previously manual tasks involved in the movement of information from one medium to another can now be automated.

An important element of ILM is the ability to archive documents and records. Again this process can be at least partially automated, using the BPM and workflow capabilities of DRM, particularly if there is integration with the hardware platform used. The best example of an archiving hardware and software product with which most DRM solutions integrate is EMC Centera, which is rapidly becoming the de facto archiving mechanism for documents and records.

EMC Centera is a software and hardware disk-based Content Addressed Storage (CAS) product that provides organisations with long-term storage for fixed content, which is content that does not and will not change. When an object is moved into Centera, a unique content address is created in the application using an API, which provides the integration point into Centera, and EMC provides a Software Development Kit (SDK) for this purpose. The content address is created using a hash algorithm, and the object, complete with its content address, is then moved to Centera. It should be possible to automate the entire process of moving records into Centera, if a trigger such as 'time elapsed' or a 'specific date' is used.

As can clearly be seen, the ability to move documents and records between different types of storage is an important element of ILM, but it is the ability to control this process through the use of policies that Butler Group feels is the crucial factor to the success of an ILM strategy. As an example, a document will generally start its life on high-performance disk, as it is created, edited, reviewed, and finally published. Once in its final form, it may automatically be declared as a record. However, although it cannot now be changed, it may still need to be accessed extensively and therefore needs to be kept on its current storage medium.

After a period of time, the record will not need to be accessed on such a regular basis, so it can safely be moved to near-line storage – most commonly a lower-performance disk. The decision to move the record may be triggered by the time elapsed since it was last accessed, its age, or an event (such as the end of the financial year). Depending on the level of integration with the hardware platform, it may be possible to completely automate this movement process. At the very least, the administrator should be alerted to the fact that there are records ready to be moved.

"...Butler Group believes that it is important to be able to move records (or documents) back up the storage hierarchy to improve accessibility."

Eventually the record will no longer be accessed at all and so can be moved either to off-line storage, or a dedicated archive system such as Centera, but the capability may still need to exist to retrieve the record for internal usage, a regulator, or under a Subject Access Request (SAR) for the Freedom of Information Act 2000. However, the record may need to be made available on a more regular basis, and Butler Group believes that it is important to be able to move records (or documents) back up the storage hierarchy to improve accessibility.

Taking the management of the movement of data one step further, Butler Group feels that a valuable feature would be the ability to automatically move information up or down the storage hierarchy according to demand. In this scenario the DRM software would detect the level of usage of a particular document or record, and from this determine where the document or record should be stored.

Butler Group believes that ILM is important to DRM as a strategy to help in the management of the lifecycle of documents and records, of which storage is one element. ILM also encompasses the policies and workflow steps that manage the lifecycle of documents and records from the point of creation to final disposition.

4.5 DOCUMENT PROCESS SCENARIOS AND DOCUMENT LIFECYCLES

Although organisations handle documents and records in different ways, there are similarities between the lifecycle of documents across different industries and organisations. In general, there are three stages in the lifecycle of a document or record, which are:

1. Creation.
2. Management.
3. Publication.

The point at which a document changes to a record differs greatly between document types and industries, and in some cases, such as with a birth certificate in the public sector, there never will be a document, and it is a record from creation. By contrast, a document such as an internal memo may never be declared as a record, but is destroyed once it has been read.

In general, most documents that are declared as a record at some stage in the lifecycle follow the same basic procedure going through the three stages mentioned previously.

It can obviously get more complex than this – for example, once a record is declared, a copy may become a new document for further processing, and of course any audit trail is a record in itself, and will be linked to the document, or if declared will become a record. Undoubtedly many people working in organisations are often confused about the status of a piece of information, as to whether it is a document or a record, and Butler Group believes that this underlies some of the confusion in the decision-making in selection of DRM systems.

The use of the three stages listed above provides a simple high-level framework for the analysis of most document and record flows, and will identify the relative strengths of DM or RM functionality required in any DRM solution.

All document and record lifecycles can be aligned to the stages and process illustrated in Figure 4.5.1. In **creation**, any information received on paper (for example, a letter or fax) can be scanned and captured in an accessible format, potentially using Optical Character Recognition, or just as an image. There could be direct data entry potentially as a result of a telephone call – for instance in a call centre. Information can also be captured automatically or transferred electronically from a line-of-business system such as SAP, an e-mail received, or from a desktop office suite.

Whatever the source in creation the information can then be considered either as a document, or declared as a record, at which point it is under **management**.

Documents under management using DM functionality can then be amended and updated (see Figure 4.5.2), deleted, transferred to archive, declared as a record and transferred to the RM function, or published via:

- A WCM function.
- Natively to a DM client.
- A desktop office suite.
- E-mail.
- Printing.

Records under management using RM functionality can be published in just the same way as documents, copied to the DM function to be updated and amended, or as a result of disposition, either be archived, exported to another RM system, or disposed of.

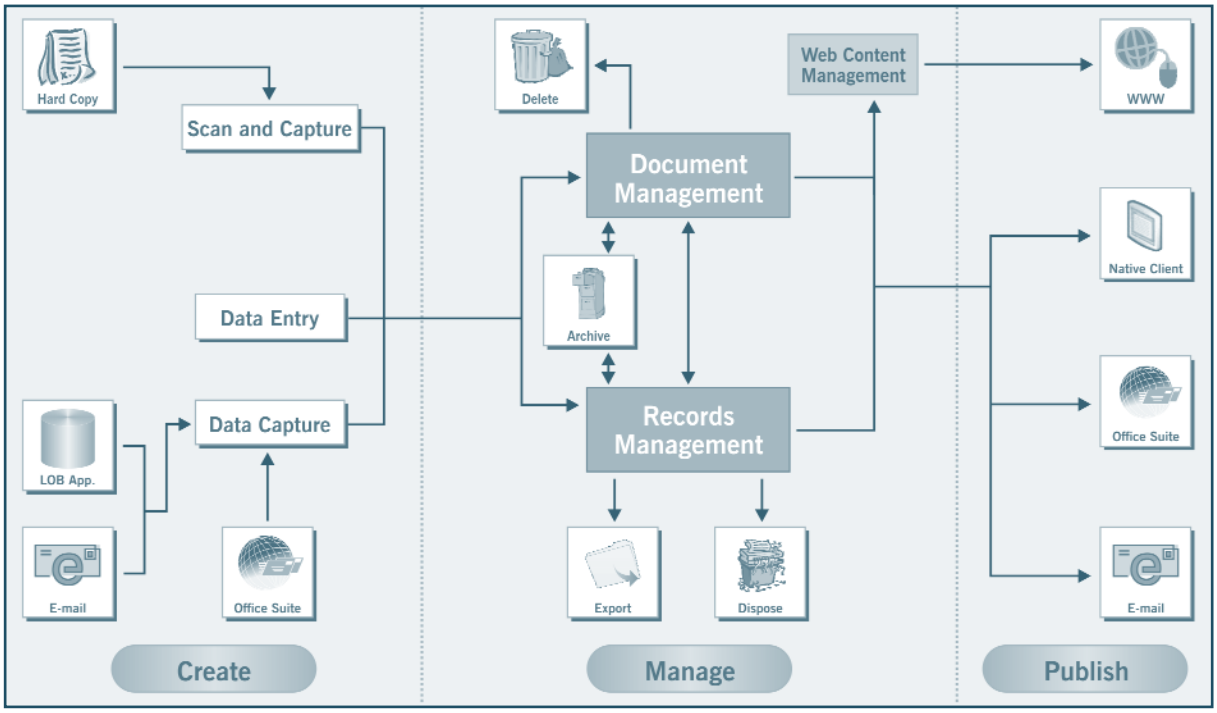


Figure 4.5.1: Basic Stages of Document and Record Lifecycle and the Technologies Used

To explain this further, consider a Generic Document Lifecycle, which is illustrated in Figure 4.5.2. Once a piece of information is created and passed into DM it can be subject to a defined process driven by the workflow or an external BPM system. A normal process would be some form of iterative review and editing until it was approved. Then it may be stored and published, archived, declared as a record, and passed to the RM function, or deleted.

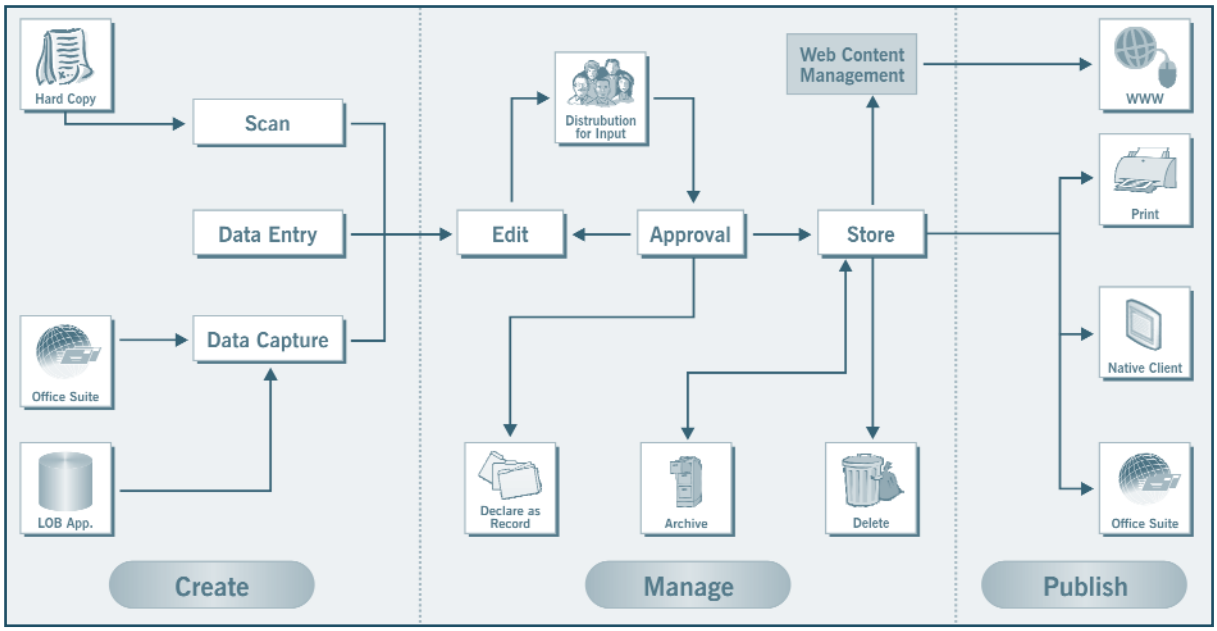


Figure 4.5.2: Generic Document Lifecycle

A record being 'fixed' has a different series of steps and options. The declaration of a record is a process in itself, with the piece of information first being classified, a retention period set, and then indexed for retrieval, before being stored. Once stored, it can be published, archived, or copied to the DM function for further processing. It will also be subject to a defined process linked to the retention period. Once this is reached, it moves into disposition where the following three options are available:

1. **Retain** for future use, which is another declaration.
2. **Export** to another RM store, for example, the UK Government departments export their records to TNA.
3. **Disposed of**.

It is important to remember that after options 2 and 3, the information no longer resides in the RM function.

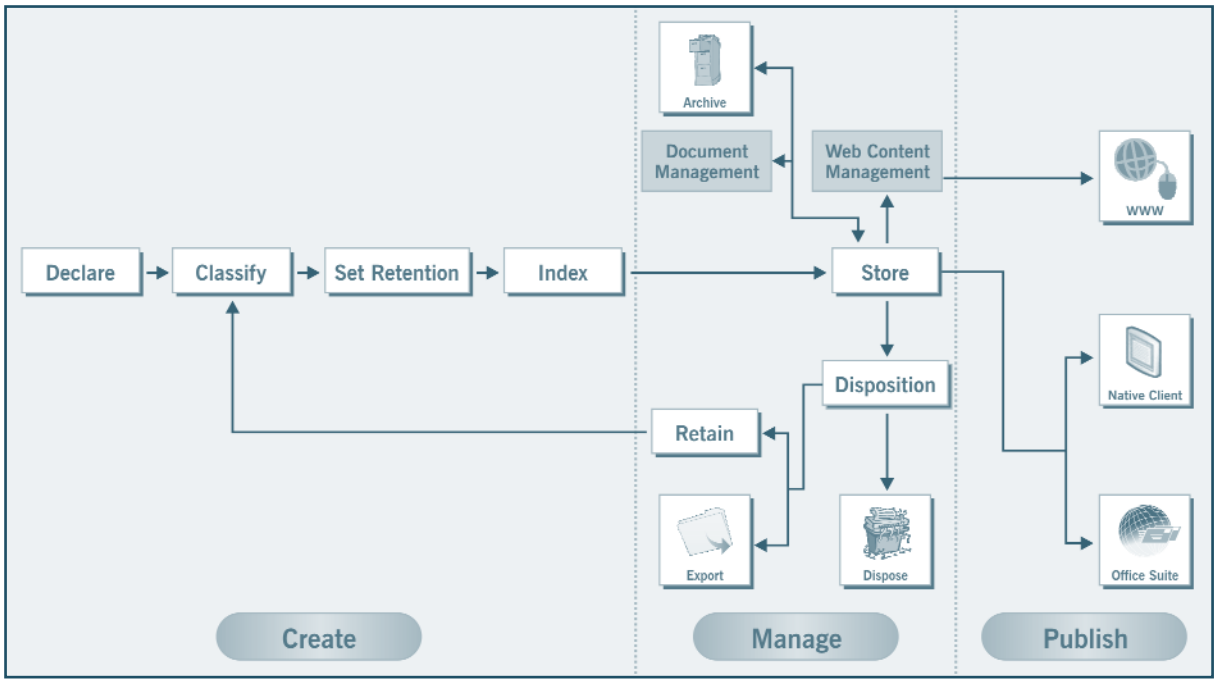


Figure 4.5.3: Generic Record Lifecycle

To see how these generic descriptions can be aligned to 'real-world' situations, we have five, again high-level, illustrative scenarios.

The first (Figure 4.5.4) is the formalised handling of a complaint – for example, in a bank. The complaint may come as a letter or fax and be scanned, there may be data entry either as a result of a face-to-face meeting with the complainant, or from a phone call, or the complaint may come as an e-mail. The substance of the complaint and identifying details of the complainant, and the date, will be placed in a document. At this point an audit trail (i.e. a record) will be created to allow monitoring of the complaint-handling process.

There will be a small amount of quality assurance on the document, potentially validating the complainant's identity and that the complaint can be handled in such a manner, and then the 'complaint' is declared a record and linked to the audit trail. A copy of the record will be used as a document, which under a defined process will be distributed for input and review, potentially amended as details are discovered, and then edited into a response for the complainant. At each stage of the process the audit trail will be updated to record the input of each person, and to provide triggers for alerts regarding timescale and completion.

> ***"Once the response is approved, it will be declared as a record, and linked to the original complaint and the audit trail, and published to the complainant, with copies to people involved..."***

Once the response is approved, it will be declared as a record, and linked to the original complaint and the audit trail, and published to the complainant, with copies to people involved for both information and potentially as a spur for refinement of processes. The fact that the complainant has been sent the response will be added to the audit trail, and the compound record of 'complaint', response, and audit trail will be managed by the RM function.

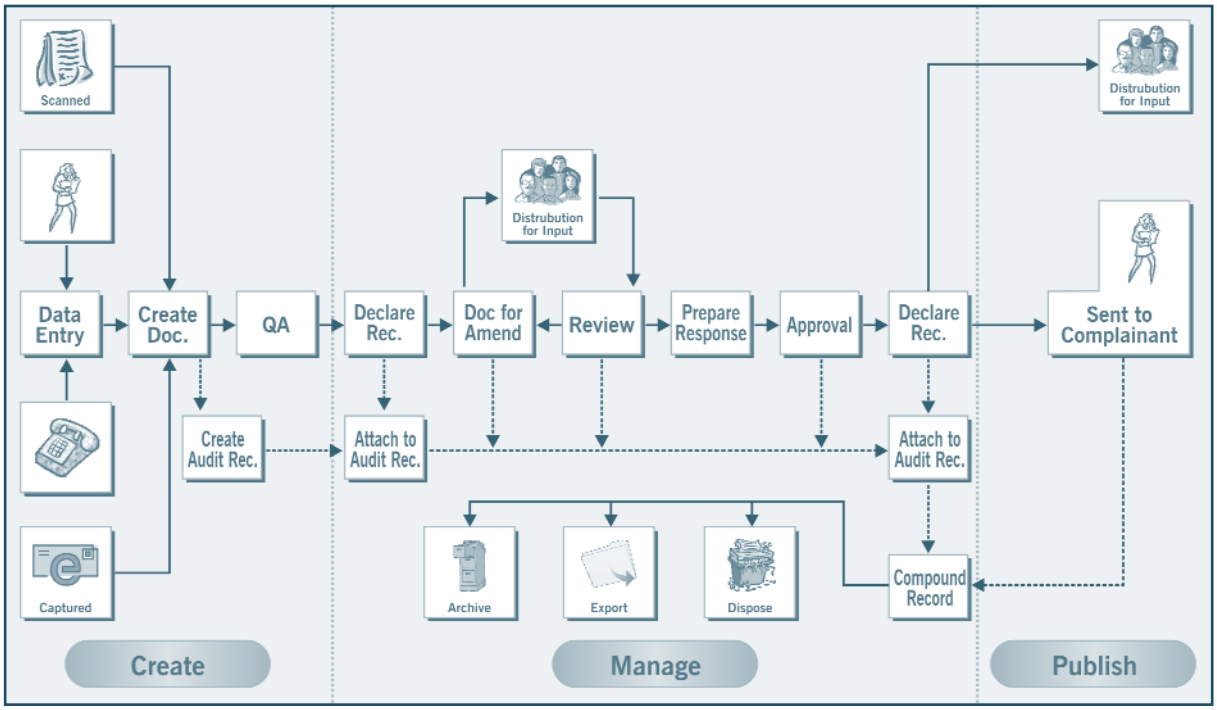


Figure 4.5.4: Handling a Complaint

Preparing a technical document for sales staff (Figure 4.5.5) also goes through the three stages. Creation of the document may involve scanning images, and adding them to text or spreadsheets from a desktop office suite. There will be a level of quality assurance by the author, before it is placed into the DM function. Here, under a defined process, whether automated or manually driven, it is distributed for input and review, and then edited until approval is given. At this point it will be stored, published, and at some point archived or deleted.

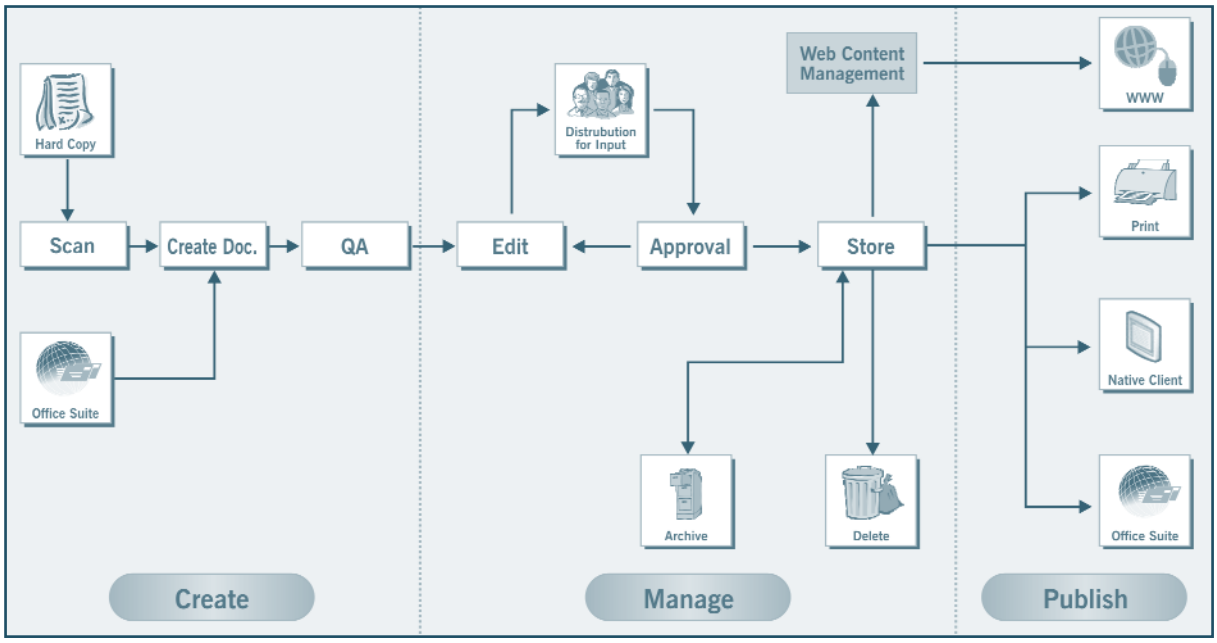


Figure 4.5.5: Preparing a Technical Document for Sales Staff

Butler Group, and many courts around the world, are strongly of the opinion that e-mail, once created, should be regarded from the outset as a record. Thus, in Figure 4.5.6 the e-mail that is captured from the e-mail server, and passed into an E-mail Management System, is declared as a record and stored. The intended recipient(s) can then access this, or it may form the basis of a new document, which could then become another record – for example, the complaint example above.

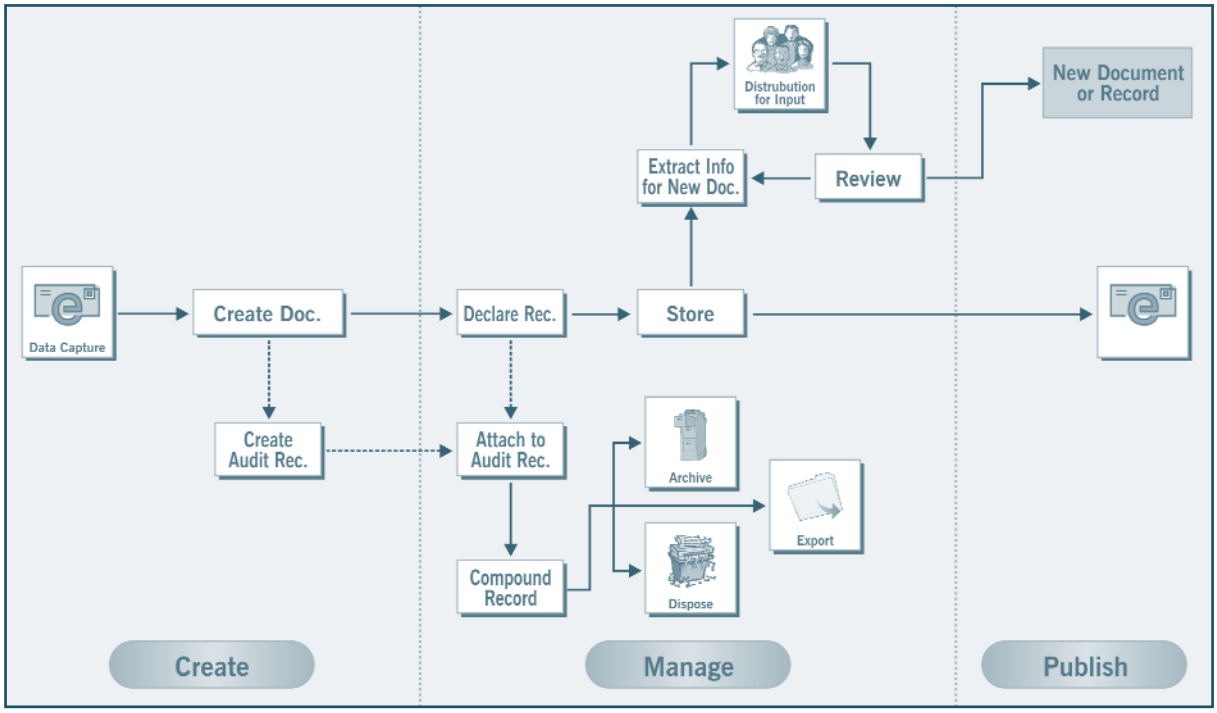


Figure 4.5.6: E-mail Management

The Pharmaceutical industry, for good reason, is one of the most regulated. Documentation about drugs in development must at regular stages during potentially a ten-year period be declared as records of the process. The distribution cycles in the DM function illustrated in Figure 4.5.7 will be addressed multiple times until the final document (for example, the Data Sheet is declared as a record and published).

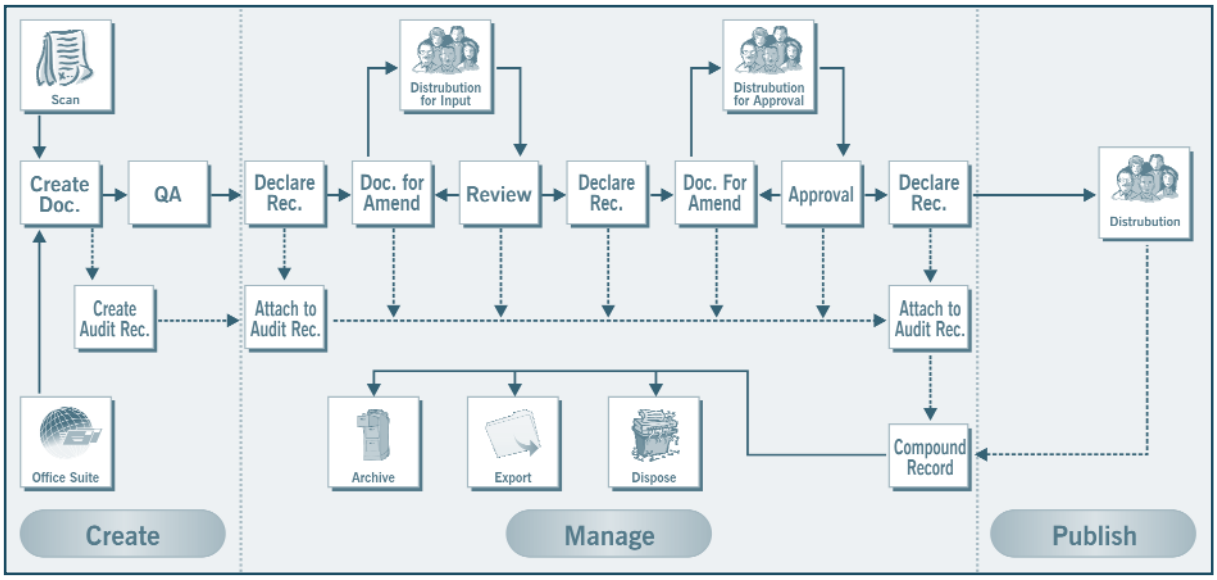


Figure 4.5.7: Pharmaceutical Documentation (e.g. Product Development)

An Annual Report is normally a compound of many documents produced by multiple departments. As illustrated in Figure 4.5.8, these documents will be created from many sources before being managed in the DM function through refinement until compounded into a single document. This too will be subject to a process of review and refinement before being declared a record, stored, and published.

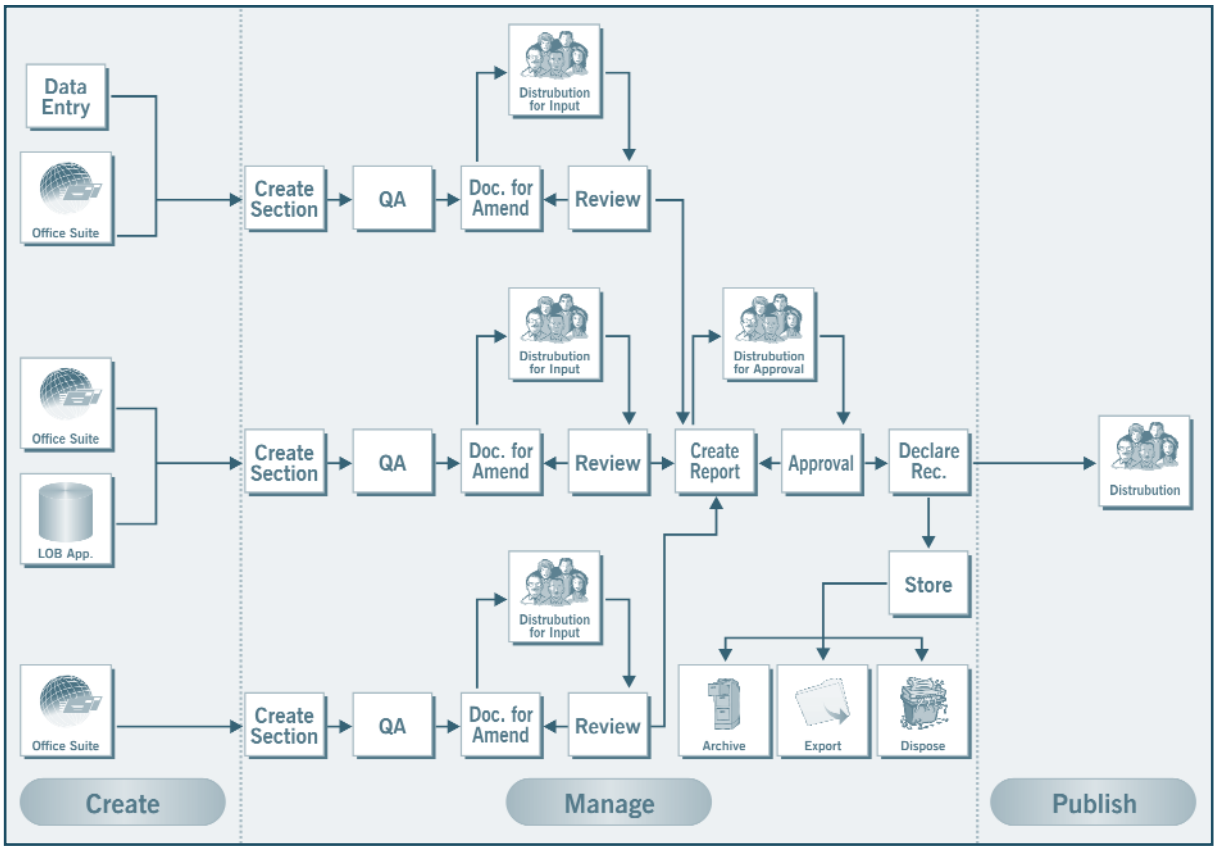


Figure 4.5.8: Preparing an Annual Report

The above illustrations show the varying levels of DM and RM functionality required, but identify quite clearly that all organisations will require a combination of the two.

SECTION 5: Market Issues

Butler Group
Analysis without compromise

5.1 DEVELOPING A DOCUMENT AND RECORDS MANAGEMENT STRATEGY

Strategy – a plan of action or policy in business or politics. Oxford English Dictionary

Introduction

There are many definitions of strategy but potentially the clearest is that by Steven R Covey, an American speaker on management and personal development – 'Start with the end in mind.'[1] Thus it should go without saying that any strategy for deployment of a Document and Records Management (DRM) solution should be based on the corporate business objectives, and aligned with business goals. To this end, the expected outcomes of any investments, and measures that will demonstrate the achievement of those outcomes, should be established as part of original scope of any project.

> ***"...any strategy for deployment of a Document and Records Management (DRM) solution should be based on the corporate business objectives, and aligned with business goals."***

These ideally will be in the form of targets that are quantifiable, and preferably having a direct link to the bottom line for the business, either increased revenues, a reduction in losses, or even the opportunity costs of avoiding penalties for non-compliance. In Butler Group's experience, most investments in DRM solutions will be justified on a combination of all three. Additionally, in Government and Not For Profit (GNFP) organisations, targets will include the achievement of nationally-set objectives and local priorities.

Such targets will vary from sector to sector. Some appropriate examples identified during the research for this Report include:

In Architecture, Construction, and Engineering (ACE):

'To increase re-use of existing successful designs, reducing reworking costs by 10%'.

In healthcare (both public and private):

'To eliminate the use of paper and remove the loss of records, avoiding the cancellation of 5% of operations each year.'

In financial services:

'To reduce the risk of fines for not being able to retrieve information within regulatory timescales.'

In the UK public sector:

'To allow the organisation to disclose information requested under the Data Protection Act (DPA) 1998, or The Freedom Of Information (FOI) Act 2000, without an increase in staffing.'

The Context and Development of a DRM Strategy

Very few organisations will have the luxury of 'green field' for either systems or processes in the establishment of a DRM strategy. The maturity of organisations means that they generally will already have multiple repositories, multiple systems, and multiple business objectives.

Butler Group believes that a DRM strategy on one level should be considered a unification of the view of all the information assets in an organisation, and the opportunity to exploit the inherent value that is contained within this information.

As a precursor to the development of a DRM strategy, the organisation must undertake an audit of existing processes, and identify the numbers of records/documents that will be covered by any solution(s) deployed. It must estimate the implications of the business and compliance objectives that are driving the strategy, and analyse the gaps between current and expected capabilities.

[1]'The Seven Habits of Highly Effective Managers', Steven R Covey, 1989

Such an audit may be facilitated and undertaken from within the organisation by its own business analysts. But with the increasing number of mandatory requirements, and the necessity to include best practice as a method of reducing costs/time/risks, Butler Group believes that many would be well served by the use of a Record Management (RM) consultancy, either specialist, for example, in the UK The National Archives (TNA) (see Section 5.3 of this Report), or a practice within one of the consulting companies, or by Systems Integrators (SIs).

Whilst the DRM solution may initially be deployed to address the issues of one department or function, once installed it is bound to have an impact through integration, and potentially changes in processes on other parts of the organisation. Furthermore, as the technologies are generally horizontally applicable, the potential to extend across the enterprise will be there from project initiation. Therefore, in the construction of any DRM strategy a holistic view of both the effect of initial deployment and the future opportunities across the organisation should be taken.

In the development of the strategy it has to be recognised that, irrespective of the transparency of DRM solutions integrating with existing systems and desktop tools, there will be changes required to existing business processes. It is important, however, to focus on these from a business perspective and the achievement of the targets. Any changes must be an improvement on existing processes, not just the application of an additional technology layer. This was the lesson we should have learnt from our experience of less than successful deployments of Enterprise Resource Planning (ERP), and Customer Relationship Management (CRM) systems.

"An analysis of existing skill levels of the people who will be expected to use the DRM solution is essential, as is an understanding of their 'pain points' in their working processes."

An analysis of existing skill levels of the people who will be expected to use the DRM solution is essential, as is an understanding of their 'pain points' in their working processes. The key to the successful deployment of any technology is, in Butler Group's opinion, a thorough understanding of the personal and cultural issues, and being able to offer users tangible benefits as well as the organisation as a whole.

To minimise disruption, increase adoption, and best utilise the existing skills base, not just the related technology but more importantly the process and operational knowledge of users, it is essential to identify the level of integration required for any DRM solution with existing front-office, desktop, or line-of-business systems.

There needs to be an assessment of the levels of functionality required in a solution. Very few organisations are going to want a solely Document Management (DM) or RM solution, but the respective levels of functionality, and the strengths and scalability of each, must be determined to ensure the delivery of the most appropriate business benefit as related to the targets.

In Butler Group's research the element often given least credence in the development of a strategy is the identification of cultural issues within the organisation, and the barriers to adoption that these create. In just the same way as there is not a 'green field' for technology, there is unlikely to be a 'green field' in users. Even when outsourcing the DRM function, it must be appreciated that the supplier organisation has a culture, and processes of its own. Recognition that at the end of the day it is the users who will 'make or break' a deployment should, in Butler Group's opinion, be central to the development of any DRM strategy.

Ensuring Successful Adoption

If a strategy is a plan of actions, it is self-evident that the strategy will only be successful if those actions are undertaken. In the last thirteen years Butler Group research has identified many common characteristics from successful deployments, and the adoption of new technologies, and these were further endorsed in the research for this Report on DRM.

The key success factors in any project are:

- **Securing ownership of the project at Board level** – It requires a champion to argue for the resources, both financial and physical, as well as someone with enough influence to ensure that a parallel change management process is in place to address cultural issues.

- **Identification of evangelists and project champion**s – Those users and managers with business/operational issues that will be addressed by the deployment of the solution, and the key influencers, and decision-makers, across the departments whose input will be necessary to ensure adoption through actions such as the removal of barriers, organising changes in practice and process, and providing both user and business assurance during the stages of the project.
- **Having a staged project plan with measurable deliverables at each milestone** – First by adopting a formal project management methodology. The use of a structure and having specific milestones and reviews minimises the risks in any project, by ensuring clear understanding of objectives at the outset, and regular monitoring throughout the project as to the achievement of those objectives. At its most basic a project management methodology is a 'back-stop' or 'defence' for decision-makers, providing a rational, decision-making framework against which continuation or curtailment of the project can be made. In the UK public sector the project management methodology used must be PRINCE 2. This is a generic methodology and can easily be adapted to different sizes of project, whilst maintaining control and record.
- **Obtain user engagement** – Every person in the organisation should know what the benefits of the deployment of a solution would be to her or him. Butler Group has seen many examples of successful user engagement, the key elements of which can be summarised in three words:

  Communicate – before the project begins. Offer every person involved, whether in the organisation or an external partner/supplier:

  1. A single page summary.
  2. Clear messages acceptable at all levels in the organisation.
  3. An explanation of 'what's in it for me?' Using the specific targets from the strategy.

  Communicate – during the project process. Deliver honest progress reports, highlight evangelists and champions, offer the facility for feedback, and use this as part of the user/business assurance process.

  Communicate – after the deployment. Report successes, and any failures, explaining clearly what steps at remediation will be taken.
- **In the selection of technologies, identify the most appropriate solutions** – Include the alignment with existing organisation strategies, IT, and physical infrastructures. But be prepared to accept that the most appropriate solution may not align with existing IT infrastructure, and that an honest cost and benefits analysis may be required to identify the most appropriate solution. As always, the 80/20 rule applies.

DRM Strategy Checklist
• Start with the end in mind.
• Undertake an audit of existing processes, numbers of records/documents.
• Estimate implications of business and compliance objectives.
• Clearly analyse the gaps.
• Look at mandatory requirements – potentially use RM consultancy.
• Identify changes required to existing business processes.
• Must be improvement on existing processes, not just a technology layer.
• Analysis of existing skill levels for people to use the solution.
• Identify level of integration required to front office and line of business systems.
• Assessment of the DM/RM functionality required.
• Identify cultural issues/barriers – ways of working – operational environments.

Figure 5.1.1: Developing a DRM Strategy Checklist

5.2 IMPLEMENTATION

The way in which a system is implemented will determine whether the project succeeds or fails. A DRM implementation requires a wide range of skills, some of which most organisations will already have in-house, but there are some skills that may need to be bought in. The wide range of available solutions for organisations considering DRM to choose from means that product selection is potentially the first area where the project could start to go wrong.

Although there are differences to the way in which DRM products are implemented, in general the types of skills required are:

- **Project Sponsor** – To manage the project strategy and the objectives at the sponsor level.
- **Project Manager** – To lead the project and ensure that it is brought in on time and to budget.
- **Systems Architect** – To manage the platform and solution design.
- **Business Analyst(s)** – To map the business requirements to the solution.
- **Technical Architect(s)** – To map the design to the solution configuration.
- **Change Management Specialist(s)** – To manage changes to business processes, and how these impact on users.
- **Integration Specialist(s)** – Required if there is integration with other applications involved.
- **DataBase Administrator (DBA)** – Required to deploy and manage the relational database for the repository.
- **Records Manager** – Required to create the fileplan, which must be developed before the solution is rolled out.

A principal task involved in the implementation should be to assess which of the above skills are required, and which of these are available in-house. Purchasing external services can be more than double the cost of the software, so the more of the implementation the organisation can undertake itself, potentially the more cost-effective the solution will be. However, Butler Group has seen many large implementations fail, due to a lack of appropriate skills, and therefore it is imperative that the organisation should have the most appropriate experience and expertise for the project. The key role that will be required in all DRM implementations is that of Records Manager. Butler Group strongly recommends that organisations should appoint a dedicated person to the role of Records Manager to manage all aspects of RM within the deployment. The Records Manager's job needs to start before the implementation, as the first task is to design the fileplan. This is vital as it determines how records (and documents) are classified, which is one of the criteria used in searches.

> *"Butler Group has seen many large implementations fail, due to a lack of appropriate skills..."*

Butler Group believes that, wherever possible, it is better to have a separation of tasks between security and operational management. Thus we would recommend that any organisation should appoint a separate administrator to look after the security of the DRM solution, to set up, and maintain, the access rights and permissions. This person needs to work closely with the Records Manager.

Apart from in the public sector, compliance has not as yet been a huge driver for DRM in the UK or Europe. Although Butler Group believes that organisations should avoid rushing headlong into DRM projects, we feel that now is the time for organisations to act and implement DRM before they are forced to. By acting early, organisations have the opportunity to clearly define business requirements before engaging in product evaluation and solution procurement. At a high-level, Butler Group suggests that organisations:

- Conduct high-level business process analysis and produce a feasibility study.
- Identify and audit existing document repositories and record/registry systems.
- Decide how existing legacy information will be handled, and whether it will be imported/scanned into the system.

- Identify all relevant industry and government legislation pertaining to the management of information and company records.
- Review industry best practice, standards, and guidelines for the management of records.
- Initiate an IT infrastructure and skill-set review.
- Examine existing processes, and determine how these can be improved or automated.
- Determine the scale of the implementation – how many users there will be and their location.
- Determine the objectives of the implementation and also the requirements of the system.
- Decide whether a standards-approved solution is required.

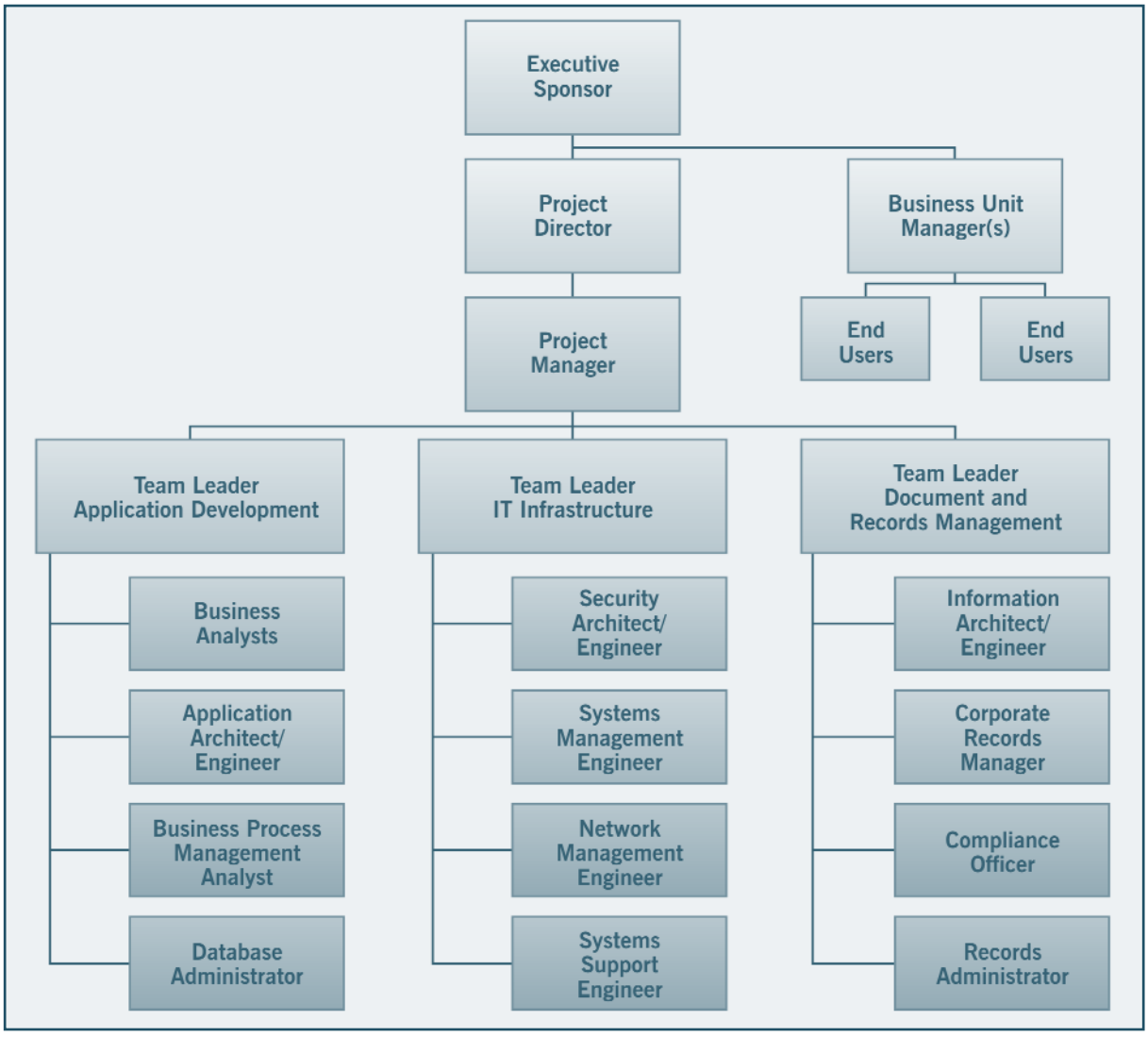


Figure 5.2.1: Typical Roles of a Document and Records Management Project

Clearly many of these activities can be conducted internally. However, organisations should not underestimate the time and effort required to do a thorough job. Hiring the services of a specialist consultancy is an option that should be considered if the organisation does not have the skills to undertake all of these tasks, otherwise the process would take so long as to render it unfeasible.

Once these steps have been completed, the organisation will have an idea of the requirements of the system, the likely impact, and the amount of work required for the implementation. It can then approach vendors with a list of the functionality that it requires, and it should thus be possible to construct a shortlist based on the vendors that provide the functionality required, within an acceptable price range.

"The successful introduction of DRM technology is linked as much to change management and organisational culture as it is with selecting the right product."

The successful introduction of DRM technology is linked as much to change management and organisational culture as it is with selecting the right product. For this reason, one approach is to seek a solution that enables DRM to be embedded within desktop applications that users are familiar with, such as Microsoft Word. However, desktop e-mail programs such as Lotus Notes and Microsoft Outlook can also provide a fully integrated, and therefore transparent, access to DRM products. While the actual installation is often within the capabilities of many organisations, it may require the engagement of a DRM specialist in order to tailor and configure the chosen solution to meet their specific business requirements.

Butler Group believes that choosing the right implementation partner could ultimately determine the success or failure of the project. Technology consultancies and Systems Integrators (SIs) are usually able to provide the technical expertise required to implement DRM, but they sometimes lack the industry-specific knowledge and insight required by their clients. Organisations should ensure that the company selected has a proven track-record in their industry or business sector – take case studies and client references for what they are: marketing material. Insist on at least two site visits if working with an SI and three if working directly with a vendor. Always ask to see the CVs/profiles of named individuals – do not accept generic role descriptions or examples. If contractors are to be employed, then again ask for documentary evidence of their previous experience.

Two of the factors that need to be considered when selecting a solution are:

1. Whether the vendor provides implementation services.
2. Whether training is provided.

Some vendors provide help with the first stage of the implementation and rollout, and then provide on-the-job training for key personnel who can then complete the roll-out. One approach to DRM implementation is to treat a proof-of-concept as the first stage of the project, and again exploit the expertise of the vendor or an implementer as a means of knowledge transfer, with the organisation completing the implementation itself.

"One approach to DRM implementation is to treat a proof-of-concept as the first stage of the project..."

Methodologies

Whichever products are chosen for the implementation – regardless of whether the organisation carries out the implementation in-house, brings in consultants where required, or uses the vendor or a SI – a Project Management Methodology (PMM) should be employed. Butler Group has seen time and again a high incidence of IT project failures where projects are either abandoned or delivered way over budget, and without the required business functionality, that could be traced to poor or non-existent PMMs – both technical and managerial.

Many vendors, consultants, and SIs have their own PMMs, but the one that is widely deployed is Projects in Controlled Environments (PRINCE). PRINCE2 (the latest version) is now the UK's de facto standard and mandatory for all UK public sector projects. Although PRINCE was originally developed for the needs of IT projects, the method has also been used on many non-IT projects. It has become widely used in both the public and private sectors, and is also well recognised internationally. Whilst the adoption of a PMM such as PRINCE2 will not in itself guarantee project success, Butler Group believes that it serves as a framework for an implementation.

For example, PRINCE2 involves:

- Ensuring that there is a controlled and organised start, beginning, and end to the project.
- Holding regular reviews of the progress of the project against the plan and the business case.
- The inclusion of flexible decision points, with a positive decision to continue by the project board required at each stage.
- Ensuring that there is automatic management control of any deviations from the plan.
- Involving management and stakeholders at the right time and place during the lifetime of the project.

- Ensuring that there are good communication channels between the project, project management, and the rest of the organisation.

While a PMM such as PRINCE2 will help in the implementation that deals specifically with the establishment of an RM system, for a DRM project to be successful an organisation must be able to design and implement a practical RM system.

International Best Practice – Designing and Implementing Recordkeeping Systems (DIRKS)

Within the professional recordkeeping community (Records Managers) a consensus has developed upon the best practice for implementing RM systems. In March 2000, the Australian National Archives released *Designing and Implementing Recordkeeping Systems: Manual for Commonwealth Agencies*, and in 2001 – after incorporating lessons learnt from implementation experience – published *DIRKS: A Strategic Approach to Managing Business Information*. The DIRKS Manual references the Australian Records Management Standard AS 4390 – the basis of the internationally recognised ISO 15489.

By its own admission, the DIRKS methodology is a resource-intensive and time-consuming process. However, for those organisations committed to implementing and sustaining a corporate recordkeeping system, it provides a good reference. DIRKS is a structured and rigorous approach designed to ensure that records and information management are firmly based on the business needs of the organisation.

The methodology consists of the following eight steps:

1. Preliminary investigation.
2. Analysis of business activity.
3. Identification of recordkeeping requirements.
4. Assessment of existing systems.
5. Identification of strategies for recordkeeping.
6. Design of a recordkeeping system.
7. Implementation of a recordkeeping system.
8. Post-implementation review.

Steps 1 to 3 ensure that the systems development process is focused on doing 'the right things', while steps 4 to 8 focus on making sure that things are 'done right'. Due to its rigour, adoption of this methodology requires an organisation to make significant commitments in terms of staff, time, and money. However, having made this investment, organisations should expect significant dividends in terms of improved efficiency and greater accountability.

Butler Group's DRM Implementation Methodology

From our research Butler Group has developed its own methodology for implementing DRM to be used in conjunction with the organisation's favoured PMM. Whatever mix of DM and RM involved, the organisation must take the following steps.

1. **Initiation** – Based upon the previously agreed DRM strategy (see Section 5.1), designation/appointment of a Project Sponsor, Project Manager, and a Records Manager.
2. **Assessment** – This stage is the preparation work for the implementation and must be undertaken before a solution is considered. Once implemented, this stage is used to check that the solution is continuing to meet the objectives and requirements of the organisation. It involves examining how electronic and paper-based information is managed throughout the organisation, deciding which information needs to be managed by DRM, the source applications of this information, the roles of users, current processes that manage information, how records are declared and protected, how information is stored, how it is classified, and the procedures for discovery and retrieval.
3. **Selection** – The selection of the solution that best meets the objectives and requirements of the organisation is a critical factor in the success or failure of a project. A checklist of requirements is useful when talking to vendors or resellers. This stage should include a pilot or proof-of-concept of a solution to ensure that it can address the requirements of the organisation, before the decision is taken to buy.

4. **System Design** – This stage includes planning the deployment, installing the software, setting up access rights and permissions, designing the fileplan, creating the business processes, carrying out any integration work to other applications, and customisation of the solution.
5. **Rollout** – This stage should be phased where possible, starting with a role or a department at a time. That way any problems that arise can be 'ironed out' before the next phase of the project is started.

Conclusions

"Fundamental to the successful implementation of any DRM solution are the use of a PMM and the appointment of a Records Manager."

Fundamental to the successful implementation of any DRM solution are the use of a PMM and the appointment of a Records Manager. Butler Group believes that organisations should carry out as much of the implementation work as they are able internally, just buying in services where it is required. If the implementation is complex, it may be preferable to use consultants or the professional services of the vendor for the first stage of the project, and use this as training and a knowledge transfer exercise, so that internal staff can complete subsequent stages. The aim should be to reduce the level of outside help as the project progresses.

By following these guidelines, Butler Group believes that organisations can reduce the risk of the DRM implementation going over budget and over time, with a greater prospect of delivering the expected business objectives.

▶ 5.3 ROLE OF THE NATIONAL ARCHIVES (UK) FOR STANDARDS AND SUPPORT

Introduction

The National Archives is a UK Non-Departmental Public Body (NDPB), responsible for the storage and access to those records considered to be of national importance, and importantly in the context of this Report, it is the organisation that specifies the standards for DRM for UK public sector organisations, known as TNA 2002.

The definition and use of standards for organisational records in the same environment, i.e. the public sector, serves several purposes:

- The assurance of process in retention/disposition of items that are declared as records.
- It eases the problems of storage/transfer of those records, which involves having a common understanding of purpose and value.

The UK TNA has its equivalents in the US, Australia, and Germany, and standards are now being set at the European Union level. TNA was formed in April 2003 by bringing together two former NDPBs:

1. The Public Record Office (PRO).
2. The Historical Manuscripts Commission.

TNA reports to the Department of Constitutional Affairs, and not only looks after the records of UK Central Government, but also those of the courts of law, and ensures that members of the public can access them.

In the UK, public records are defined in the Public Records Act 1958 as:

- Records of, or held in, any department of Her Majesty's Government in the United Kingdom, or;
- Records of any office, commission or other body or establishment whatsoever under Her Majesty's Government in the United Kingdom.

The TNA's collection is now one of the largest in the world, and includes the oldest printed document in the UK, an 'Indulgence' printed by William Caxton in 1476. TNA has records dating from the eleventh century.

It was the PRO that defined the first standards for the functionality in RM systems to be deployed in the UK public sector in 1999. This was a development of the Australian/ISO standard ISO 15489, and became known as PRO 1. The core elements of PRO 1 were the introduction of the Fileplan/Record Classification Scheme as the central structure of a records hierarchy, and the incorporation of best practice procedures based upon UK Civil Service rules.

An updated standard was released in 2002 and was appropriately labelled PRO II, although the term TNA 2002 is now becoming more widely adopted following the creation of TNA. TNA 2002 includes tighter definitions than its predecessor, and includes functions, and procedures refined through experience, and the greater technical capabilities of available solutions.

TNA Advice and Support

TNA can advise organisations both on the management of current records, and the care of their historical archives. The focus of this advice is intended for practitioners in the public sector who are the owners and custodians of records, archivists, special collections librarians, RM, and conservators.

TNA offers a range of support and advice about RM. This advice and guidance is intended for Records Managers across central government, covering the entire lifecycle of public records, in whatever format, from creation through to destruction, or transfer to TNA. TNA also produces standards and guidance on all aspects of RM from selection to disposition. The guidance issued represents the best practice available, and is recommended, for public sector bodies, but is not mandatory. The standards are, however, obligatory on all UK public sector bodies. Both the standards and guidance will also be of use to any organisation establishing a RM strategy.

There are also training and consultancy services available provided as part of the **rm³ partnership**. This is a consortium comprising the Universities of Liverpool and Northumbria. The consortium has worked with TNA in developing a training and education programme for records and information management particularly for government staff. TNA itself will provide short training courses in Records and Information Management (RIMT), specific to public records, which are undertaken at its base in Kew, London.

In addition to the above, TNA also offers a consultancy service, advising on the particular RM needs of individual departments.

For specifically electronic records TNA has three publications to assist Records Managers in central, and local government to devise a coherent Electronic Records Management (ERM) policy:

1. e-Government Policy Framework for Electronic Records Management.
2. Guidelines on the management, appraisal, and preservation of electronic records.
3. Modernising Government White Paper.

These publications are also relevant to other, non-government organisations that are planning to manage electronic records.

Why Look to TNA?

It is not often that government organisations are held up as being important reference points for organisations outside the public sector domain, but Butler Group believes that TNA has some serious credentials that should not be ignored by organisations that are seeking to develop a RM/DRM strategy:

- TNA is obviously agnostic of software vendors, and particularly SIs, the latter of which may be linked to a specific software vendor.
- As the first point of reference for UK public sector organisations, TNA has a significant body of knowledge and best practice from its consulting experience, not least in relation to addressing FOI and DPA requirements.

"Butler Group believes that TNA has some serious credentials that should not be ignored by organisations that are seeking to develop a RM/DRM strategy."

- TNA is also now being regarded as a 'first port of call' for private sector organisations that are also having to address the compliance agenda.
- There is a significant lack of RM expertise in many organisations, but particularly in Butler Group's experience, this lack is greatest in the private sector.

Using the TNA or Other Consultancy Effectively

Butler Group believes that the key objective in the use of a consultancy is for the transfer of distilled knowledge and best practice. This, in respect of the development of an RM/DRM strategy and deployment of a solution, should bring benefits such as:

- Help with the establishment of a fileplan (taxonomy).
- Reductions in the costs/time/risks, through the application of best practice.
- An increased likelihood of project success.

However, to manage a consultancy engagement effectively as a customer there are, in Butler Group's experience, some fundamentals that need to be remembered:

- Consultants, from the outset, need to be fully advised on the organisation's objectives and priorities (see Section 5.1).
- Consultants need to be used when they can deliver most benefit – they are very expensive to use as on-going monitors for a project. Engagements could be pre-project, mid-project, and post-project. For example:
  - Assisting in the definition of the scope of the RM/DRM strategy.
  - Undertaking end-of-stage and final reviews.

Butler Group would, however, advise those organisations outside the UK public sector, who do not need to adhere to TNA 2002 in their RM systems, to consider it as 'the gold standard', to be the best practice template, and to utilise just those elements that will deliver the greatest business benefit, and meet the business objectives that are defined in the strategy (see Section 5.1). Besides being the 'gold standard' TNA 2002 could also be considered as 'gold-plated', requiring overheads that do not add value outside the public sector. At the outset of the project, it is incumbent on those decision-makers leading the engagement to identify whether TNA 2002 standard is appropriate for the task, and ask 'will adherence offer business benefit to the organisation, meeting the objectives laid out in the strategy?'

Summary

TNA and its partners, and other organisations offering consultancy, can reduce timescales, costs, and risks for RM/DRM deployments, but they must be managed effectively as any other resource in the project.

Further information on TNA is available at: www.nationalarchives.gov.uk/

▶ 5.4 CASE STUDIES

The Coal Authority – Diagonal Solutions

The Coal Authority had a requirement to implement an Electronic Document and Records Management System (EDRMS) by January 2004, in accordance with government initiatives. At the time of project initiation, all records were retained and managed in a paper form and the archive held approximately 850,000 paper files, all of which were managed by a paper file management system, Information Management Processing and Retrieval System (IMPReS), supplied by Diagonal Solutions in 1998.

The implementation of Wisdom (Diagonal Solution's EDRMS) for 300 users was to provide:

- Electronic Document Management (EDM).
- Electronic Record Management (ERM).
- Paper Record Management.
- Hybrid Record Management.
- The data migration of 850,000 IMPReS records and their associated movement history.

Diagonal Solutions was awarded the contract in April 2003 and the project was split into three distinct phases:

- Model Office for configuration and user acceptance.
- Phase I – Implementation of paper record management to replace the existing system.
- Phase II – Implementation of electronic and hybrid record management.

The project was managed using PRINCE2 methodology.

The model office was used to train the Coal Authority team who were to perform the user-acceptance testing. It was also used to conduct workshops for representatives of all Coal Authority departments. The workshops were intended to familiarise the user base with the application prior to its implementation, and to enable the fileplans, security model, retention schedules, and all required folder and record metadata, to be defined and configured in conjunction with the individual departmental requirements.

In parallel with the user workshops, consultants from Diagonal Solutions carried out a thorough data analysis of the IMPReS database, and a data migration specification was developed. A further consultative exercise was undertaken to analyse the current processes for tracking the movement of paper files between the departmental users and the central archive, and a functional specification was produced detailing the additional module required. The model office was used as a testing ground for the data migration process and is to be used as a testing ground for the paper file tracking module.

The model office was successfully completed and signed-off in September 2003, and Wisdom V5 was accepted as meeting all the requirements for electronic document and record management. In March 2004, The Coal Authority became the first government body to use EDRMS to manage both newly created electronic records together with its legacy paper records.

DTI – TOWER Technology

DTI is the first major Whitehall department to meet the 2004 Modernising Government target on electronic records, and it did so using TRIM Context from TOWER Software. DTI expects its EDRMS project to have a major impact. Over a period of years the DTI had amassed 35 miles of shelved documents at its south London storage site – the only way to keep original documents safe. However, thanks to EDRMS it expects to achieve considerable savings on storage and transporting paper between sites.

Early indications show that staff productivity has also improved, with staff reporting variously, a 75% reduction in filing time, a 37% reduction in time spent searching for information, and a 62% reduction in time waiting for information from others. Users also have better quality information. The status of a document in terms of version, amendments, and approval is much clearer and this reduces confusion and risk. At the same time, sensitive data can be classified and protected.

Everyone who has viewed, copied, or changed a document is recorded within the history of that document. This enables the DTI to meet requirements to keep auditable records of its business for numbers of years. The result is a secure record of transactions, which meets the requirements of PD008, the standard on the legal admissibility of documents. TRIM is also a crucial component in the DTI's move towards more flexible working, because it allows employees to access work files from any location.

Better sharing of information is expected to bring major benefits in effectiveness, as members of staff can understand more about what their colleagues are doing, and it avoids duplication of effort, In addition, it should also improve the retention of knowledge within the department.

With employees using local servers to keep documents and e-mails – especially those with attachments – the volume of storage required was growing at an exponential rate, especially as several people would store the same information. With the new system it is expected that the growth on local servers should level out and eventually reduce.

The Department also sees the system as the basis for its future e-strategy. A robust and secure system for storing and accessing information is fundamental to a number of operations, including CRM and publishing to the Web.

The initial creation of the system from the available options and the subsequent rollout of the EDRMS was one of the biggest projects the DTI has ever undertaken. All the associated services and project management were provided by a Fujitsu Services-led consortium, with LogicaCMG working in close partnership with the DTI. An initial three-month service trial of 400 users was conducted in early 2002, during which feedback was gathered on users' perception of the system, and their responses helped to design an extensive Management of Change programme, comprising business analysis, briefings, training, and communications.

The full rollout began in May 2002 with a training rate of 150 people per week to 5,100 users across 20 buildings in the UK. After 10 months of training users, establishing their file structures on TRIM, installing the software on their PCs, migrating some of their legacy data and answering their questions, the rollout was completed on schedule and on budget in March 2003.

TNT – Meridio

Many of the packages that TNT carries each day require clearance through customs. This process involves a variety of paperwork ranging from a simple description of content, to a commercial invoice. On average there are 3.7 pieces of paper for each of TNT's 30,000 daily consignments.

Traditionally, each parcel was transported with the paperwork physically attached. This would have to be collected by TNT staff at an airport or port, and then sorted for appropriate clearance by customs officials. Consignments were not released until at least thirty minutes after their arrival; often it was several hours later. A further delay could be caused if papers were separated from parcels and became misplaced or misdirected.

TNT has a clear focus on being the fastest and most reliable provider of express delivery services worldwide, and recognised an opportunity to improve customer service by reducing delivery times. It realised that if it could electronically forward documents ahead of a parcel, it would minimise the risk of losing paperwork and speed up the whole customs clearance process.

TNT decided to start looking for a DM solution. It considered outsourcing, but decided that as the new system would become business critical it needed to be in-house.

After a competitive tender process, TNT awarded a contract to Fujitsu to supply integrated services and project management, based on a DM solution by Meridio. This was developed with Meridio's high-productivity Application Framework. Built on SOAP and XML, the Application Framework is closely aligned to Microsoft's .NET strategy.

An extremely resilient, distributed solution with a small footprint, it is now installed in TNT's worldwide data centre and in 32 centres around the world. TNT decided to call the solution the Pre-Arrival Clearance System (PACS).

Meridio worked with Fujitsu and TNT to integrate the new DM solution with other business critical systems so that it became part of an existing business process. Fujitsu's global resources and the Web services nature of the Meridio solution meant that the rollout of PACS across TNT's international operations began within nine months of project commencement.

Customs documents are now scanned at 130 TNT scan depots and sent to a central Meridio repository in the UK for secure storage. They are transferred to Meridio Remote Content Servers at each import hub, where they can be viewed and printed via a browser and processed by customs staff before consignments arrive.

Benefits include eliminating the risk of lost or late paperwork, and shortening the customs clearance process by four to eight hours. This could make a difference of one day in delivery time to some destinations. For TNT, this will give the company a clear advantage, keep its existing customers satisfied, attract new ones, and sustain business growth.

At the same time TNT will be reducing paper handling, facsimile, and storage costs estimated at UK£1.2 million per year. Workloads have been redistributed because airport-based staff are able to process paperwork continuously with no sudden rush when flights land. The company also has much better audit tracking. This was all achieved with minimal staff training.

Designed to store more than 450,000 new documents each week, PACS has a retrieval rate of more than 12,000 documents per hour. The system was initially sized to manage 100 million documents over a five-year period.

With a secure and scalable system now in place, TNT is looking at imaging projects in other areas such as proof-of-delivery and sales invoices.

The UK Student Loans Company – Vignette

The Student Loans Company Limited (SLC) is a Non-Departmental Public Body (NDPB) working under the auspices of the UK Department for Education and Skills. Its role is to make loans to undergraduates for the cover of their living costs whilst they are studying for a first degree qualification, and to pay the public contribution for the annual tuition fees that are now being charged by the Universities in England and Wales.

SLC has its Customer Support Office in Glasgow, Scotland, with an Automated Document Factory some seven miles away. The operation involves high-volume paper processing for which it uses Vignette Integrated Document Management, formerly provided by Tower Technology's Image Processing System before the latter's acquisition by Vignette.

SLC has a large number of systems to deal with its customers. It uses the document imaging and records management to support the 800,000 new loans it issues each year, and the 500,000 deferrals of existing loans for those whose incomes are below the repayment threshold and the administration of 2.8 million customers with loan accounts. The interest on the loan is the rate of inflation each year. If the loan is not repaid after 25 years, the UK Government then writes it off. Thus detailed records of the loans must be securely retained for at least that period.

Students applying for new loans must supply documents to prove their identity, and that they are undertaking a higher education course. For SLC this equates to approximately four million documents, all of which need to be scanned and stored. Some originals need to be returned to the applicants.

For deferment of loan repayments, each year, the former students must submit a range of paper documentation to demonstrate that they are not earning above a defined threshold of income.

SLC was established in 1990 and by the year 2000, when the document imaging and records system was implemented, it had already processed some ten million loans in total. There were three objectives behind the deployment of the solution:

1. To meet new targets for volumes to be processed.
2. To minimise the expenditure required for processing.
3. To improve customer service.

SLC works on an academic year basis from September to August and applications for loans peak at the beginning of each term. These peaks meant that the organisation needed high volume processing and flexibility in the way staff operated to deliver the objectives.

As a NDPB, SLC was required to have a system providing records management capabilities that met the then Public Records Office 1999, (now The National Archives) standard. Being a large public sector implementation, the tender for the project was issued via the Official Journal of the European Commission (OJEC) in 1997, with Tower Technology's solution being selected.

At the Automated Document Factory, there is extensive use of bar codes as part of the process. Letters that are issued to applicants requesting documents are all bar-coded to ensure accurate and automatic capture when returned. SLC is currently scanning and recording four million images a year using two Kodak machines. The images are saved to optical disks. As part of the deployment, SLC migrated its existing images, which were on microfilm, to optical media, thus operatives in the Customer Support Office can use the standard client interface for the system to access all records.

SLC points out that technology does not do the whole process and the multi-skilled workforce in the Automated Document Factory is still essential. The mail still needs to be opened, and even with automatic opening machines manual input is required such as quality checks, and the sending back of documents.

Benefits reported by SLC are numerous:

- The organisation no longer has a paper storage issue - documents once scanned, are immediately returned or securely destroyed.
- Before the implementation of the imaging and records management solution, the Customer Support Office could not be sure whether a piece of documentation had been received.
- There were previously 100 people in the Automated Document Factory with up to 50 more for a four to five month period: this has now reduced to between 30-40 people.

Based upon an interview with John Rae, Facilities Manager with the Student Loans Company Ltd.

▶ 5.5 FUTURES

There are two significant trends which can be clearly identified in the DRM software sector. Firstly, vendors of stand-alone EDRMS continue to be swallowed-up by large Enterprise Content Management (ECM) vendors; and secondly, organisations are now starting to consider the strategic importance of adopting a holistic view of ECM compared with the more traditional, piecemeal approach of the past.

Mergers and Acquisitions

The last couple of years have seen frenetic merger and acquisition activity in the ECM market space. As the ECM market place continues to consolidate, Butler Group believes that the larger ECM vendors will acquire most of the niche EDRM players, particularly those that are TNA 2002 and other standards approved. We have already seen the beginnings of this through the acquisition of Tower Technology by Vignette, and Valid Information Systems by Hummingbird. One of the major benefits of this approach for the ECM vendors is that they gain immediate TNA 2002 approval, which enables them to bid for UK public sector contracts.

Another area of consolidation will be between the ECM vendors themselves as they merge to build market share in a competitive market. There are also indications of the start of a trend in vertical acquisitions. In 2003, the storage vendor EMC rocked the ECM market by announcing the acquisition of Documentum for US$1.7 billion, in order to provide more value from its product set. This was the first example of vertical integration between a storage and ECM vendor, and we believe that there will be more acquisitions of this nature with more storage vendors acquiring ECM vendors.

Butler Group sees ECM in the future, comprising around six major vendors who will develop much broader Enterprise Information Management Suites (EIMS). In addition to incorporating the management of all types of unstructured and structured information, EIMS will also embrace e-mail management. This will require further acquisitions as ECM vendors move into the e-mail management area.

Butler Group also expects to see Oracle move into the ECM space through the acquisition of an ECM vendor in order to compete with IBM, which is already developing technology to manage both unstructured and structured content through a single application. Although Oracle is working on its own ECM project, currently codenamed 'Tsunami', and it has recently announced (December 2004) its Files 10*g* offering for RM as part of Collaboration Suite, we do not feel that this will make any real inroads into the ECM market. For Oracle to compete with IBM in ECM it must acquire the technology – and a ready-made market share.

If Microsoft also wants to play in this arena, it too will need to acquire ECM functionality to strengthen its own product set. The quickest and easiest way for Microsoft to achieve this is via the acquisition of an EDRM vendor. Most of these are tightly integrated with Microsoft, in particular Meridio, which is TNA 2002 approved in its own right, and is also approved with Microsoft SharePoint Portal Server. Another good fit for Microsoft would be Fabasoft, which has a European, and not just a UK, focus.

Corporate Culture

DRM requires a change in culture from secretive to public, individual to corporate, and paper to electronic. DRM requires a high degree of change management, and in order for it to succeed employees need to be convinced that their information is more secure if it is stored in a central repository than it was on a local hard drive. Only if organisations overcome resistance caused by this can DRM succeed.

However, this is not the only area where changes are required. Organisations must start to reduce the amount of paper documents they create. There is often suspicion of the abilities of the IT department to adequately protect electronic information, and so users print out and retain paper-based copies as a 'back-up'. Butler Group believes that only if IT becomes much more open about its disaster recovery provision, will users trust IT enough not to keep paper as well as electronic copies of information.

"There is often suspicion of the abilities of the IT department to adequately protect electronic information, and so users print out and retain paper-based copies as a 'back-up'."

Technology

In terms of information security management, Butler Group expects an increasing number of firms to view compliance with ISO 17799 as being fundamental to their business strategies. As a result we believe that this will in turn drive demand for DRM solutions that offer enhanced information security management features. Support for strong encryption, electronic signatures, digital certificates, and Information Rights Management, will all play an increasingly important role as DRM solutions evolve to accommodate increasingly complex information management requirements.

In storage, we expect to see vendors such as EMC, HP, IBM, and perhaps to a lesser extent Sun, Fujitsu, and Hitachi, offering utility storage solutions, which, through virtualisation and commoditisation, will be significantly more flexible than storage solutions typically in use today. We also expect to see more in the way of tiered storage, enabling organisations to automatically move information up and down the storage hierarchy according to demand.

SECTION 6: Tables

Butler Group
Analysis without compromise

There are three elements that make up this section: the Butler Group Document and Records Management Features Matrix, the Butler Group Document and Records Management Product Capability Diagrams, and the Butler Group Document and Records Management Market Lifecycle Ratings chart. To produce these tables, Butler Group Analysts have researched a representative group of solutions and vendors from the Document and Records Management (DRM) market place.

Butler Group has produced a comprehensive Features Matrix and Product Capability Diagrams based on an evaluation of DRM solutions from 14 vendors – detailed Technology Audits, which can be found in Section 8 of this Report. A thorough and effective methodology has been adopted and provides the basis for comparative analysis, revolving around the following areas:

- **Architecture:** Covers the structural make-up of the product, including operating system, database, client, and browser support.
- **Document Management (DM):** This covers the core DM capabilities.
- **Records Management (RM):** This examines the ability to declare and manage records through both manual and automatic processes.
- **Search and Retrieval:** Discovery is an important element of DRM, and extensive search capabilities are a requirement.
- **BPM and Workflow:** The BPM and workflow capabilities are examined, along with the ability to support complex document and records workflows.
- **Deployment:** This examines the ability to deliver and implement DRM solutions, and the go-to-market strategy of the vendors.

6.1 BUTLER GROUP DOCUMENT AND RECORDS MANAGEMENT FEATURES MATRIX

The results highlighted in the Features Matrix represent each vendor's efforts in addressing the requirements of a DRM solution. It also serves to highlight the differences between individual vendor approaches. The process for producing the Product Capability Diagrams and the Market Lifecycle Ratings chart reflects a blending of the information gained in the Technology Audit process, the details in the Features Matrix, and Butler Group's objective analysis.

		Diagonal Solutions – Wisdom	EMC Documentum – Documentum 5	Fabasoft – Fabasoft eGov-Suite Version 6	FileNet – FileNet Records Manager	Hummingbird – Hummingbird Enterprise Version 5.1.05
Architecture						
Integrated Document Management and Records Management solution		Y	Y	Y	Y	Y
ECM or EDRM solution		EDRM	ECM	ERDM	ECM	ECM
Multiple and Distributed physical repository support		N	Y	Y	Y	Y
Repository contains metadata and content or just metadata		Both	Both	Both	Both	Metadata
Metadata standards supported	e-GMS	Y	Y	Y	Y	Y
	Dublin Core	Y	Y	Y	Y	Y
Metadata automatically created		Y	Y	Y	Y	Y
Metadata automatically imported for documents that already exist		Y	Y	Y	Y	Y
Metadata entered manually		Y	Y	Y	Y	Y
Facilities to force users to enter metadata manually		Y	Y	Y	Y	Y
Metadata validated		Y	Y	Y	Y	Y
Communications protocols supported	FTP	N	Y	N	Y	N
	ICE	N	Y	N	–	N
	HTTP	Y	Y	Y	Y	Y
	SMTP	Y	Y	Y	Y	N
	SOAP	Y	Y	Y	Y	N
	Other	N	Y	COM, MAPI	RMI	N
Content and Document Management standards supported	ODMA	N	Y	N	N	Y
	AIIM	N	Y	N	Y	N
	WfMC APIs	N	Y	N	Y	N
	IDEAlliance	N	Y	N	N	N
	DMA	N	Y	N	Y	N
	Other	WebDAV	WebDAV	WebDAV	WebDAV	WebDAV

Features listed are based upon Vendor responses to Butler Group Questionnaires, a '–' does not necessarily indicate the absence of a feature.

		Hummingbird (Valid Information Systems) – R/KYV Version v9.1	Hyperwave – eKnowledge Suite and eRecords Suite	IBM – DB2 Document Manager, DB2 Records Manager	Interwoven – EDMS Suite
Architecture					
Integrated Document Management and Records Management solution		Y	Y	Y	Y
ECM or EDRM solution		EDRM	ECM	ECM	ECM
Multiple and Distributed physical repository support		Y	Y	Y	Y
Repository contains metadata and content or just metadata		Both	Both	Both	Both
Metadata standards supported	e-GMS	Y	Y	N	N
	Dublin Core	Y	Y	N	N
Metadata automatically created		Y	Y	Y	Y
Metadata automatically imported for documents that already exist		Y	Y	Y	Y
Metadata entered manually		Y	Y	Y	Y
Facilities to force users to enter metadata manually		Y	Y	Y	Y
Metadata validated		Y	Y	Y	Y
Communications protocols supported	FTP	Y	Y	Y	N
	ICE	N	N	N	N
	HTTP	Y	Y	Y	Y
	SMTP	Y	Y	Y	Y
	SOAP	Y	Y	Y	Y
	Other	N	N	HTTPS	N
Content and Document Management standards supported	ODMA	N	N	Y	N
	AIIM	N	N	N	N
	WfMC APIs	Y	Y	N	Y
	IDEAlliance	N	N	N	N
	DMA	N	N	N	N
	Other	N	WebDAV	JSR170	N

Features listed are based upon Vendor responses to Butler Group Questionnaires, a '–' does not necessarily indicate the absence of a feature.

		Meridio – Meridio 4.2	Open Text – Livelink Enterprise Suite 9.5	Stellent – Stellent Content Managment Version 7.2	TOWER Software – TRIM Context	Vignette – Vignette Records & Documents Release 4.4
Architecture						
Integrated Document Management and Records Management solution		Y	Y	Y	Y	Y
ECM or EDRM solution		EDRM	ECM	ECM	EDRM	ECM when used in combination with VCM and VCS. EDRM when used standalone.
Multiple and Distributed physical repository support		Y	Y	Y	Y	Y
Repository contains metadata and content or just metadata		Metadata	Y	Metadata	Metadata	Both
Metadata standards supported	e-GMS	Y	Y	Y	Y	Y
	Dublin Core	Y	Y	Y	Y	Y
Metadata automatically created		Y	Y	Y	Y	Y
Metadata automatically imported for documents that already exist		Y	Y	Y	Y	Y
Metadata entered manually		Y	Y	Y	Y	Y
Facilities to force users to enter metadata manually		Y	Y	Y	Y	Y
Metadata validated		Y	Y	Y	Y	Y
Communications protocols supported	FTP	N	Y	Y	Y	Y
	ICE	N	–	Y	N	N
	HTTP	Y	Y	Y	Y	Y
	SMTP	N	Y	Y	Y	N
	SOAP	Y	Y	Y	Y	Y
	Other	N	N	HTTPS	DCOM, HTTPS	N
Content and Document Management standards supported	ODMA	Y	Y	Y	Y	–
	AIIM	–	N	N	N	–
	WfMC APIs	N/A	N	N	N	–
	IDEAlliance	N	N	Y	N	–
	DMA	N	N	N	N	–
	Other	N	WebDAV	WebDAV	N	N

Features listed are based upon Vendor responses to Butler Group Questionnaires, a '–' does not necessarily indicate the absence of a feature.

		Diagonal Solutions – Wisdom	EMC Documentum – Documentum 5	Fabasoft – Fabasoft eGov-Suite Version 6	FileNet – FileNet Records Manager	Hummingbird – Hummingbird Enterprise Version 5.1.05
Architecture cont.						
Application development and object models supported	VB/VBA	Y	Y	Y	Y	Y
	J2EE	N	Y	Y	Y	N
	.NET	Y	Y	Y	–	Y
	C/C++	Y	Y	Y	Y	Y
	COM	Y	Y	Y	Y	Y
	Java	N	Y	Y	Y	Y
	CORBA	N	N	Y	Y	N
	Other	N	N	C#, SOAP, Jscript	Web services	C#
Operating systems supported	Windows 2000 Server	Y	Y	Y	Y	Y
	Windows Server 2003	Y	Y	Y	Y	Y
	HP–UX	N	Y	N	Y	N
	IBM AIX	N	Y	N	Y	N
	Sun Solaris	N	Y	N	Y	N
	Linux	N	Y	Y	N	N
	Other	N	N	N	N	N
Databases supported	SQL Server	Y	Y	Y	Y	Y
	Oracle	N	Y	Y	Y	Y
	DB2	N	Y	N	Y	N
	Proprietary	N	–	N	–	N
	Other	N	Sybase	N	N	Sybase
Application servers supported	BEA WebLogic	N	Y	N	Y	N

Features listed are based upon Vendor responses to Butler Group Questionnaires, a '–' does not necessarily indicate the absence of a feature.

		Hummingbird (Valid Information Systems) – R/KYV Version v9.1	Hyperwave – eKnowledge Suite and eRecords Suite	IBM – DB2 Document Manager, DB2 Records Manager	Interwoven – EDMS Suite
Architecture cont.					
Application development and object models supported	VB/VBA	Y	Y	N	N
	J2EE	Y	Y	Y	Y
	.NET	N	Y	Y (via Web services)	Y
	C/C++	Y	Y	Y	Y
	COM	Y	Y	Y	Y
	Java	Y	Y	Y	Y
	CORBA	N	N	N	N
	Other	Proprietary R/KYV Basic	JavaScript, PHP	Java Struts Framework, JSR170, Web services	N
Operating systems supported	Windows 2000 Server	Y	Y	Y	Y
	Windows Server 2003	Y	Y	Y	Y
	HP–UX	Y	N	Y (DB2CMOD)	N
	IBM AIX	Y	N	Y (DB2CM, DB2RM)	N
	Sun Solaris	Y	Y	Y (DB2CM)	Y
	Linux	Y	Y	Y (DB2CM)	Y
	Other	N	N	zOS (DB2CM)	N
Databases supported	SQL Server	Y	Y	N	Y
	Oracle	Y	Y	Y (DB2CM)	Y
	DB2	Y	N	Y	N
	Proprietary	R/KYV XML Object DB	N	None	N
	Other	N	N	None	N
Application servers supported	BEA WebLogic	Y	N	N	Y

Features listed are based upon Vendor responses to Butler Group Questionnaires, a '–' does not necessarily indicate the absence of a feature.

		Meridio – Meridio 4.2	Open Text – Livelink Enterprise Suite 9.5	Stellent – Stellent Content Managment Version 7.2	TOWER Software – TRIM Context	Vignette – Vignette Records & Documents Release 4.4
Architecture cont.						
Application development and object models supported	VB/VBA	Y	Y	Y	Y	Y
	J2EE	N	Y	Y	Y	Y
	.NET	Y	Y	Y (via SOAP)	Y	Y – via Web services
	C/C++	Y	Y	Y	Y	N
	COM	Y	Y	Y	Y	N
	Java	N	Y	Y	Y	Y
	CORBA	N	Y	Y (via J2EE integration API) – a specific section on CORBA integration in developer documentation is provided.	Y	N
	Other	N	Oscript	SOAP, Web services	N	Web services
Operating systems supported	Windows 2000 Server	Y	Y	Y	Y	–
	Windows Server 2003	Y	Y	Y	Y	Y
	HP–UX	N	Y	Y	N	Y
	IBM AIX	N	N	Y	N	–
	Sun Solaris	N	Y	Y	N	Y
	Linux	N	N	Y	N	Y
	Other	N	N	N	N	N
Databases supported	SQL Server	Y	Y	Y	Y	–
	Oracle	N	Y	Y	Y	Y
	DB2	N	N	Y	Y	–
	Proprietary	N	–	N	N	–
	Other	N	Sybase	Sybase, Tamino	DB2	N
Application servers supported	BEA WebLogic	N	Y	Y (via Stellent Content Integration Suite)	N	Y

Features listed are based upon Vendor responses to Butler Group Questionnaires, a '–' does not necessarily indicate the absence of a feature.

		Diagonal Solutions – Wisdom	EMC Documentum – Documentum 5	Fabasoft – Fabasoft eGov-Suite Version 6	FileNet – FileNet Records Manager	Hummingbird – Hummingbird Enterprise Version 5.1.05
Architecture cont.						
Application servers supported cont.	IBM WebSphere	N	Y	N	Y	N
	Oracle	N	Y	N	–	N
	Apache/Tomcat	N	Y	Y	Y	N
User interface/clients supported	MS Windows	Y	Y	Y	Y	Y
	Browser	Y	Y	Y	Y	Y
	MS Office	Y	Y	Y	Y	Y
	Groupwise	Y	N	Y	N	Y
	Open Office	Y	N	Y	N	Partial
	Other	Y	AutoCAD, MicroStation, Photoshop, Quark, Dreamweaver	N	N	N
Browsers supported	Internet Explorer	Y	Y	Y	Y	Y
	Netscape	Y	Y	N	Y	Y
	Other	Y	Mozilla Q1 2005	Firefox	N	N
Information stored in native format in repository		Y	Y	Y	Y	Y
Ability to convert information stored in repository to XML		Y	N	Y	Y	Y
Data conversion tools provided		Y	Y	Y	Y	Y
Batch input facility included		Y	Y	Y	Y	Y
Integration with directory services		Y	Y	Y	Y	Y
Support for single sign-on		Y	Y – via partner integration	Y	N	Y
Support for digital signatures		N	Via third party	Y	Y	Via third party
Support for Information Rights Management		N	N	–	–	Y

Features listed are based upon Vendor responses to Butler Group Questionnaires, a '–' does not necessarily indicate the absence of a feature.

		Hummingbird (Valid Information Systems) – R/KYV Version v9.1	Hyperwave – eKnowledge Suite and eRecords Suite	IBM – DB2 Document Manager, DB2 Records Manager	Interwoven – EDMS Suite
Architecture cont.					
Application servers supported cont.	IBM WebSphere	Y	N	Y	Y
	Oracle	Y	N	N	N
	Apache/Tomcat	Y	Y	N	Y
User interface/clients supported	MS Windows	Y	Y	Y	Y
	Browser	Y	Y	Y	Y
	MS Office	Y	Y	Y	Y
	Groupwise	Y	N	N	N
	Open Office	Y	Y	N	N
	Other	N	N	AutoCAD, MicroStation, AutoVue, Outlook, Notes, Lotus Sametime	Outlook, Notes
Browsers supported	Internet Explorer	Y	Y	Y	Y
	Netscape	Y	Y	Y	February 2005
	Other	N	Firefox	N	Mozilla February 2005
Information stored in native format in repository		Y	Y	Y	Y
Ability to convert information stored in repository to XML		Y	With add-on	Y	Via third party
Data conversion tools provided		Y	Y	Y	N – rendering only
Batch input facility included		Y	Y	Y	Y
Integration with directory services		Y	Y	Y	Y
Support for single sign-on		Y	Y	Y	Y
Support for digital signatures		Via third party	Y	Via third party	June 2005
Support for Information Rights Management		Y	Y	Via third party	N

Features listed are based upon Vendor responses to Butler Group Questionnaires, a '–' does not necessarily indicate the absence of a feature.

		Meridio – Meridio 4.2	Open Text – Livelink Enterprise Suite 9.5	Stellent – Stellent Content Managment Version 7.2	TOWER Software – TRIM Context	Vignette – Vignette Records & Documents Release 4.4
Architecture cont.						
Application servers supported cont.	IBM WebSphere	N	–	Y (via Stellent Content Integration Suite)	N	–
	Oracle	N	N	N	N	–
	Apache/Tomcat	N	Y	Y (via Stellent Content Integration Suite)	N	–
User interface/clients supported	MS Windows	Y	Y	Y	Y	–
	Browser	Y	Y	Y	Y	Y
	MS Office	Y	Y	Y	Y	Y
	Groupwise	N	N	N	Y	–
	Open Office	N	N	N	N	–
	Other	Outlook, SharePoint	N	Outlook	N	N
Browsers supported	Internet Explorer	Y	Y	Y	Y	Y
	Netscape	N	Y	Y	Y	–
	Other	N	N	Mozilla	Y	N
Information stored in native format in repository		Y	Y	Y	Y	Y
Ability to convert information stored in repository to XML		Y	Y	Y	Y	Y
Data conversion tools provided		Y	Y	Y	Y	Y
Batch input facility included		Y	Y	Y	Y	Y
Integration with directory services		Y	Y	Y	Y	Y
Support for single sign-on		Y	Y	Via third party	Y	Y
Support for digital signatures		Y	Y	Via third party	Y	Y
Support for Information Rights Management		Y	Y	N	Y	–

Features listed are based upon Vendor responses to Butler Group Questionnaires, a '–' does not necessarily indicate the absence of a feature.

		Diagonal Solutions – Wisdom	EMC Documentum – Documentum 5	Fabasoft – Fabasoft eGov-Suite Version 6	FileNet – FileNet Records Manager	Hummingbird – Hummingbird Enterprise Version 5.1.05
Architecture cont.						
Administration interface	Client	Y	N	Y	Y	Y
	Browser	Y	Y	Y	N	Partial
Delegated administration		Y	Y	Y	–	Y
Document Management						
Native authoring capability		N	Template based for WCM	Y	N	N
Seamless integration with authoring tools		Y	Y	Y	Y	Y
Template support provided out-of-the-box		Y	Y	Y	Y	Y
Metadata stored with documents		Y	Y	Y	Y	Y
Read only access for locked documents		Y	Y	Y	Y	Y
Version control		Y	Y	Y	Y	Y
Support for minor revisions		Y	Y	Y	Y	Y
Rollback to earlier versions of documents		Y	Y	Y	Y	Y
Provision of document comparison		N	Y – via partner integration	Y	N	N
Audit trail facility		Y	Y	Y	Y	Y
Ability to move information back up the storage hierarchy		N	Y	Y	Y	Y
Support for compound documents		Y	Y	Y	Y	Y
Out-of-the-box integration with enterprise applications		COM+, SOAP	Y	Y	Y	Y
API available		Y	Y	Y	Y	Y
Connectors to third-party content sources		Y	Y	SOAP/ XML	Y	Y
Automatic declaration of documents as records		Y	Y	Y	Y	Y
Records Management						
Automatic declaration of records		Y	Y	Y	Y	Y
Records declared by dragging-and-dropping an item		Y	Y	Y	Y	Y
Multi-event retention periods supported		Y	Y	Y	Y	Y
Support for multi-stage disposition schedule		Y	Y	Y	Y	Y

Features listed are based upon Vendor responses to Butler Group Questionnaires, a '–' does not necessarily indicate the absence of a feature.

		Hummingbird (Valid Information Systems) – R/KYV Version v9.1	Hyperwave – eKnowledge Suite and eRecords Suite	IBM – DB2 Document Manager, DB2 Records Manager	Interwoven – EDMS Suite
Architecture cont.					
Administration interface	Client	Y	Command Line Tools	Y	Y
	Browser	Y	Y	Y	Y
Delegated administration		Y	Y	Y	Y
Document Management					
Native authoring capability		N	Y	Y	Y – via ECM
Seamless integration with authoring tools		Y	Y	Y	Y
Template support provided out-of-the-box		N	Y	Y	Y – via ECM
Metadata stored with documents		Y	Y	Y	Y
Read only access for locked documents		N	Y	Y	Y
Version control		Y	Y	Y	Y
Support for minor revisions		Y	Y	Y	N
Rollback to earlier versions of documents		Y	Y	Y	Y
Provision of document comparison		N	Via add-on	N	Y
Audit trail facility		Y	Y	Y	Y
Ability to move information back up the storage hierarchy		N/A	Y	Y	N
Support for compound documents		Y	Y	Y	Y
Out-of-the-box integration with enterprise applications		N	Y	Y	N
API available		Y	Y	Y	Y
Connectors to third-party content sources		Y	Y	Y	Y
Automatic declaration of documents as records		Y	Y	Y	Y
Records Management					
Automatic declaration of records		Y	Y	Y	Y
Records declared by dragging-and-dropping an item		Y	Y	Y	N
Multi-event retention periods supported		Y	Y	Y	Y
Support for multi-stage disposition schedule		N	Y	Y	Y

Features listed are based upon Vendor responses to Butler Group Questionnaires, a '–' does not necessarily indicate the absence of a feature.

		Meridio – Meridio 4.2	Open Text – Livelink Enterprise Suite 9.5	Stellent – Stellent Content Managment Version 7.2	TOWER Software – TRIM Context	Vignette – Vignette Records & Documents Release 4.4
Architecture cont.						
Administration interface	Client	Y	N	Y	Y	N
	Browser	Y	Y	Y	N	Y
Delegated administration		Y	Y	Y	Y	–
Document Management						
Native authoring capability		N	Y	N	N	N
Seamless integration with authoring tools		Y	Y	Y	Y	Y
Template support provided out-of-the-box		Y	–	Y	Y	Y
Metadata stored with documents		Y	Y	Y	N	Y
Read only access for locked documents		Y	Y	Y	Y	Y
Version control		Y	Y	Y	Y	Y
Support for minor revisions		Y	Y	Y	Y	Y
Rollback to earlier versions of documents		N	Y	Y	Y	Y
Provision of document comparison		N	N	N	Y	N
Audit trail facility		Y	Y	Y	Y	Y
Ability to move information back up the storage hierarchy		N	Y	–	Y	Y
Support for compound documents		Y	Y	N	Y	Via URL/ Hyperlinking
Out-of-the-box integration with enterprise applications		N	Y	N	Y	Y
API available		Y	Y	Y	Y	Y
Connectors to third-party content sources		N	Y	Via third party	–	Via VBIS
Automatic declaration of documents as records		Y	Y	Y	Y	Y
Records Management						
Automatic declaration of records		Y	Y	Y	Y	Y
Records declared by dragging-and-dropping an item		Y	Y	Y	Y	N
Multi-event retention periods supported		Y	Y	Y	Y	Y
Support for multi-stage disposition schedule		Y	Y	–	Y	Y

Features listed are based upon Vendor responses to Butler Group Questionnaires, a '–' does not necessarily indicate the absence of a feature.

		Diagonal Solutions – Wisdom	EMC Documentum – Documentum 5	Fabasoft – Fabasoft eGov-Suite Version 6	FileNet – FileNet Records Manager	Hummingbird – Hummingbird Enterprise Version 5.1.05
Records Management cont.						
Ability to delete record before end of retention period		N	Y	Y	Y	Y
Ability to put record on hold		Y	Y	Y	Y	Y
Support for automatic deletion of records		Y	N	Y	Y	Y
Manual review of records supported		Y	Y	Y	Y	Y
Procedures to ensure all copies of records deleted		Y	Y	Y	Y	Y
Ability to delete records so they cannot be recreated		Y	Y	Y	Y	Y
Roles-based access rights applied to records		Y	Y	Y	Y	Y
Ability to restrict access rights to parts of records		Y	Y	Y	Y	N
Retention periods assigned to record classifications		Y	Y	Y	Y	Y
Different retention periods for each classification		Y	Y	Y	Y	Y
Ability to create fileplans		Y	Y	Y	Y	Y
Multiple level of sub-classes supported		Y	Y	Y	Y	Y
Ability of the solution to be used for archiving e-mails		Y	Y	Y	Y	Y
Ability to move information back up the storage hierarchy		N	Y	Y	Y	Y
Support for the management of physical items		Y	Y	Y	Y	Y
Automatic creation of metadata		Y	Y	Y	Y	Y
Ability to add metadata manually		Y	Y	Y	Y	Y
Metadata fields customisable		Y	Y	Y	Y	Y
Support for EMC Centera		Y	Y	Y	Y	Y
Ability to Integrate with other storage hardware devices		Y	Y	–	Y	Y
Records Management standards:	PRO I	Y	Y	Y	N	Y
	TNA 2002	Y	In progress	Y	N	N
	DoD 5015.2 chapter 2	N	Y	N	Y	Y

Features listed are based upon Vendor responses to Butler Group Questionnaires, a '–' does not necessarily indicate the absence of a feature.

		Hummingbird (Valid Information Systems) – R/KYV Version v9.1	Hyperwave – eKnowledge Suite and eRecords Suite	IBM – DB2 Document Manager, DB2 Records Manager	Interwoven – EDMS Suite
Records Management cont.					
Ability to delete record before end of retention period		N	N	Y	N
Ability to put record on hold		Y	Folder on hold	Y	Y
Support for automatic deletion of records		Y	Y	Y	N
Manual review of records supported		Y	Y	Y	Y
Procedures to ensure all copies of records deleted		Y	Y	Y	Y
Ability to delete records so they cannot be recreated		Y	N	Y	Y
Roles-based access rights applied to records		Y	Y	Y	Y
Ability to restrict access rights to parts of records		N	N	Y	Y
Retention periods assigned to record classifications		Y	Y	Y	Y
Different retention periods for each classification		Y	Y	Y	Y
Ability to create fileplans		Y	Y	Y	Y
Multiple level of sub-classes supported		Y	Y	Y	Y
Ability of the solution to be used for archiving e-mails		Y	Y	Y	Y
Ability to move information back up the storage hierarchy		N/A	Y	Y	Y
Support for the management of physical items		Y	Y	Y	Y
Automatic creation of metadata		Y	Y	Y	Y
Ability to add metadata manually		Y	Y	Y	Y
Metadata fields customisable		Y	Y	Y	Y
Support for EMC Centera		N	Y	Y	February 2005
Ability to Integrate with other storage hardware devices		N	Y	Y	June 2005
Records Management standards:	PRO I	Y	N	N	December 2005
	TNA 2002	Y	Y	N	N
	DoD 5015.2 chapter 2	N	Test in Q1 2005	Y	June 2005

Features listed are based upon Vendor responses to Butler Group Questionnaires, a '–' does not necessarily indicate the absence of a feature.

		Meridio – Meridio 4.2	Open Text – Livelink Enterprise Suite 9.5	Stellent – Stellent Content Managment Version 7.2	TOWER Software – TRIM Context	Vignette – Vignette Records & Documents Release 4.4
Records Management cont.						
Ability to delete record before end of retention period		N	Y	N	Y	Y
Ability to put record on hold		Y	Y	Y	Y	Y
Support for automatic deletion of records		Y	Y	N	Y	Y
Manual review of records supported		Y	Y	Y	Y	Y
Procedures to ensure all copies of records deleted		Y	Y	Y	Y	Y
Ability to delete records so they cannot be recreated		Y	Y	Y	Y	Y
Roles-based access rights applied to records		Y	Y	Y	Y	Y
Ability to restrict access rights to parts of records		N	Y	N	N	Y
Retention periods assigned to record classifications		Y	Y	Y	Y	Y
Different retention periods for each classification		Y	Y	Y	Y	Y
Ability to create fileplans		Y	Y	Y	Y	Y
Multiple level of sub-classes supported		Y	Y	Y	Y	Y
Ability of the solution to be used for archiving e-mails		Y	Y	Y	Y	Y
Ability to move information back up the storage hierarchy		N	Y	–	Y	Y
Support for the management of physical items		Y	Y	Y	Y	Y
Automatic creation of metadata		Y	Y	Y	Y	Y
Ability to add metadata manually		Y	Y	Y	Y	Y
Metadata fields customisable		Y	Y	Y	Y	Y
Support for EMC Centera		Y	Y	N	N	Y
Ability to Integrate with other storage hardware devices		Y	Y	N	Y	Y
Records Management standards:	PRO I	Y	Y	N	Y	–
	TNA 2002	Y	Y	N	Y	Q1 2005
	DoD 5015.2 chapter 2	Y	Y	Y	Y	Y

Features listed are based upon Vendor responses to Butler Group Questionnaires, a '–' does not necessarily indicate the absence of a feature.

		Diagonal Solutions – Wisdom	EMC Documentum – Documentum 5	Fabasoft – Fabasoft eGov-Suite Version 6	FileNet – FileNet Records Manager	Hummingbird – Hummingbird Enterprise Version 5.1.05
Records Management cont.						
Records Management standards cont:	DoD 5015.2 chapter 4	N	Y	N	–	Y
	MoReq	N	Y	Y	N	N
	DOMEA	N	N	Y	Y	N
	VERS	N	Y	N	Y	N
	Other	N	N	GEVER (Swiss)	N	N
Categorisation, Search and Retrieval Capabilities						
Out-of-the-box search and retrieval capability		Y	Y	Y	Y	Y
Integration with third-party search and retrieval products possible		Y	Y	Y	Y	Y
Multiple search methods available		Y	Y	Y	Y	Y
Search syntax displayed with search results		Y	N	N	Y	Y
Information automatically classified		Y	Y	Y	Y	Y
Information manually classified		Y	Y	Y	Y	Y
Support for taxonomies		Y	Y	Y	Y	Y
Cross referencing supported		Y	Y	Y	Y	Y
Ability to save and share search queries		Y	Y	Y	Y	Y
Ability to save and share search results		N	Y	Y	Y	Y
Support for redaction		Y	Via third party	Via third party	N	Via third party
BPM and Workflow Capabilities						
BPM capabilities included		Y	Y	N	Y	Y
Process definition and modelling tools		Y	Y	Y	Y	Y
Inclusion of a process engine		Y	Y	Y	Y	Y
Rules engine included		Y	Process Engine	Y	Y	Y
Support for roles		Y	Y	Y	Y	Partial
Full process and workflow capabilities included		Y	Y	Y	Y	Y

Features listed are based upon Vendor responses to Butler Group Questionnaires, a '–' does not necessarily indicate the absence of a feature.

		Hummingbird (Valid Information Systems) – R/KYV Version v9.1	Hyperwave – eKnowledge Suite and eRecords Suite	IBM – DB2 Document Manager, DB2 Records Manager	Interwoven – EDMS Suite
Records Management cont.					
Records Management standards cont:	DoD 5015.2 chapter 4	N	Test in Q1 2005	Y	–
	MoReq	Y	N	N	–
	DOMEA	N	N	N	–
	VERS	N	N	N	–
	Other	N	N	N	ISO
Categorisation, Search and Retrieval Capabilities					
Out-of-the-box search and retrieval capability		Y	Y	Y	Y
Integration with third-party search and retrieval products possible		N	Y	Y	Y
Multiple search methods available		Y	Y	Y	Y
Search syntax displayed with search results		Y	Y	Y	Y
Information automatically classified		Y	Y	Y	Y
Information manually classified		Y	N	Y	Y
Support for taxonomies		Y	Y	Y	Y
Cross referencing supported		Y	Y	Y	Y
Ability to save and share search queries		Y	Y	Y	Y
Ability to save and share search results		Y	N	Y	Y
Support for redaction		Y	With add-on	Y	Y
BPM and Workflow Capabilities					
BPM capabilities included		N	Y	Y	Y
Process definition and modelling tools		Y	Y	Y	Y
Inclusion of a process engine		Y	Y	Y	Y
Rules engine included		Y	Y	Y	Y
Support for roles		Y	Y	Y	Y
Full process and workflow capabilities included		Y	Y	Y	Y

Features listed are based upon Vendor responses to Butler Group Questionnaires, a '–' does not necessarily indicate the absence of a feature.

		Meridio – Meridio 4.2	Open Text – Livelink Enterprise Suite 9.5	Stellent – Stellent Content Managment Version 7.2	TOWER Software – TRIM Context	Vignette – Vignette Records & Documents Release 4.4
Records Management cont.						
Records Management standards cont:	DoD 5015.2 chapter 4	Y	Y	Y	Y	Pending
	MoReq	–	Y	N	Y	N
	DOMEA	N	N	N	N	N
	VERS	N	N	N	Y	Pending
	Other	N	21 CFR Part 11 RDIMS ISO 15489 Section 508	N	N	N
Categorisation, Search and Retrieval Capabilities						
Out-of-the-box search and retrieval capability		Y	Y	Y	Y	Y
Integration with third-party search and retrieval products possible		Y	Y	Y	Y	Y
Multiple search methods available		Y	Y	Y	Y	Y
Search syntax displayed with search results		N	N	N	N	N
Information automatically classified		Y	Y	Y	Y	N
Information manually classified		Y	Y	Y	Y	Y
Support for taxonomies		Y	Y	Y	Y	Y
Cross referencing supported		Y	Y	Y	Y	Y
Ability to save and share search queries		Y	Y	Y	Y	Y
Ability to save and share search results		Y	Y	Y	Y	Y
Support for redaction		Y	N	N	Y	Via third party
BPM and Workflow Capabilities						
BPM capabilities included		N	Y	N	N	Y
Process definition and modelling tools		N/A	Y	Y	N	N
Inclusion of a process engine		N/A	Y	Y	N	N
Rules engine included		N/A	Y	Y	N	Y
Support for roles		N/A	Y	Y	Y	Y
Full process and workflow capabilities included		N/A	Y	Y	Y	Y

Features listed are based upon Vendor responses to Butler Group Questionnaires, a '–' does not necessarily indicate the absence of a feature.

		Diagonal Solutions – Wisdom	EMC Documentum – Documentum 5	Fabasoft – Fabasoft eGov-Suite Version 6	FileNet – FileNet Records Manager	Hummingbird – Hummingbird Enterprise Version 5.1.05
BPM and Workflow Capabilities cont.						
Provision of full audit trail		Y	Y	Y	Y	Y
Out-of-the-box reports provided		Y	Y	Y	Y	Y
Support for Web services		Y	Y	Y	Y	Y
Ability for Business Analysts to create processes		Y	Y	Y	Y	Y
Support for:	Sub-processes	Y	Y	Y	Y	Y
	Nested processes	Y	Y	Y	Y	Y
	Parallel processes	Y	Y	Y	Y	Y
	Conditional processes	Y	Y	Y	Y	Y
	Branching	Y	Y	Y	Y	Y
Inclusion of integration capabilities		Y	Y	Y	Y	Y
Escalation of tasks supported		Y	Y	Y	Y	Y
Ability to prioritise tasks		Y	Y	Y	Y	Y
Support for alerts and notifications		Y	Y	Y	Y	Y
Version control support		Y	Y	Y	Y	Y

Features listed are based upon Vendor responses to Butler Group Questionnaires, a '–' does not necessarily indicate the absence of a feature.

		Hummingbird (Valid Information Systems) – R/KYV Version v9.1	Hyperwave – eKnowledge Suite and eRecords Suite	IBM – DB2 Document Manager, DB2 Records Manager	Interwoven – EDMS Suite
BPM and Workflow Capabilities cont.					
Provision of full audit trail		Y	Y	Y	Y
Out-of-the-box reports provided		Y	N	Y	Y
Support for Web services		Y	Y	Y	Y
Ability for Business Analysts to create processes		Y	Y	Y	Y
Support for:	Sub-processes	Y	Y	Y	Y
	Nested processes	Y	Y	Y	Y
	Parallel processes	Y	Y	Y	Y
	Conditional processes	Y	Y	Y	Y
	Branching	Y	Y	Y	Y
Inclusion of integration capabilities		Y	Y	Y	Y
Escalation of tasks supported		Y	Y	Y	Y
Ability to prioritise tasks		Y	Y	Y	Y
Support for alerts and notifications		Y	Y	Y	Y
Version control support		Y	Y	Y	Y

Features listed are based upon Vendor responses to Butler Group Questionnaires, a '–' does not necessarily indicate the absence of a feature.

		Meridio – Meridio 4.2	Open Text – Livelink Enterprise Suite 9.5	Stellent – Stellent Content Managment Version 7.2	TOWER Software – TRIM Context	Vignette – Vignette Records & Documents Release 4.4
BPM and Workflow Capabilities cont.						
Provision of full audit trail		N/A	Y	Y	Y	Y
Out-of-the-box reports provided		N/A	Y	Y	Y	Y
Support for Web services		N/A	Y	Y	N	Y
Ability for Business Analysts to create processes		N/A	Y	Y	Y	Y
Support for:	Sub-processes	N/A	Y	Y	Y	Y
	Nested processes	N/A	Y	Y	Y	Y
	Parallel processes	N/A	Y	Y	Y	Y
	Conditional processes	N/A	Y	Y	Y	Y
	Branching	N/A	Y	Y	Y	Y
Inclusion of integration capabilities		N/A	Y	Y	Y	Y
Escalation of tasks supported		N/A	Y	Y	Y	Y
Ability to prioritise tasks		N/A	Y	Y	Y	Y
Support for alerts and notifications		N/A	Y	Y	Y	Y
Version control support		N/A	Y	Y	Y	Y

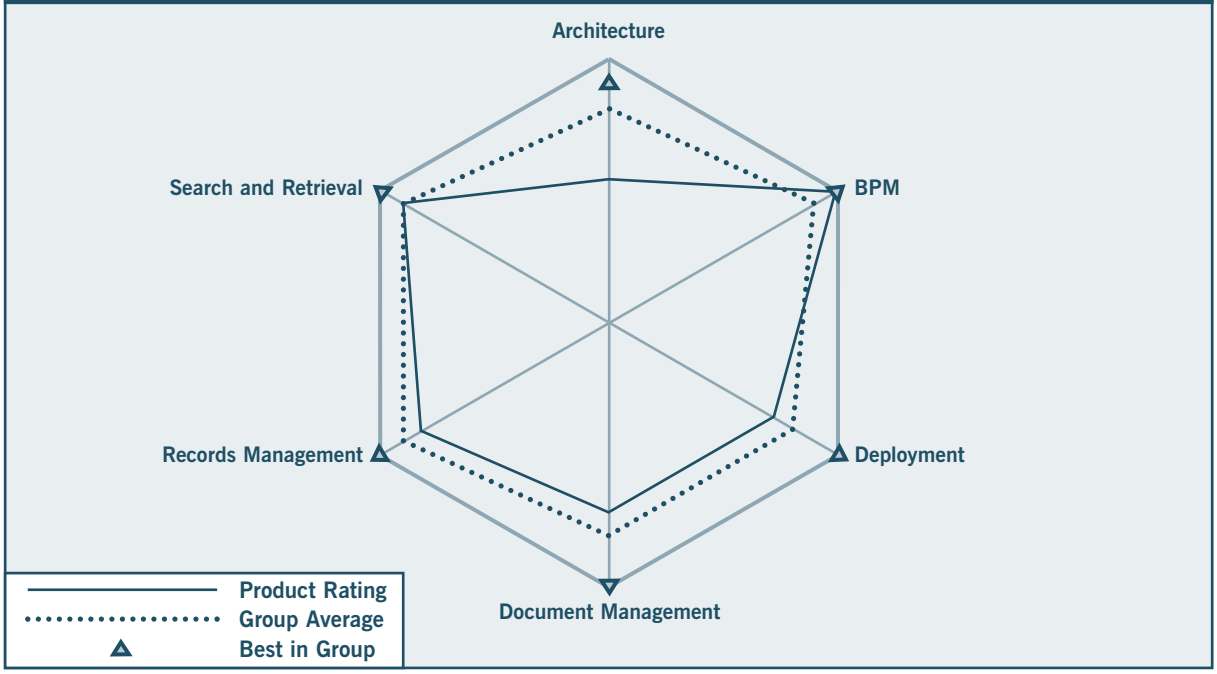
Features listed are based upon Vendor responses to Butler Group Questionnaires, a '–' does not necessarily indicate the absence of a feature.

6.2 BUTLER GROUP DOCUMENT AND RECORDS MANAGEMENT PRODUCT CAPABILITY DIAGRAMS

The following tables give a comparative view of the performance of vendors and their individual products in the market place today:

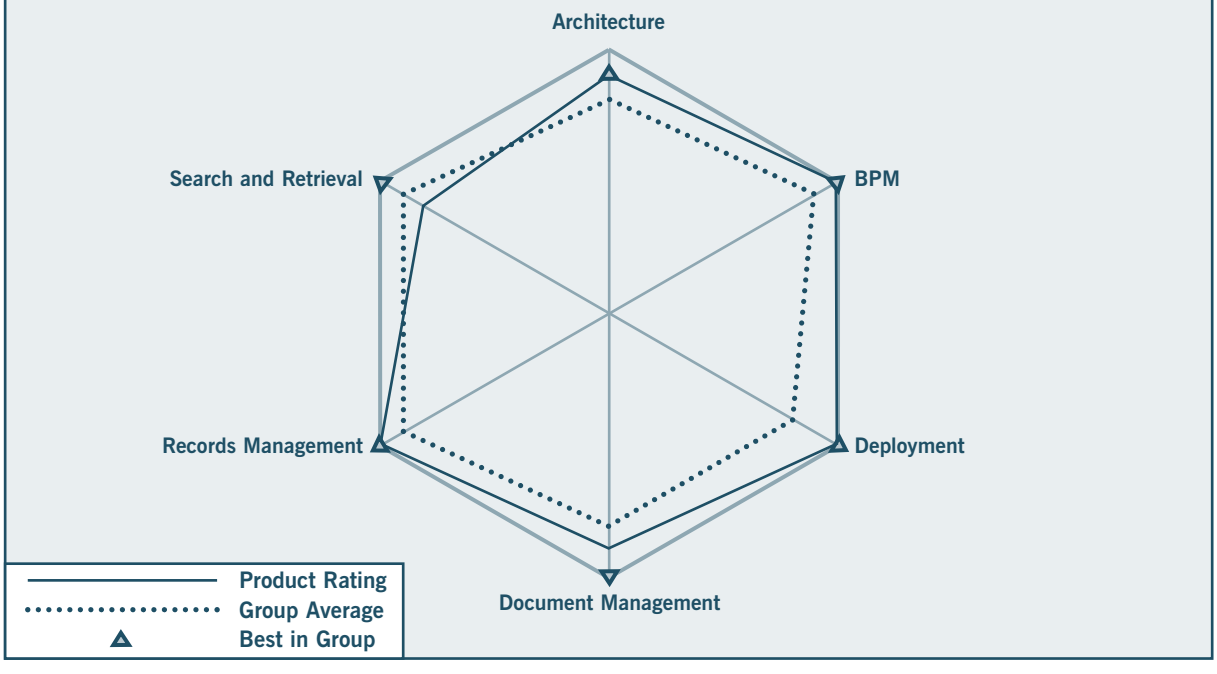
Diagonal Solutions
Wisdom

Document and Records Management



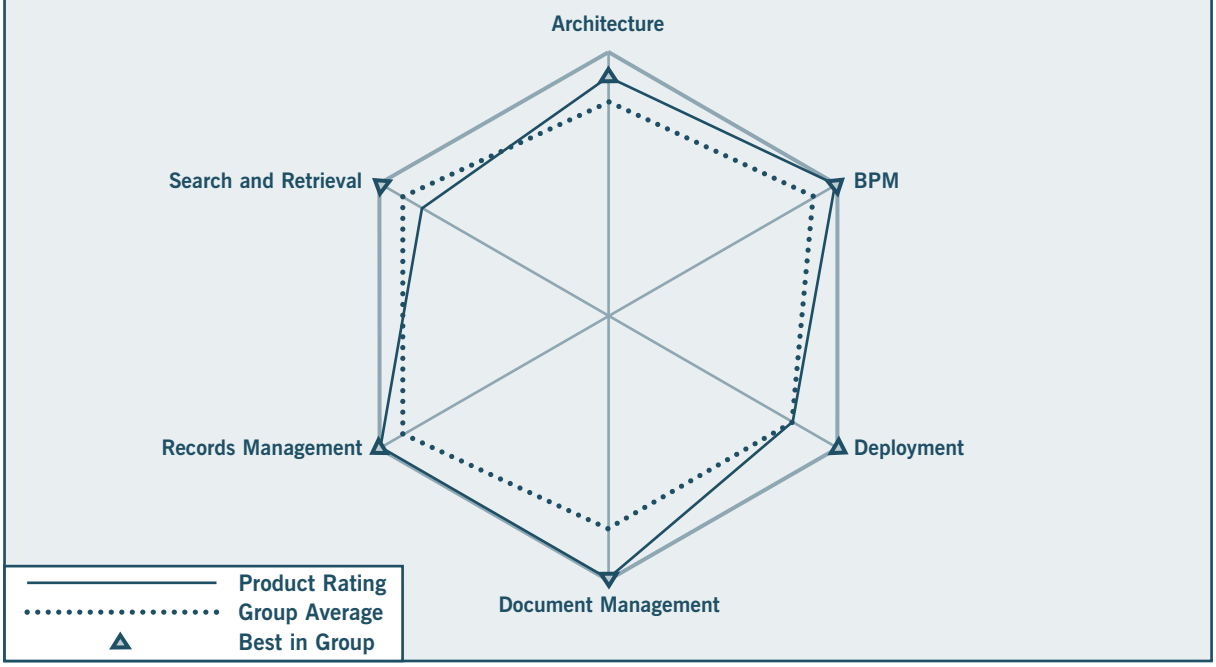
EMC Documentum
Documentum 5

Document and Records Management



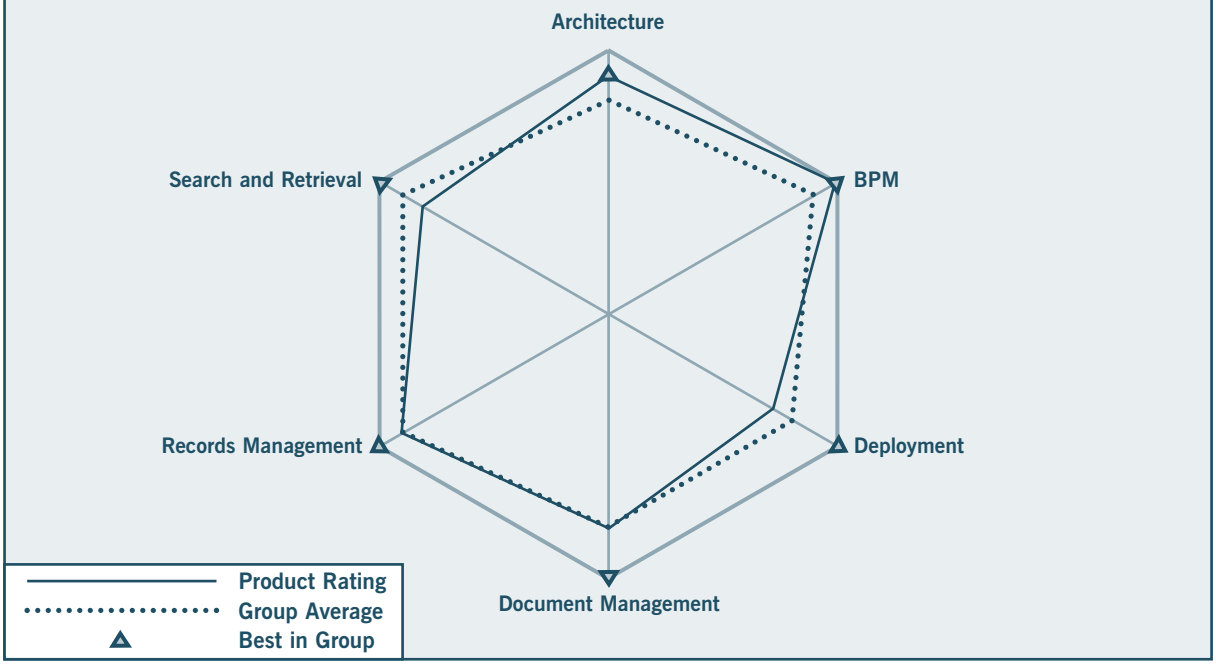
Fabasoft
Fabasoft eGov-Suite Version 6

Document and Records Management



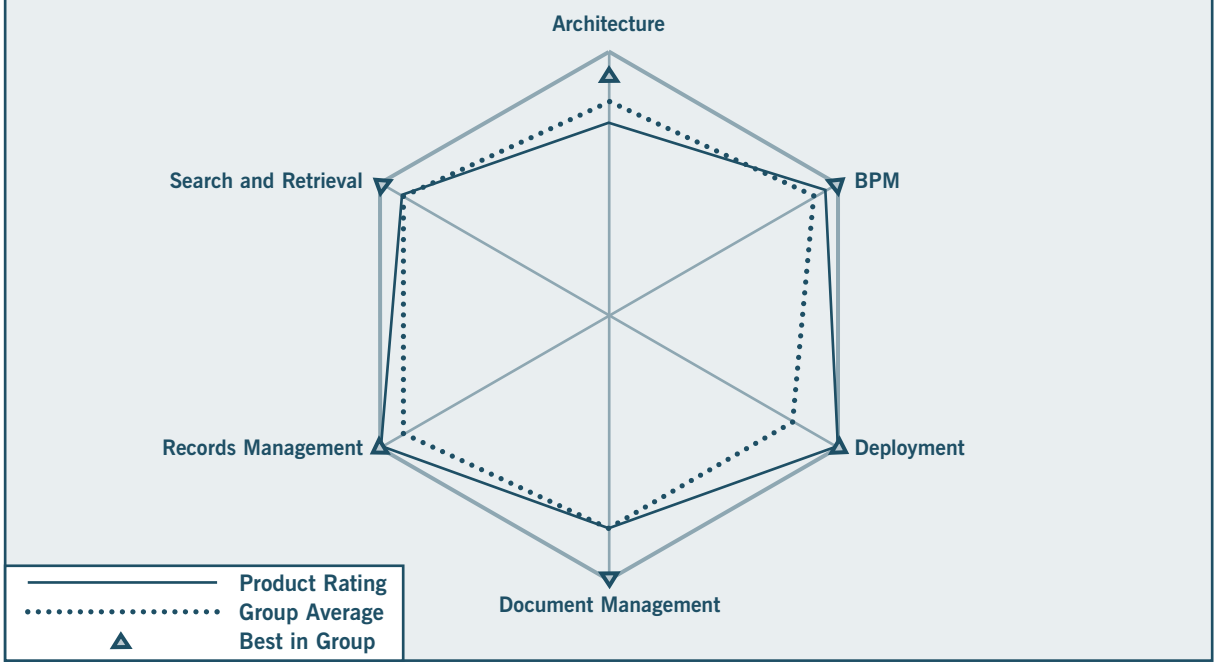
FileNet
FileNet Records Manager

Document and Records Management



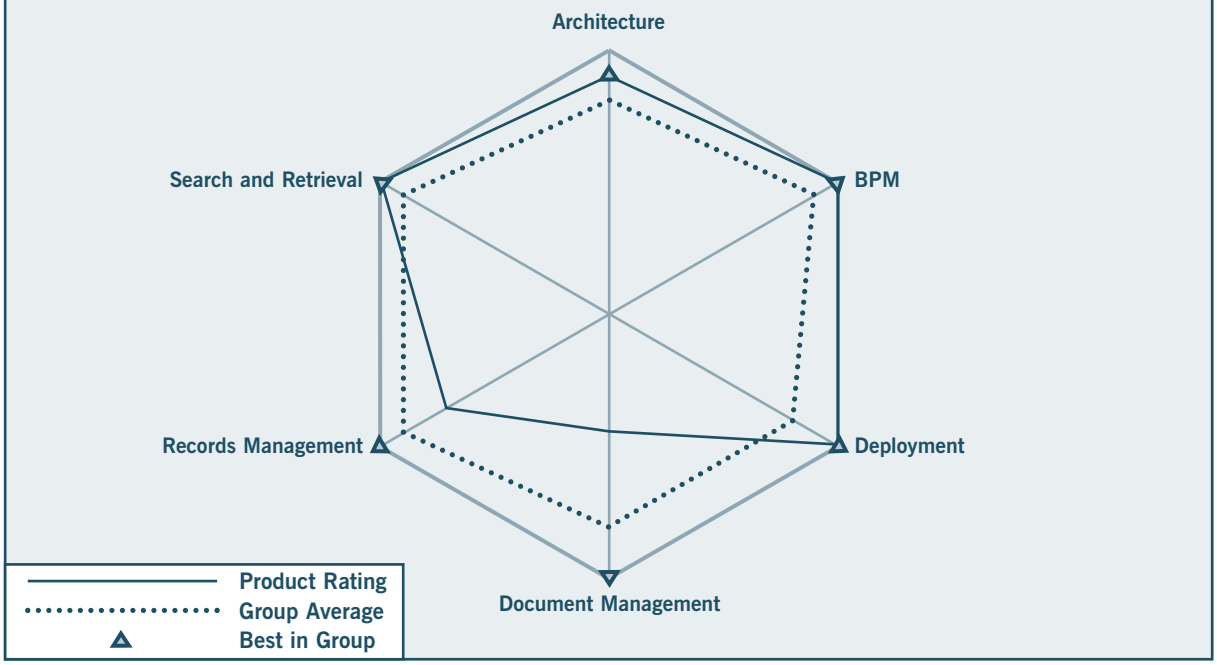
Hummingbird
Hummingbird Enterprise Version 5.1.05

Document and Records Management



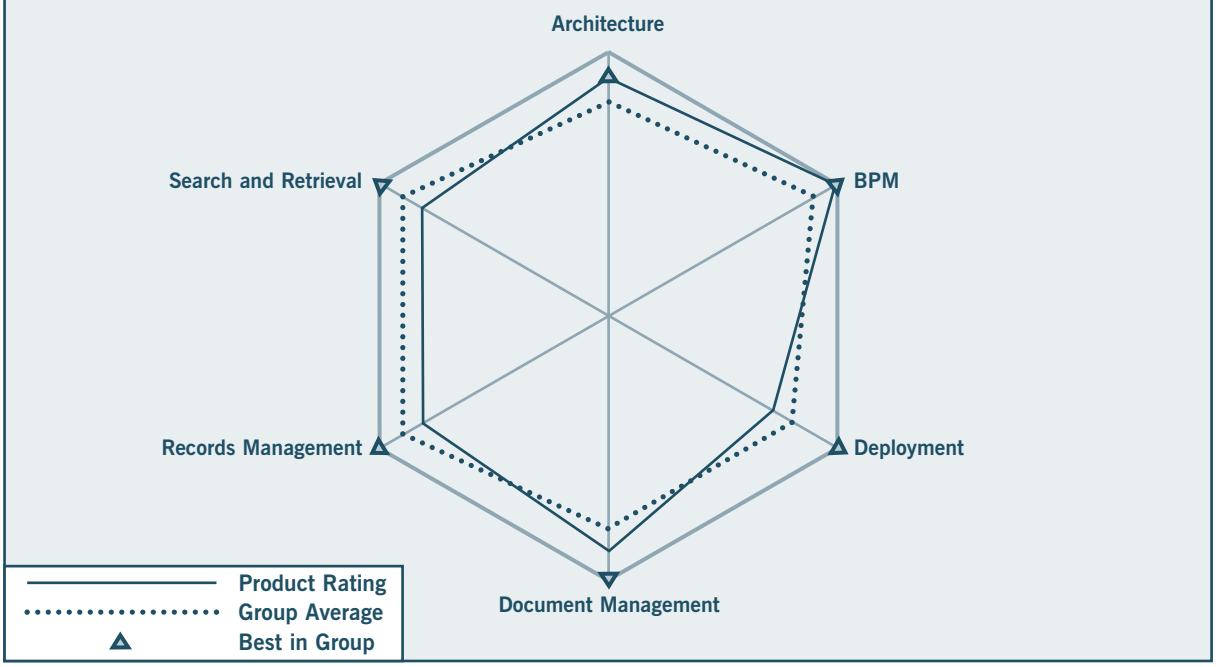
Hummingbird (Valid Information Systems)
R/KYV Version v9.1

Document and Records Management



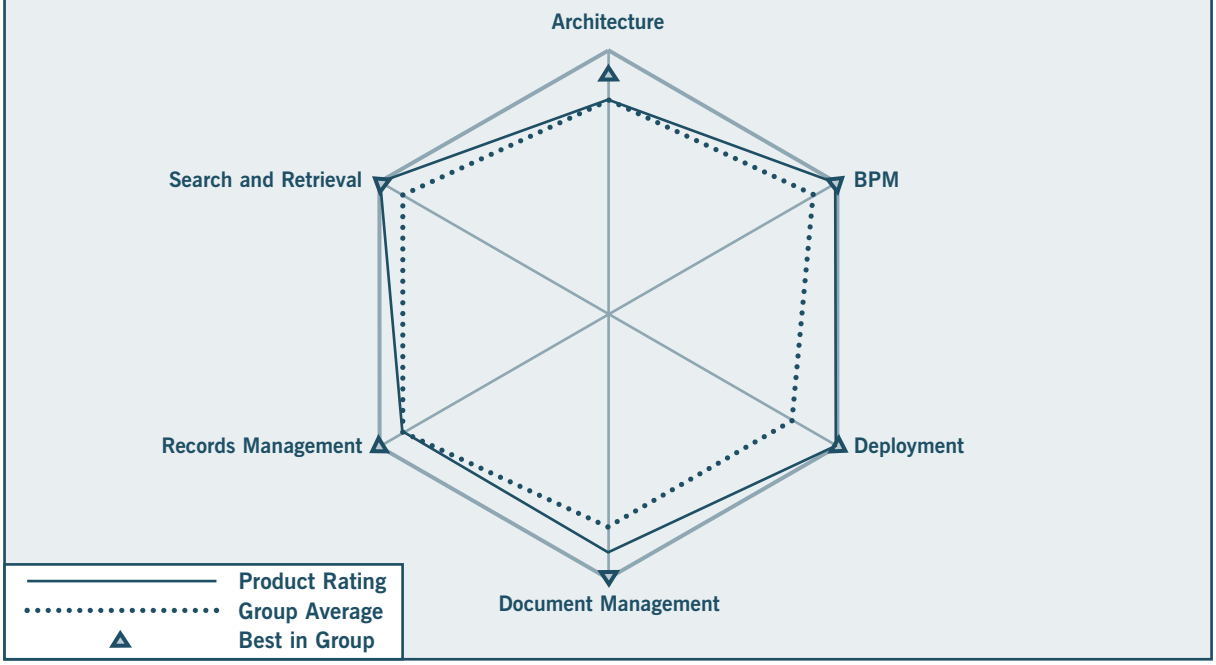
Hyperwave
eKnowledge Suite and eRecords Suite

Document and Records Management



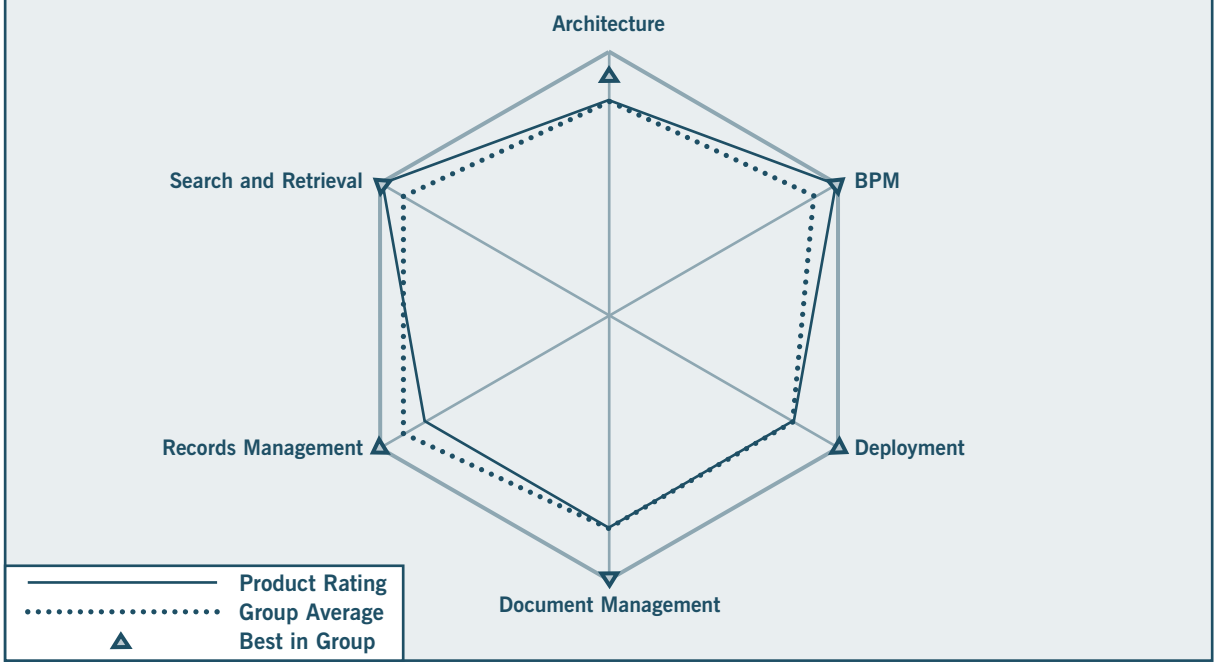
IBM
DB2 Document Manager, DB2 Records Manager

Document and Records Management



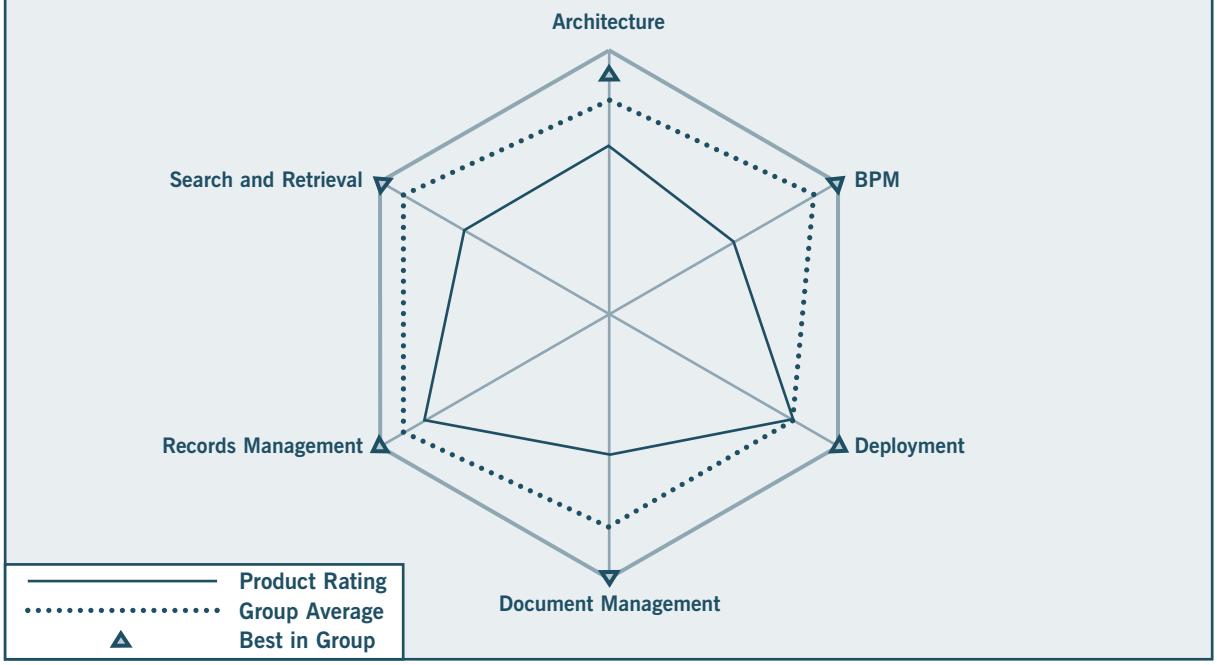
Interwoven
EDMS Suite

Document and Records Management



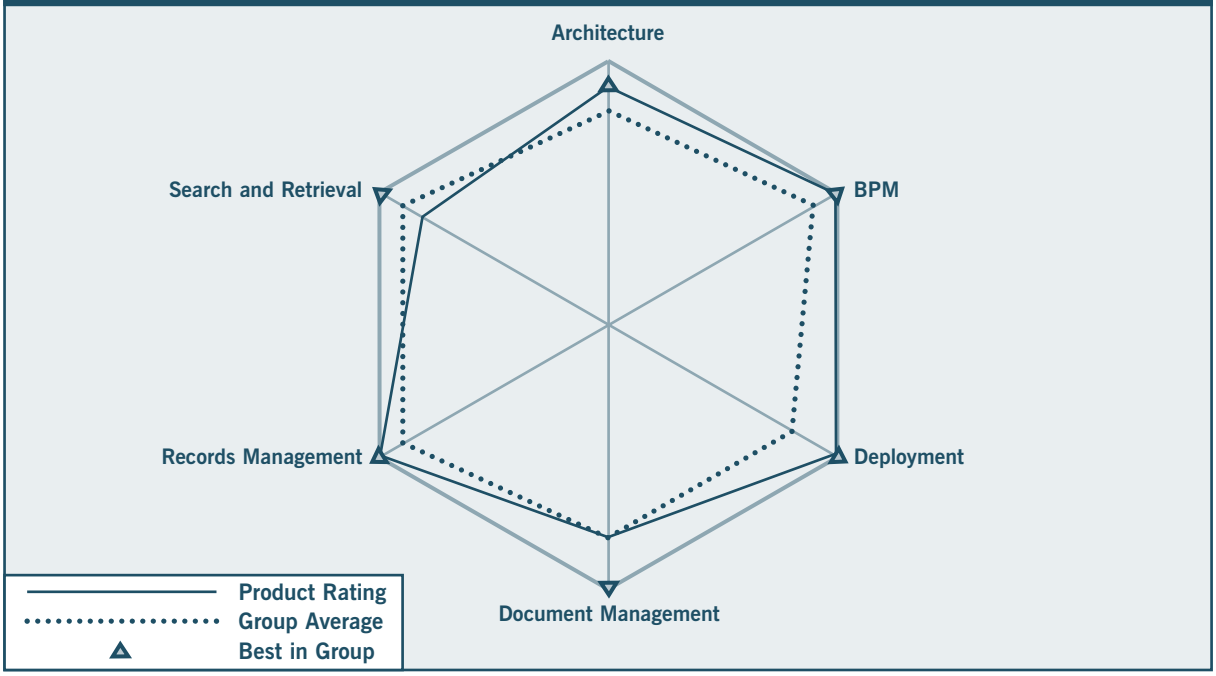
Meridio
Meridio 4.2

Document and Records Management



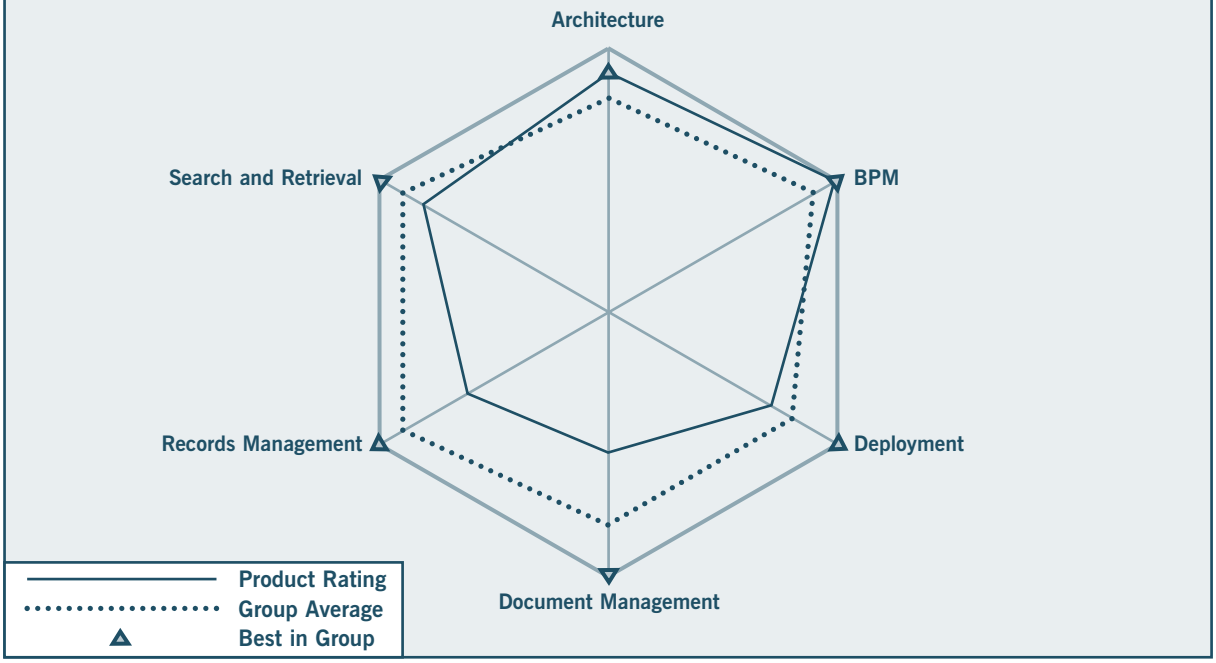
Open Text
Livelink Enterprise Suite 9.5

Document and Records Management



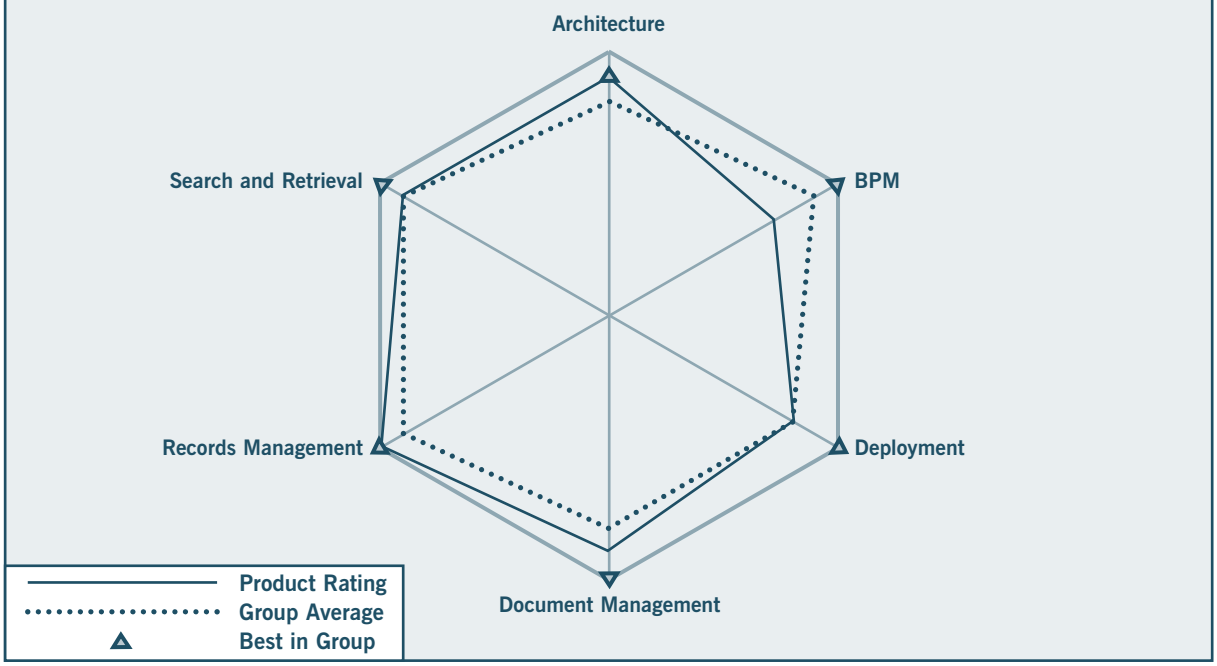
Stellent
Stellent Content Management Version 7.2

Document and Records Management



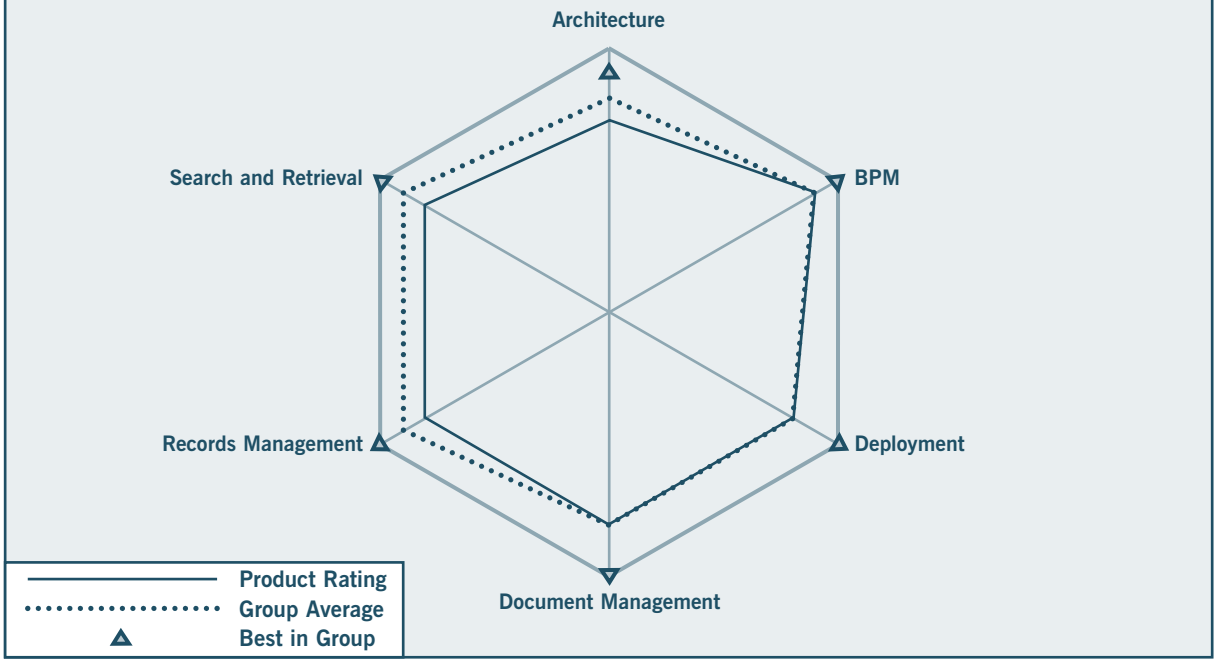
TOWER Software
TRIM Context

Document and Records Management



Vignette
Vignette Records & Documents Release 4.4

Document and Records Management



6.3 BUTLER GROUP DOCUMENT AND RECORDS MANAGEMENT MARKET LIFECYCLE RATINGS

About Butler Group Market Lifecycle Ratings

Markets for information technologies typically develop in a predictable manner. New entrants will often create a market that is later pounced upon by large players in the industry. The market then tends to mature into a mixture of the most successful new entrants and the major vendors that have decided to participate. Butler Group's Market Lifecycle Ratings have been designed to reflect these dynamics, by grouping the likely performance of vendors through the three major market phases of early adoption, market adoption, and market maturity. The market for DRM has now progressed beyond the early adoption stage, and we are currently in the market adoption stage. Beyond the market maturity stage, we see a consolidation stage as the Enterprise Content Management (ECM) market completes its consolidation, and the remaining vendors evolve to provide Enterprise Information Management Suites.

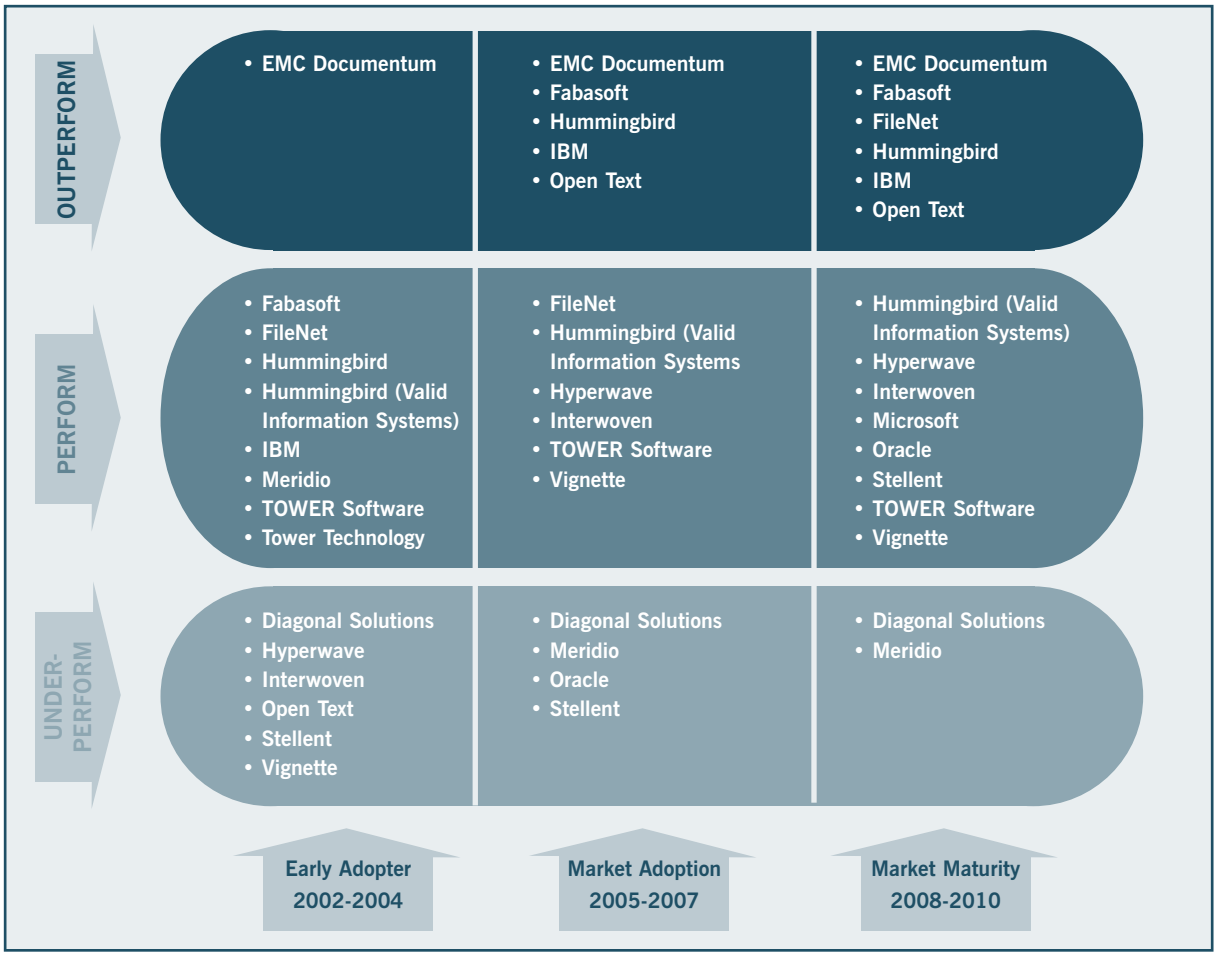
The vertical "Performance" groups reflect the success of the vendors and the relevant products in a particular market. This is not a financial measure, but a measure of the success of the technology in taking market share. A financial measure would have to take into account financing, management skills, and economic conditions. Market performance, however, is more related to the marketing skills of the vendor, product positioning, timing, product excellence, and the success of the market.

The vertical axis is divided into three groups, with each making a specific statement about a vendor and its products. **Within each group, vendors are listed alphabetically, and the order and positioning of company names is not significant.**

- **Outperform:** The vendor has established a commanding market position with a product that is widely accepted as best-of-breed.
- **Perform:** The vendor has good market positioning and is marketing the product well. The product also offers competitive functionality and performance.
- **Under-perform:** The vendor has poor positioning, has exercised poor timing, and is failing to market effectively. The product may also be deficient or outside mainstream trends.

The horizontal axis is similarly divided into three groups, with each depicting a phase in the market lifecycle:

- **Early Adopter:** Represents the early phases of the market when a new technology, promoted by new entrants, is finding early adoption with innovative companies.
- **Market Adoption:** The phase when the majority of technology adoption takes place and typically lasts for three to four years.
- **Market Maturity:** After the market adoption phase the maturity phase represents a time when the market can be reshaped by vendor acquisitions, new products, and concerted efforts to make an impact in a market.



The rationale behind this positioning is as follows:

Early Adopter (2000-2004)

The Early Adopter phase of the lifecycle of DRM has now drawn to a close. With the exception of EMC Documentum, FileNet, IBM, and Hummingbird, the early leaders of DRM were in the main the Electronic Document and Records Management (EDRM) vendors. The EDRM vendors in this space were Fabasoft, Valid Information Systems (acquired by Hummingbird in 2003), Meridio, TOWER Software, and Tower Technology (acquired by Vignette in 2004). In the early stages of DRM it was the specialist EDRM products that provided stronger functionality than the DRM modules within ECM solutions. Although the ECM vendors had very strong DM capabilities and marketing ability, they were lacking in the RM features, and even where RM vendors had already been acquired, the integration with the rest of their portfolios was only loose. By contrast the EDRM vendors had tightly integrated DRM capabilities and offered fuller functionality 'out-of-the-box'.

For this reason several large ECM vendors were in the *Under-perform* category at this stage having entered the DRM market late. In the *Under-perform* category was Diagonal Solutions, which is an EDRM vendor, and the ECM vendors Interwoven, Open Text, Stellent, Hyperwave, and Vignette.

Market Adoption (2005-2007)

In the Market Adoption stage of the market lifecycle of DRM, we see EMC Documentum, IBM, Hummingbird with Hummingbird Enterprise, Open Text, and Fabasoft in the *Outperform* category. It is interesting to note that all of these vendors, with the exception of Fabasoft, are large, well-established ECM vendors that have all attained their current product positions within the ECM market through the acquisition of niche players, and now provide extensive ECM functionality The RM functionality in each case has also been acquired from niche players.

The surprise of the *Outperform* category is the presence of Fabasoft, which is an extensive solution for an EDRM vendor. The only area in which it was slightly weaker was in its deployment strategy, as it chooses to work solely in the public sector arena, and has a European-only focus. Butler Group feels that it is regrettable that the product is not available to a wider range of organisations. Another vendor worthy of particular note is Open Text, which has moved straight from *Under-perform* in the Early Adopter phase to *Outperform*. This is due to the speed with which the company has grown and also integrated the various components it has acquired into its product set.

Another interesting point to note is that of the five vendors who outperformed, only Fabasoft and Open Text are currently The National Archives (TNA) 2002 approved. EMC Documentum and IBM are currently going through the process, and expect to achieve TNA 2002 approval in 2005, and Hummingbird does not at this time intend to put its Enterprise product forward for approval, as it already has an approved solution in Hummingbird R/KYV, which it acquired when it bought Valid Information Systems. IBM, EMC Documentum, Hummingbird, and Open Text are all DoD 5015.2 approved in the US, and Fabasoft is approved by three other European standards.

The *Perform* category is very tight with little to choose between any of the vendors. There is an even balance between ECM and EDRM vendors with FileNet, Interwoven, and Vignette in the former category, and Hyperwave, TOWER Software, and Hummingbird R/KYV (Valid Information Systems) in the latter. The EDRM vendors are all TNA 2002 approved. The vendors in this category were not quite as functionally rich in the area of DM and RM, and their deployment strategy was a little weaker. In the case of the EDRM vendors, this is generally because they do not have access to the large global markets that the ECM vendors do. The exception to this is TOWER Software, which plays in many large markets, including the UK, US, and Australia. TOWER Software's weak area was in its BPM capabilities, where it did not have such extensive functionality as most of the ECM vendors, but it was very strong in the RM area and also in its architecture.

One vendor that has disappeared from the Early Adopter phase is Tower Technology, which was acquired by Vignette in January 2004. This acquisition has boosted Vignette's position in the ratings. Interwoven has also made rapid inroads into DRM, having only established itself as a DRM player during 2004.

However, as far as standards are concerned, Interwoven is trailing the other vendors in that it does not yet hold any approvals, although it is preparing to submit for DoD 5015.2 certification. The company does not currently intend to go for TNA 2002, feeling that it will still be able to bid for non-RM UK public sector contracts. Its lack of approval has not affected Interwoven, and it fared well against standards-approved solutions.

Hummingbird R/KYV was weaker in the DM area, not because it lacked any of the basic features that we would have expected to find in a DM solution, but because it did not have some of the additional functionality of many of the other products. However, one area where it is stronger than Hummingbird Enterprise is in its range of platforms, with support for a wider range of operating systems.

FileNet performed well in terms of functionality, but lost out slightly on its deployment strategy. It is currently in the process of TNA 2002 approval, and at the time of writing was hopeful of a testing date early in January 2005. Butler Group feels that once it is approved, it will be able to play much more aggressively in the public sector market in the UK.

Butler Group feels that Vignette failed to make the *Outperform* category because of the work it has needed to undertake in order to integrate its RM functionality, which it acquired through its purchase of Tower Technology at the beginning of 2004.

Although its own products and those of Tower Technology are all based on J2EE, there is still a fair degree of work required to integrate the functionality and give it a similar look-and-feel. Like FileNet, Vignette is also seeking TNA 2002 approval, and expects this to be achieved during 2005. By contrast Hyperwave was strong in its BPM capabilities, but a little weaker in RM, and also in search and retrieval.

There are three vendors in the *Under-perform* category: Diagonal Solutions, Meridio, and Stellent. Diagonal Solutions and Meridio are both TNA 2002 approved. Diagonal Solutions was strong on BPM capabilities, but weak on architecture because it is confined to a Windows platform, and only supports a single option for the database.

In many ways it is unfair to position Meridio as an under-performer, as its RM and DM capabilities are strong. It did not score as strongly as other vendors because of its tight integration with Microsoft SharePoint Portal Server. Meridio would not normally be implemented on its own, but would be deployed with SharePoint, which provides BPM and workflow capabilities and other functions that Meridio is lacking in. Despite this lack of peripheral functionality, Meridio is TNA 2002 approved, and has also helped Microsoft to become TNA 2002 approved with SharePoint, when it is deployed with Meridio. In the Early Adopter phase, the features that Meridio is now lacking were not present in most of the other products at that stage, and so Meridio fared better in comparison with these. The other under-performer is Stellent, which although it obtained RM functionality through its acquisition of Optika in 2004, has not yet integrated these capabilities into its core platform. It is another ECM vendor that is hoping to become TNA 2002 approved during 2005.

A new entrant that must make inroads into the ECM market if it is to compete with IBM for the management of structured and unstructured information is Oracle. The company has its own ECM project, codenamed 'Tsunami', and has recently announced (December 2004) its Files 10*g* offering for RM as part of Collaboration Suite. However, we do not see these measures as being significant on their own, and they will not be sufficient to build a market share and therefore take on IBM in this space. To do this it must acquire an ECM (or EDRM) vendor – and more importantly that vendor's market share. Because of the integration work involved, we do not believe that even if Oracle does make an acquisition in this phase, that this will move it above the *Under-perform* category.

Market Maturity (2008-2010)

We believe that in the market maturity stage there will be a further consolidation of the DRM market space with many of the niche players being acquired by larger ECM vendors both to plug gaps in their own products, and also to acquire instant TNA 2002 and other standards approval.

Having said that, we expect to see EMC Documentum, IBM, Hummingbird (with Hummingbird Enterprise), Open Text, and Fabasoft still outperforming by continuing to innovate, although by this stage it would make Fabasoft a tempting acquisition target for a larger vendor, either an existing ECM vendor or a company that does not currently play a major role in this market. However, we are confident that the Fabasoft technology will continue to be developed.

These vendors will be joined by FileNet, which will continue to build on the strengths of its ECM and BPM capabilities.

The most interesting developments will be in the *Perform* category, and this is where the greatest movement will be. It is here that a number of new entrants will join the DRM market through acquisition. These vendors will be Microsoft, who is currently playing on the edges of ECM and DRM with its Web Content Management (WCM) product, and also SharePoint. If it is to compete with IBM as a manager of all forms of unstructured, as well as structured information, then it must move into the ECM space. This can only be achieved through acquisition. Microsoft has a wide choice of vendors, as most of the EDRM players that are TNA 2002 approved are based on Windows platforms. An ideal target for Microsoft would be Meridio, as there is already tight integration between SharePoint and Meridio. The combined product would immediately move into the *Perform* category, although we would be wary of placing it in the *Outperform* category immediately as there would be some degree of integration to bundle the two products as a single solution.

By this stage we believe that Oracle will have become firmly committed to ECM and will have entered this space fully through acquisition. As a consequence it will have moved up into the *Perform* category.

Other entrants are likely to be storage vendors. EMC has led the way with its acquisition of Documentum, and we believe that it has started a trend in vertical integration that will see other storage vendors acquiring ECM vendors to augment their Information Lifecycle Management (ILM) solutions.

Of the other vendors, Hyperwave, Interwoven, TOWER Software, Vignette, and Hummingbird R/KYV will continue to perform well, although some of these may have merged with other vendors to strengthen their positions or been acquired by one of the new entrants to the market. We are, however, confident that the technology of all of these products will continue to be developed and supported in the medium to long term.

Stellent will have established its DRM credentials, and we see it moving up into the *Perform* category having fully integrated its Optika acquisition. This leaves Diagonal and Meridio in the *Under-perform* category, although if Microsoft was to acquire Meridio, this would immediately push the combined functionality into the top reaches of the *Perform* category, due in the main to the extensive functionality of Meridio.

SECTION 7: Comparisons

Butler Group
Analysis without compromise

7.1 SOLUTION COMPARISONS

In this section of the Report we compare, contrast, and comment on the products and strategies put forward by the vendors whose products we have reviewed. The Butler Group Document and Records Management Features Matrix, presented in Section 6 of this Report, was designed to highlight and focus upon those areas which we felt represented the most important aspects of Document and Records Management (DRM). However, the relative positioning of vendors in the Butler Group Document and Records Management Market Lifecycle Ratings table represents much more than just putting a 'tick in a box', as it also incorporates our analysis of these fundamental elements and the degree to which each solution provides functionality in those areas. We also recognise value-added services and truly innovative features in our analysis, and give due credit to those vendor solutions which appear to address real business and IT challenges.

In addition to the objective assessment of the solutions presented to us, other more subjective but equally important criteria, such as market strategies, were taken into account when deciding the Butler Group Document and Records Management Market Lifecycle Ratings; we evaluated each vendor's go-to-market strategy and took into account the opportunities presented by their chosen target sectors. Where practical, the scope and scalability of each solution was assessed along with its price and procurement model; we also considered each vendor's particular route-to-market in order to determine the likelihood of it reaching predicted sales targets. When it came to analysing business partnerships and technology relationships, quality as well as quantity was kept in mind, as not every vendor can have a truly 'special' relationship with vendors such as Microsoft. Future product plans were considered on merit, but only those due for immanent release were given significant weighting.

In common with the information management market in general, the products and technologies analysed in this Report address DRM requirements in a variety of ways, and this in turn provides us with a clear indication that organisations are themselves approaching this topic from different directions: document imaging and workflow, Business Process Automation (BPA), compliance, and team collaboration to name but a few. We have therefore tried to take a broad view in terms of the business scenarios addressed by vendor solutions, and would therefore advise organisations to consider a solutions applicability against a range of business requirements, as what might be right for the organisation's Sales and Marketing department might not be right for the Service department whose engineers have only limited connectivity.

A point to note here is that although this particular software sector is dominated by several big-name Enterprise Content Management (ECM) vendors, we found that smaller vendors were more than capable of giving these software giants a good run for their money – a strong indication that size is not everything where DRM is concerned.

The vendors and products included in this Report are:

- **Diagonal Solutions** – Wisdom.
- **EMC Documentum** – Documentum 5.
- **Fabasoft** – Fabasoft eGov-Suite Version 6.
- **FileNet** – FileNet Records Manager.
- **Hummingbird** – Hummingbird Enterprise Version 5.1.05.
- **Hummingbird (Valid Information Systems)** – R/KYV Version v9.1.
- **Hyperwave** – eKnowledge Suite and eRecords Suite.
- **IBM** – DB2 Document Manager, DB2 Records Manager.
- **Interwoven** – EDMS Suite.
- **Meridio** – Meridio 4.2
- **Open Text** – Livelink Enterprise Suite 9.5.
- **Stellent** – Stellent Content Management Version 7.2.
- **TOWER Software** – TRIM Context.
- **Vignette** – Vignette Records & Documents Release 4.4.

As can be seen from the vendor profile included at the end of every Technology Audit in Section 8, the selection of vendors presented in this Report includes established players with strong Document Management (DM) and Records Management (RM) backgrounds through to vendors who have entered this arena from the Web Content Management (WCM) field. Although Butler Group has concentrated on vendors which are able to offer complete DRM solutions for this Report, vendors with complementary or point solutions have been included in Section 9 – Vendor Profiles. Butler Group believes that it is important to mention these, as many of the vendors listed above make use of integrations with the applications and solutions in order to extend their own offerings.

These vendors and products have been purposefully selected in order to provide a balanced view of the DRM market as we see it. The list represents a mix of differing approaches to DRM as well as a variety of technology platforms.

Within this selection we offer our opinion on each solution in order to provide a clear picture of where each vendor is positioned in the market, and our analysis of their strategies, methodologies, and solutions, outlining where we feel they are going right or wrong.

Diagonal Solutions

Wisdom is an integrated DRM solution from Diagonal Solutions – a wholly owned subsidiary of Morse plc, and now one of the largest IT services companies in the UK with revenues of approximately £400 million. Headquartered in Leeds and employing 60 people, Diagonal Solutions moved into the RM market in 1986 and over the years has developed its offering to encompass the requirements of organisations seeking to control documents produced by standard desktop authoring packages and e-mail systems.

Diagonal's target market is predominately the public sector and its sub-sectors, and the company already has significant experience in developing and delivering solutions to meet the specific requirements of this sector – The Freedom Of Information (FOI) Act 2000, for example. However, whilst Diagonal has undoubtedly focused its solutions strategy on the public sector, it also recognises the value that Wisdom can bring to other market segments, especially those with a need to address compliance issues. Diagonal has a clear view of how Wisdom can be used to address Basel II, Sarbanes-Oxley, and the Financial Services and Markets Act, and is now starting to extend its reach and range into these new areas.

The 'sweet spot' for Diagonal's solution at present is anything between 200 and 5,000 users. The company is currently developing its partner channel in order to target specific vertical markets, and is also cognisant of the fact that very large projects are likely to require partnerships with Systems Integrators (SIs) and IT delivery organisations. The recent acquisition of Diagonal plc by Morse plc will, in Butler Group's opinion, provide the company with the confidence and backing required to take-on large enterprise DRM projects.

Key clients for the company include: The Coal Authority – a departmental deployment of Wisdom to 300 users, and the first authority to fully meet the UK Government's target for the management of paper and electronic records; the Teacher Training Agency – a 400-user, organisation-wide deployment; Pesticides Services Directorate; Health Development Agency; National Library of Wales; and several other UK Government Agencies.

Primary competitors for Diagonal are Meridio, Valid Information Systems (now owned by Hummingbird), Open Text, and TOWER Software. In comparison with some of the ECM vendors now focusing on the UK public sector Diagonal is a relatively small firm. However, we believe that by maintaining focus and developing its partnership strategy the company can continue to compete with the largest of ECM vendors in its target market.

The pricing model for Wisdom is refreshingly transparent and one that is priced about right for enterprise-wide deployment. While some analysts might think that Diagonal has set its prices too low, we believe that other vendors appear to be pricing their products too high. In this ultra-competitive market, basic DRM functionality must be priced at a palatable entry point if large organisations are to even consider deploying the technology company-wide.

Unlike some vendors that keep customers at arms length, Diagonal's services bring them in direct contact with end-user organisations. The company has significant expertise in the areas of Content Management, Knowledge Management, electronic forms consultancy, content syndication, Business Process Management (BPM), e-business projects, and technology consultancy, and therefore has a close-up view of the challenges facing organisations today. While this hands-on approach to delivering DRM solutions could be considered a restrictive practice in terms of business development, we believe it will ideally suit those organisations that demand vendor involvement in high-profile projects.

EMC Documentum

As part of its ECM platform, EMC Documentum delivers a DRM solution which is sold vertically and horizontally to most industry and business sectors. As a market leader with a well-established brand, the company usually enjoys a head start over its major competitors; however, the perceived high cost of its solutions is likely to dissuade smaller companies from considering the company's offerings and is also likely to prevent enterprise-wide deployment in some less cash-rich sectors.

In terms of functionality, the company's solution provides a much more complete solution than many of its competitors – especially when considered as part of an overall ECM solution – and generally speaking the company is doing a good job in communicating its product and solutions to the market. Butler Group believes that for organisations looking for the level of functionality provided by Documentum 5, the premium price is probably justified. However, if Microsoft, IBM, or even Oracle decides to make DRM a commodity solution, then EMC Documentum may well have to re-think its product pricing strategy.

Of the two acquisitions EMC made in 2003, Documentum was by far the most important (Legato being the other), as to some extent it was the last significant piece in the jigsaw of the company's Information Lifecycle Management (ILM) strategy. EMC continues to bring new offerings to market, many of which compliment its DRM solution. For example, in July 2004 the company announced EMC Documentum Content Storage Services, a significant advancement designed to help organisations derive higher levels of value from their information capital.

EMC Documentum ApplicationXtender, launched in November 2004, finally integrates the company's RM offering with its existing suite of document imaging, DM, Computer Output to Laser Disk (COLD) report management, and workflow services, thereby enabling those organisations which operate in highly regulated and controlled business environments to implement trusted RM practices.

The EMC Documentum BPM solution, announced in June 2004, is a good example of how well the company brings new solutions to market. It takes existing products and combines them with new ones to deliver an offering that immediately finds favour with key constituencies within its customer base. The company's BPM solution consists of new products, including Documentum Business Process Manager, Documentum Business Process Services, Documentum Forms Builder, and the latest version of Documentum's enterprise collaboration solution – Documentum eRoom.

As far as DRM is concerned, the one remaining hurdle the company has yet to clear is approval from The National Archives (TNA). Once EMC Documentum's RM solution has received this approval, Butler Group expects to see the company's engagement with public sector bodies increase significantly, as it already has routes to this market through the channel, partners, and SIs.

As a company, EMC Corporation reported net income of US$496 million in 2003 after net losses in 2002 and 2001. The company has a market value of nearly US$35 billion, and currently employs in excess of 17,400 people with over 100 sales offices and distribution partners in more than 50 countries. With its well thought-out ILM strategy, EMC currently dominates the intellectual high ground in the information management market, and continues to develop new and compelling solutions for organisations across all sectors.

Fabasoft

The Fabasoft eGov-Suite consists of a core product designed to match European public sector requirements plus certified country-specific modules accredited according to national guidelines. With some 10,000 licenses sold and over ten years experience in the public administration arena throughout Europe, Fabasoft has proven expertise and is well-established within the field of e-Government.

Fabasoft eGov-Suite combines Electronic Document Management (EDM), Electronic Content Management, RM, and workflow to develop DRM solutions for public sector organisations. Fabasoft eGov-Suite Version 6 was released in December 2004, and is designed to be a highly flexible and scalable environment for developing e?Government business applications.

Highly scalable, with comprehensive functionality, and impressive integration tools, it is ideally placed to support a wide range of e-Government projects. The RM functionality conforms to three national standards, including UK TNA 2002, and the EU MoReq standard. It is highly agnostic of other applications, meaning it is ideally suited to extract value out of the information that currently resides in legacy systems. Fabasoft's key differentiators are its 100% public sector focus, and that pricing of the software is based only on the number of registered users irrespective of platform.

Fabasoft reports that deployments of eGov-Suite have tended to be on a departmental basis, although this is normally after the product has been selected as the strategic solution for the whole organisation. The target market for eGov-Suite 6 is any public sector organisation with more than 50 employees, although installations to date have ranged from 300 to 10,000 seats. Fabasoft has a direct sales model exploiting the domain expertise of its staff, but will work with other partners as required by its customers.

Apart from the fact that it is only currently available on the Microsoft Windows platform (Linux in 2005), there is nothing to dislike about the product. It is just a pity that the company only works with the public sector, because this is a best-in-class product.

The key drivers seen by Fabasoft are the government targets in all countries to store and manage records electronically, and to reduce costs. There is also the increased level of compliance-focused legislation and regulation, and particularly in the UK the full introduction of the FOI Act 2000, in January 2005. The company uses its deep understanding of public sector operations and culture as a key differentiator, and recognises that change management is as important to the success of an Electronic Document and Records Management (EDRM) deployment as the technology itself.

Started in 1988, Fabasoft has its headquarters in Vienna, Austria, with further offices in Germany and Switzerland, and a UK office in Bristol. Publicly quoted, Fabasoft is listed on the Deutsche Boerse in Frankfurt, Germany. The majority of Fabasoft's revenues in 2003/2004 were generated in Austria, but the medium-term objective is that only 50% will come from the home country. The company's commitment to the public sector is demonstrated in its Austrian consultants attending the Austrian Civil Service College and undertaking examination; this, Fabasoft believes, gives its staff a deeper understanding of the cultural and organisational issues that are faced in a public sector deployment.

FileNet

FileNet's DM functionality is contained within its Content Management module. Both this and the RM module are components of FileNet's P8 platform, which enables the company to offer robust and highly functional ECM and BPM solutions. A key differentiator between FileNet and some of its competitors is the presence of its full-blown BPM solution, which allows business analysts to create complex processes to manage documents and records.

FileNet P8 is targeted at organisations across the world in a wide range of industries, including Financial Services, Insurance, Government, Telecommunications, Utilities, and Manufacturing, and although FileNet's approach is generally horizontal, it has many partners with domain expertise that have developed vertical solutions utilising P8. The type of organisation typically implementing P8 has revenues of US$500 million and above, and this is undoubtedly one reason why the company sees its key market opportunities coming from the Financial Services, Insurance, and Government sectors.

FileNet enjoys strong relationships with partners that support and implement its products. Top-tier partners such as Capgemini, Accenture, LogicaCMG, Atos Origin, Getronics, and Keane provide FileNet with an extremely valuable and competent route to market. According to FileNet, over 4,000 organisations have taken advantage of the company's solutions and services; and so from this position of strength Butler Group expects FileNet will grow its already sizeable customer base even more over the next two years, as we believe it has one of the strongest portfolios of products and solutions currently on the market.

In September 2004, FileNet announced support for Microsoft Web Services Enhancements (WSE) 2.0 – an add-on to Microsoft Visual Studio .NET and the Microsoft .NET Framework which provides developers with the latest advanced Web services capabilities. By supporting XML Web services and Visual Studio .NET in its P8 platform, FileNet is moving towards a Service Oriented Architecture (SOA), thereby enabling organisations to leverage best-in-class software services through open industry standards, and in the process simplifying application development and integration. This announcement clearly demonstrates FileNet's understanding of the challenges faced by organisations when trying to integrate disparate enterprise applications, and will undoubtedly help the company to maintain its position in the process-centric DRM arena.

FileNet Corporation was founded in 1982, and is headquartered in Costa Mesa, California, US, with offices across the world. It employs approximately 1,800 people and operates in 90 countries. In 2003 the company reported net income of US$10.9 million on total revenue of US$3634.5 million, and currently has a market value of US$1 billion – making FileNet one of the best performing companies in this entire software sector.

As a vendor with a strong ECM and BPM product portfolio, Butler Group believes that FileNet is in a strong position to increase its market share in the competitive area of DRM. Although there are no guarantees that any of the major ECM-centric vendors will survive as independent entities in the long-term, FileNet, given its size and status as a leading ECM vendor, is one of the more likely vendors to be around in five years time. Should it achieve TNA 2002 approval, the company will find new market opportunities emerging from within the public sector – a market it is well positioned to exploit. Butler Group believes that with its strong combination of ECM and BPM solutions, FileNet should always be considered for any process-heavy DRM requirements.

Hummingbird

Hummingbird Enterprise is an extensive ECM solution that includes Content Management (CM), DM, RM, e-mail management, Knowledge Management (KM), enterprise workflow, collaboration, Instant Messaging (IM), mobility, query and reporting, data integration, and a portal framework. Founded in 1984, initially as a consulting firm specialising in mainframe communications, Hummingbird is now one of the software industries biggest ECM vendors, reporting total revenues of US$220.2 million for 2004 and helped along by the company's strong performance in its core legal and government market segments.

Hummingbird Enterprise is targeted at both vertical and horizontal markets. Solutions such as contract management, compliance, and GIS linked content are relevant across a number of different vertical markets. The company also has extensive vertical expertise in legal and government sectors, and is making inroads into the financial sector. In general, Hummingbird Enterprise is deployed in medium and larger organisations, although the company does have smaller customers.

In line with most ECM vendors, Hummingbird sees its key market opportunities coming from Content Lifecycle Management, as it has a full suite of offerings to manage information from creation to destruction. Butler Group feels that another major opportunity for Hummingbird in the coming months will be compliance, as more and more organisations are required to retain information for longer periods, necessitating RM functionality.

Hummingbird's go-to-market strategy is evolving through a shift from selling point solutions to leveraging its integrated ECM platform, aligning its own direct client engagement model with that of its strategic partners.

Hummingbird clearly competes with other ECM vendors. However, because most of its competitors originated from different areas of the ECM spectrum, there is still an opportunity for differentiation in this increasingly crowded software sector. If one analyses the market, one readily finds WCM vendors that have acquired DM and RM vendors to supplement their own offerings, storage vendors that have acquired ECM vendors, infrastructure vendors that have moved into WCM and collaboration, and the pure-play ECM vendors, which is the area that Hummingbird feels that it plays in.

Hummingbird has approximately 8,000 customers worldwide using Hummingbird Enterprise, with over two million users. The company has about 33,000 customers across all of its product lines. In terms of services, Hummingbird can be deployed out-of-the-box with very little customisation, so services are generally focused on revising business processes and end-user training.

Hummingbird Enterprise is not TNA 2002 approved. However, the product is DoD 5015.2 certified. Hummingbird recently acquired another product – R/KYV from Valid Information Systems – that is specifically positioned for government requirements and is TNA 2002 approved.

Hummingbird (Valid Information Systems)

Recently acquired by Hummingbird, R/KYV (pronounced 'archive') is a tightly-integrated suite of modules designed to deliver a DRM solution that addresses government-defined standards for RM. A complementary offering to Hummingbird's ESM offering, R/KYV is a vertically-focused solution targeted primarily at the UK Government sector. R/KYV's RM functionality is certified to the TNA 2002 standard and also meets the Model Requirements for the Management of Electronic Records (MoReq) standard prepared for the European Commission.

The functionality afforded by this product is, however, horizontal in application. It is designed for medium to large organisations, and specifically targets Central Government, Local Government, Financial Services, Justice, and Housing. The product is available directly from Hummingbird or via its partners, and is offered in two versions: Workgroup Edition (for 75 users or less) and Enterprise Edition (for 75 users or more).

The key technology partnerships for R/KYV v9.1 are with Oracle and HP. Other business partners include those SIs who also focus on government projects, for example: ATOS Origin; CAPITA; IBM; ITNET; and LogicaCMG. A complete product set, with extensive input/output modules and a range of user interface tools, R/KYV is capable of seamless integration with 'office' suites and existing e-mail solutions. This solution is designed to sit alongside existing systems, and is most appropriate for medium to large public sector organisations. R/KYV also offers out-of-the-box solutions, which will enable public sector organisations to tackle issues arising from the UK's FOI Act 2000 and the Data Protection Act 1998.

Hyperwave

The Hyperwave collaborative ECM solution integrates many disparate yet related content-centric functions, such as DM, RM, asynchronous and synchronous collaboration, information discovery and retrieval, and e-learning. The company's well-featured DRM solution is comprised of Hyperwave eKnowledge Suite (eKS) and Hyperwave eRecords Suite (eRS). eRS was approved against the 2002 Functional Requirements of TNA for Document and Records Management Systems (DRMS) in May 2004.

As an emerging ECM vendor, Hyperwave offers an excellent solution set and now appears to be dealing effectively with sales and marketing activities while also building strong relationships with partners such as IT Net and Bull Information Systems. The company sees Open Text as its primary competitor, but considers that its home-grown approach to application development has significant advantages over the 'acquire-and-integrate' approach pursued by a number of other vendors presented in this Report, in that more time is spent developing and extending existing product functionality than integrating often overlapping technologies and software development teams. While we would be inclined to agree with this argument to some extent, there does appear to be some evidence from a number of the bigger ECM vendors to suggest that fairly rapid integration at a technical level can be achieved, even if the integration of sales and marketing teams takes a little longer.

Hyperwave has strong academic roots, with much of its technology being originally developed at the Graz University of Technology. Even now the institution acts as a source of technical expertise for Hyperwave's research and development team, and this means that Hyperwave solutions are based on strong ideas and robust technology, which have been carefully developed outside of the usual commercial and market pressures, factors which often contribute to other products being rushed to market before they are ready.

Hyperwave's DRM solution is one of the most flexible that Butler Group has come across in terms of supported applications platforms: Microsoft Windows, Linux, and Solaris are all supported. Hyperwave targets its solutions at a wide range of markets, although it does aim at businesses with more than 500 users. The scalability and performance of Hyperwave are well proven, and global deployments covering many thousands of users are not uncommon.

Hyperwave is in the process of devolving its vertical focus throughout the organisation to allow key markets to be approached directly. The company's sales model is still primarily focused on direct sales. However, business partnerships have been formed with vendors such as HP, Bull Information Systems, ITNET, and Axcelia to support indirect sales. We feel that such a strategy will benefit Hyperwave significantly during a time of economic uncertainty and increased competition.

Hyperwave remains privately held and has grown through investment and technical development. The company is headquartered in Munich, Germany, and currently employs 168 people, with sales offices in the UK and the USA (Boston). Hyperwave targets other European countries such as France, Spain, Italy, and Greece via reseller partners, and plans to expand over the coming months in order to target the Asian market (with full language support) and the Nordic market. In comparison with other vendors presented in this Report, Hyperwave appears to take a less parochial view of the market. However, this does not appear to prevent the company from developing solutions which directly target specific institutions. The company's solution set for UK local authorities proves the point, as its solutions are in use within a number of UK local authorities and local government organisations, including Bedford Borough Council, Hertfordshire County Council, Luton Borough Council, the Royal Borough of Windsor and Maidenhead, and the City of Edinburgh.

IBM

IBM's DRM offering is primarily comprised of DB2 Document Manager and DB2 Records Manager. DB2 Document Manager is itself a component of DB2 Content Manager – a secure platform for the management of the complete lifecycle of business documents; while DB2 Records Manager is an engine that adds record retention and lifecycle management to business processes and repositories. DB2 Content Manager is IBM's core repository for all unstructured business information, and supports a broad portfolio of products, which span the IBM software brands DB2, Lotus, WebSphere, and Tivoli.

IBM's Content Management software is targeted at both horizontal and vertical markets, and is designed to deliver DRM technologies in the form of software solutions to help organisations derive extra business value from their information – a description very similar to EMC's definition of ILM.

IBM offers a significant number of products and solutions under the category of Content Management, and getting to grips with the entire range can be a bit of a challenge. Of immediate relevance to DRM are: DB2 Common Store solutions, which enable organisations to offload and archive files from Microsoft Exchange, Lotus Domino, and SAP; IBM Lotus Domino Document Manager (previously known as Lotus Domino.Doc), the company's out-of-the-box groupware solution; and Lotus Workplace Documents – the newest product for IBM Workplace, IBM's relatively new 'smart client' software. In particular, we expect to see IBM's investment in smart client technology pay dividends as Workplace becomes more widely adopted – that is assuming of course that Microsoft does not get there first with its very own smart client initiative.

IBM's traditional focus has always been large enterprises across a range of targeted industries. However, the IBM Software Group is now also focusing on growing its share of the Small and Medium Business (SMB) market segment. In order to achieve this IBM has enhanced its products to provide ease-of-deployment and ease-of-use, while also addressing product pricing issues. While DB2 Document Manager is sold actively across large and SMB market segments, DB2 Records Manager is predominantly sold into large enterprises, but is expected to cascade down into the SMB market over time.

The key market opportunity for IBM is always likely to remain with large, multinational corporations; however, the long sales-cycle often associated with big framework deals can tie-up significant resources, and not even IBM has a limitless supply of DRM consultants. For this reason it is very important that IBM maintains an interested and active channel strategy – keeping the 20,000 companies that sell IBM software and the 90,000 that engage in the PartnerWorld programme is not always going to be an easy thing to do in the fickle IT industry.

Revenues for the financial year ending 2003 were US$89.1 billion, with software representing around 16% of that figure (US$14.2 billion). Even if the company's ECM business was to only represent half of this amount, for example US$7 billion, it would still be more than its nearest competitor (EMC Corporation). The only companies with any immediate relevance to ECM (and DRM in particular) that come close to IBM are of course Microsoft (US$36.8 billion) and Oracle (US$10.1 billion) – neither of which have fully committed to this particular software market.

Interwoven

EDMS Suite is a highly collaborative environment for DRM with a particular large user-base in the legal sector. Acquired through the merger of Interwoven and iManage in 2003, EDMS Suite is more than just a J2EE version of a legacy product line, it is ostensibly a next-generation DM solution with extensive collaboration facilities.

EDMS Suite is a horizontal solution, and Interwoven has a wide range of medium to large-sized organisations currently undertaking ad hoc DM projects with the product. EDMS Suite is marketed directly by Interwoven and through its channel partners. However, a key market for EDMS Suite is now likely to be Interwoven's strong Content Management customer-base. Interwoven's customers appear to be happy to invest in the complete Interwoven ECM platform – a trend many ECM vendors are hoping to see continue well beyond 2005.

In August 2004, Interwoven announced the acquisition of the assets of RM software company Software Intelligence. This comprehensive RM product has now been re-branded Interwoven Records Manager and is targeted at legal, accounting, and other users of WorkSite. Interwoven Records Manager is fully integrated with WorkSite, and provides the management of paper, electronic documents, and e-mail in a single solution, thereby providing a matter-centric collaboration solution.

The RM functions of EDMS Suite have been designed to meet the DoD 5015.2 standard, and Interwoven is currently in the queue for approval – expected some time in Q1 2005. It does not, at this stage, intend to apply for approval from TNA – something Butler Group finds a little strange to learn given that all-important 'tick-in-the-box'. However, it would appear that TNA approval is not the be-all and end-all, as according to Interwoven the company already has a number of public sector customers interested in its DRM solution.

As an ECM vendor, Interwoven offers a compelling set of products and technologies covering Collaborative DM, Content Distribution, Content Integration, Content Intelligence, Content Management, Digital Asset Management, E-mail Management, and RM. The company also offers Developer Suite and Enterprise Application Connector Suite, providing SIs and corporate developers with an opportunity to integrate Interwoven's extensive ECM functionality into line-of-business applications. From this rich portfolio of offerings, and ably supported by a number of partners, Interwoven is able to present a broad range of industry-specific solutions covering: Accounting, Education, Financial Services, Government, Industry/Manufacturing, Legal, and Telecom.

Founded in 1995 and headquartered in Sunnyvale, California, US, and with offices located in other US states, Canada, Mexico, Brazil, and the UK, Interwoven has over 700 employees, approximately 75 of whom are based in Europe.

For the nine months ending 30 September 2004, Interwoven reported total revenues of US$117.2 million, an increase of 50% from the US$77.9 million for the same period last year. Net loss for the nine months ending 30 September 2004 was US$25.2 million. The company currently has a market value of approximately US$433 million.

Meridio

Meridio was founded as a company in its own right in 2001, following the merger of two parts of different companies: the Products Division of UK-based software house Kainos Software Limited, and the Document Management and Process Division of Teamware Group – a Fujitsu subsidiary. A Microsoft .NET-based DRM solution, Meridio 4 is currently experiencing a great deal of success in the UK public sector, as it is currently one of only a few vendors to meet TNA 2002 functional requirements for electronic RM. Being an approved system is a strong competitive advantage for Meridio, and this has been further enhanced by the fact that the company has recently helped Microsoft to achieve TNA approval for SharePoint Portal Server with Meridio – a feat which is certain to provide Meridio with even more opportunities in 2005.

The target market for Meridio is any organisation specifically requiring DRM functionality. At present the major driver for DRM within the UK public sector is compliance with the FOI Act 2000 and the Data Protection Act 1998; whereas in the commercial sector it tends more towards Sarbanes-Oxley, Basel II, and general corporate governance. However, compliance is not the only driver, as a great deal of knowledge is contained in information within the organisation, and so DM and RM together are an effective way of retaining this knowledge and making it available to users whilst providing significant organisational benefits and potential competitive advantage.

The Meridio DRM solution has been designed to provide the closest possible integration with Microsoft's information/knowledge worker solutions, i.e. Microsoft Office System and SharePoint Portal Server – an approach that has rapidly brought Meridio to the forefront of the DRM market, with the vendor growing its business by 754% over the past three years.

Meridio, Microsoft, and HP have also partnered to produce a solution geared towards the UK's FOI Act, which comes into full-force in January 2005. Meridio is also the basis of Microsoft's Sarbanes-Oxley Accelerator – a solution that has been designed to aid corporate financial compliance by helping address the internal control, documentation, monitoring, and testing requirements of sections 404 and 302 of the Sarbanes-Oxley Act. Again this solution utilises SharePoint Portal Server as the underlying collaboration tool, along with software components, templates, and architectural guidance to help Microsoft Solution Providers develop compliance solutions for their customers.

Meridio is a privately owned company headquartered in Europe with sales offices in North America and Asia-Pacific. The company is steadily extending its reach globally by working with a wide network of SI and software licensing partners, and appears to be applying a similar sales and marketing strategy to that of Microsoft itself.

Perhaps surprisingly for such a young company, Meridio has several strong partnerships in place for both selling and integrating its product. There are business partnerships with Capgemini, Deloittes.NET, Fujitsu Services Limited, Hewlett-Packard, Kainos, Logica UK Ltd, and Softbank. The company has also established strong technology partnerships with Convera (search and retrieval), Kofax (document imaging), Microsoft, and SourceCode Technology Holdings (K2 workflow).

Butler Group regards Meridio worthy of short-listing for any organisation in the public or private sector that has a requirement for a cost-effective, TNA-approved DRM solution – especially if the organisation has a strong predisposition towards Microsoft products and technologies.

Open Text

Open Text's DRM solutions are components of its Livelink 9.5 product. There are two versions of the suite: Livelink 9.5 Enterprise Suite is the generic version, and Livelink 9.5 Suite is TNA 2002 approved. Livelink comprises a suite of applications (DM, RM, workflow, collaboration, and search and retrieval) which provide all of the components required to implement ECM. These components or modules are tightly integrated and provide one of the most complete collaborative and content management offerings on the market.

Compared with similar offerings on the market, Open Text can appear rather daunting for new users due to the breadth and depth of functionality offered, and this can initially result in confusion and frustration as users unfamiliar with the solution struggle to grasp how to achieve specific business goals. However, with adequate training Livelink can be quickly tamed and then put to work in a wide variety of document-centric business scenarios.

Livelink is targeted both at horizontal and vertical markets. As a generic product, Open Text has traditionally offered its solution across all industries, but is now developing applications to address the business needs of specific market verticals. The company has recruited teams dedicated to the needs of specific vertical markets such as pharmaceutical, construction, financial services, government, and energy, and Butler Group believes that the company is better positioned than some of its competitors to exploit a burgeoning market. The key to Open Text's future competitiveness will undoubtedly lie in its ability to bring together its recent acquisitions – something software vendors often struggle to do effectively and efficiently. The company's acquisitions have all been made from a position of financial strength, and so we expect it will be business as usual in 2005 – a sentiment that appears to be echoed in the company's stock price.

In terms of product strategy, a rage of line-of-business applications are offered to address specific sector requirements, including: Livelink for Learning Management, Livelink for Corporate Governance, Livelink Virtualteams, Livelink for Program Management, Livelink for Regulated Documents, and Livelink for Clinical. In terms of size, Open Text targets Fortune 2000 companies, and so will have to continue competing hard to win business over the other enterprise-scale vendors reviewed in this Report.

Open Text is well positioned to drive business through its many partners – Siemens Business Services, Deloitte Consulting, BearingPoint, Stonebridge Technologies, and Burke Consortium – and also continues to invest in strategic technology partnerships with vendors such as Adobe, BEA, HP, Microsoft, Oracle, SAP, and Sun. In Butler Group's opinion the company possesses a clear view of enterprise information management requirements, as demonstrated by its encouragement of partners to build solutions that address specific business processes requirements such as document capture, CAD file viewing, and mark-up. This, we believe, will grow in importance in the coming years, as organisations become more comfortable with DRM technology.

The main threat to Open Text's market share is likely to come from the intense competition in the ECM market space, and also from specialist DRM vendors. Butler Group believes that over the next few years the ECM market space will continue to consolidate with the eventual result being that there will be a handful of vendors left, and the majority of the smaller niche players will have been swallowed up by vendors from other parts of the business software spectrum. With a reported net income of over US$23 million in 2003 on total revenues of US$291 million, and a market value of approximately US$875 million, Open Text is one of the few big vendors in this sector to have reported positive net income for the last four years, and is one of the primary reasons why we believe the company is likely to survive beyond the current market consolidation process.

Stellent

Universal Content Management is Stellent's primary software product, consisting of one server that delivers WCM, DM, RM, Digital Asset Management, and Collaboration. As one might expect from a company with such a strong WCM offering, Stellent believes the trend towards companies using the Web for communicating and publishing business information will continue, and so the company's solution strategy maps closely to this.

Stellent is fully aware of the continuing consolidation within the ECM software sector and the desire by most organisations to limit the number of software vendors they engage with, hence the development of its own RM technology following Documentum's acquisition of TrueArc – its former RM integration partner – in December 2002. Stellent Records Management is now maturing into a very competent product, and recently received US DoD 5015.2 – STD Chapter 4 certification (the company plans to submit the product for TNA approval in 2005). This, together with the acquisition of Optika, has undoubtedly enhanced the company's capabilities in the areas of document imaging, BPM, and compliance.

The company's platform is well suited to heterogeneous computing environments, and is supported on Windows 2000/2003, Solaris, HP-UX, AIX, Linux, SQL 2000, Oracle, DB2, and Sybase – a clear indication of the company's commitment to choice. Another aspect of the Stellent platform that sets it apart from many other DRM solutions is its SOA. Consisting of around 600 services, these well-documented system functions can be used by SIs and corporate developers to integrate the company's various products and solutions with line-of-business applications using technologies such as J2EE, Microsoft's Component Object Model (COM), and Web services. Clearly for organisations seeking a content-centric integration platform, Stellent's solution takes some beating.

Stellent continues to invest in a broad set of content management offerings, and the acquisition of Ancept and Optika will ensure that the company's solutions can manage paper-based information just as well as electronic information. Common applications powered by Stellent technology include corporate Intranets, accounts payable/receivable processes, claims processing, public Web sites, call centres and self-help Web sites, compliance processes, and dealer Extranets as well as enterprise-wide content management initiatives. Currently, Stellent's customers use its software to organise and maintain the electronic business information created by internal and external sources, using a broad range of common software applications, such as Microsoft Office, AutoDesk AutoCAD, and Sun StarOffice.

Stellent continues to invest heavily in Research and Development, having spent an average of 20% of total revenues on this over the last three years. In fiscal year 2004 Stellent derived 72% of its revenue from the US market and the rest primarily from the European market. In March 2004 Stellent reported total revenues of US$75.7 million – an increase of 16% on the previous year – and currently has a market value of US$217.1 million.

TOWER Software

TRIM Context is a well-established DRM solution from TOWER Software – an Australian firm with 20 years experience in the provision of RM systems to government and regulated industries. Unlike some of the solutions presented in this Report, the DM and RM functionality found in TRIM are fully integrated within a single application, thereby providing the end-user with a consistent approach to the management of electronic documents, electronic corporate records, and physical records.

An 'out-of-the-box' solution for DRM, TRIM is capable of being deployed very rapidly, with the UK's National Maritime Museum recently deploying TRIM to 200 users within 90 days. Along with a number of solutions evaluated for this Report TRIM Context is a Microsoft Windows-based solution, although more database options are supported than some of the other vendors reviewed provide. These are SQL Server, Oracle, IBM, and Sybase. Although TRIM Context runs only on the Microsoft server platform, the solution's scalability is well proven, with 5,000 seats deployed at the Department of Trade and Industry (DTI), and a 40,000 user system currently being deployed by the US Navy as part of a corporate 360,000-seat rollout.

In line with Butler Group's own view of ECM, TOWER Software believes that DRM should form the backbone of an ECM strategy. At this juncture TOWER Software's offering includes: DM; RM; e-mail management; workflow; archival management; space management (for physical records); and barcode tracking. The company argues that the other elements of ECM (WCM, Content Management, KM, and Digital Asset Management) can easily be integrated with TRIM to deliver a 'best-of-breed' solution.

Target markets for TOWER Software continue to be Federal, State, and Local Government across North America, Europe, and Asia-Pacific. The company's DRM solution is well-suited to regulated industries, and so pharmaceutical, utilities, and banking sectors are becoming increasingly important to TOWER Software's business mix.

The company continues to occupy a very strong position within the public sector and has won a significant number of high-profile/very large deals with government agencies in recent months. TOWER Software's "ideal" customer would typically require in excess of 100 user licences. However, the company is more than amenable to doing business with firms smaller than this.

The company maintains a two-pronged approach to sales and marketing: with both direct-sales and partner-led deals equally important. The company continues to work a growing partner network, and to-date has developed relationships with companies such as BearingPoint, BT, Capgemini, EDS, Getronics (Netherlands), Microsoft, Unisys, and Software AG. A number of these relationships have come about as a result of big DRM roll-outs – a situation common to several DRM vendors, and one that Butler Group expects to continue for the foreseeable future.

Although TOWER Software is a well-established DRM vendor, winning new business continues to present its challenges, as large ECM vendors are now 'muscling-in' on DRM opportunities with the hope of picking up WCM, KM, and portal business later on. Key competitors for TOWER Software are: EMC Documentum, FileNet, Hummingbird/Valid Information Systems, Open Text, and IBM.

The company remains a privately held company, and has been profitable from inception. TOWER Software currently employs 120 staff in Australia, North America, and EMEA. The company has over 1,000 customers across 32 countries worldwide, and its core business activity is the provision and implementation of DRM Software. The company has contributed to the development of international standards and local standards in RM; sitting on a working group to develop AS4390 (the Australian standard for RM) which was a major influence for the ISO 15489 standard.

Vignette

Vignette Records & Documents (VRD) is a central component in Vignette's V7 ECM Suite, providing integrated Document, Records, and Case Management functionality.

The last couple of years or so has been a busy time for Vignette, as the company has made a number of acquisitions in order to strengthen and extend the functionality of its ECM Suite. These include OnDisplay (2000) for integration and aggregation capabilities; DataSage (2000) for analytics; Revenio (2002) for interaction management; Epicentric (2002) for portal services; Intraspect (2003) for collaboration and team tools; and the most recent acquisition of Tower Technology (March 2004) added DRM to the portfolio. In common with other vendors reviewed in this Report, Vignette has to now pull these strands together and presents a coherent and cohesive product set to an increasingly discerning market.

The company targets Global 2000 and Fortune 1000 companies with between 5,000 and 250,000 employees. The scalability of Vignette's product architecture makes it most suitable for providing high-volume solutions. Vignette continues to develop its own direct sales force and a strategic channel partner presence in the Americas, EMEA, and APAC. Partners include Accenture, BearingPoint, and EDS, with a reported 70% of sales being influenced by its integrator partners. The recently announced strategic alliance with Tata Consultancy Services (TCS – pioneers of the offshore delivery model for IT services) will allow both companies to jointly develop and market services and solutions. Also, TCS is now the preferred partner for migrating companies using older Vignette products onto V7 ECM – in Butler Group's opinion, a classic example of when to use an offshore IT services provider, and something we expect to see a lot more of in the years ahead.

Vignette has a target of two major and two minor releases of its products each year. However, the major priority for the company at the moment is to achieve TNA 2002 approval and increase the usability of Vignette Case Management. In 2005 the company also plans to allow for the federation of multiple VRD repositories and offer greater multi-site capabilities. In the longer-term, VRD will be integrated further with Vignette Content Management for WCM functionality.

Vignette's route-to-market continues to be focused on helping companies meet organisational compliance challenges, including DRM, process controls, and business productivity applications. Vignette Compliance and Corporate Governance solutions are intended to help organisations meet government regulations and to avoid sanctions or penalties while enhancing overall business efficiency. Building on the DRM technologies acquired with Tower Technology, Vignette now provides a series of solutions that are intended to help organisations more efficiently meet the audit and reporting requirements of regulations such as the Sarbanes-Oxley Act, the Financial Services Authority, and the Securities and Exchange Commission, while providing the data security and accessibility required by regulations and guidelines such as the Health Insurance Portability and Accountability Act of 1996 (HIPAA) and the Americans with Disabilities Act (ADA).

In March 2004, Vignette and Sun Microsystems announced plans to bring to market a joint collaboration solution to address the particular needs of the SME market. This initiative – based on Sun's internal implementation of the Vignette Business Workspaces collaboration solution – has been designed to deliver a packaged, pre-tested, integrated combination of products that leverage the Sun Java Enterprise System, the Java Desktop System, and Vignette Business Workspaces collaboration solution.

Vignette has approximately 900 employees of which nearly 200 are located in EMEA. In fiscal year ending December 2003, Vignette reported total revenues of US$148.3 million, and US$129.1 million for the nine months ending 30 September 2003 – an increase of approximately US$10 million on the previous year's figures. Vignette's market value currently stands at approximately US$370 million.

SECTION 8: Technology Audits

Butler Group
Analysis without compromise

DIAGONAL SOLUTIONS: Wisdom

Butler Group
Analysis without compromise

Diagonal Solutions Wisdom

Abstract

Wisdom is an integrated Document and Records Management system. A Microsoft-based solution, Wisdom can also be configured to deliver a comprehensive collaboration platform when deployed alongside Microsoft SharePoint Portal Server. Diagonal's focus on compliance and information legislation, combined with its long association with Records Management (RM) solutions, ideally positions the company to work with UK-based organisations that are currently facing significant challenges introduced by the Modernising Government agenda. Wisdom is currently one of only ten solutions that meets the revised functional requirements for electronic records management systems set by The National Archives, and is available either direct from the vendor or through partners. Although this solution is restricted to the Microsoft platform, we believe it to be a strong technical offering that is sufficiently featured to warrant close inspection by any organisation committed to good corporate governance.

KEY FINDINGS

- ✓ Approved by The National Archives.
- ✓ Extensive out-of-the-box features and functionality.
- *i* Add-on module to address Freedom Of Information Act.
- ✓ Elegant and functionally rich Web user interface.
- *i* Desktop client resembles Microsoft Outlook.
- ✗ Technology stack may be too restrictive for some.

Key: ✓ Product Strength ✗ Product Weakness *i* Point of Information

LOOK AHEAD

Diagonal Solutions is currently in the process of productising its Wisdom-based compliance solutions, and is also readying its e-mail archiving solution. TNA approval for Wisdom version 6 is expected early in 2005.

▶ FUNCTIONALITY

Product Analysis

Wisdom is an integrated Document and Records Management (DRM) solution from Diagonal Solutions. A Microsoft-based offering, Wisdom can also deliver a comprehensive collaboration platform when deployed alongside Microsoft SharePoint Portal Server. Through tight integration with Microsoft products and technologies, Wisdom addresses many of the issues and concerns that occupy the agendas of compliance officers and corporate information managers.

Diagonal's focus on compliance and information legislation, combined with its long association with Records Management (RM) solutions, ideally positions the company to work with UK-based organisations that are currently facing significant challenges introduced by the Modernising Government agenda.

At the time of writing Wisdom is one of only ten solutions that meets the revised functional requirements for electronic RM systems set by The National Archives (TNA) – the organisation formed in April 2003 through the bringing together of the Public Record Office and the Historical Manuscripts Commission.

Diagonal's keen focus on the UK public sector has culminated in the development of a module, which will help public sector bodies to meet their obligations under the Freedom of Information Act, Data Protection Act, and Environmental Information Regulations. This module is compliant with the Department of Constitutional Affairs specification for case tracking systems, and is delivered through Wisdom's workflow capabilities. In a market that is increasingly being dominated by large Enterprise Content Management (ECM) vendors, Butler Group believes that the vertical application of RM and Document Management (DM) functionality will ultimately differentiate vendors, and so from this perspective Diagonal Solutions is currently in a very strong position.

Written entirely in 100% managed code (C#), Wisdom is the first TNA approved system to exploit the Microsoft .NET architecture, and as a result this solution promises to deliver increased levels of performance and reliability.

Document Management

The first thing of note about Wisdom is the solution's ability to store documents in either a Microsoft SQL Server database or within the Windows NT File System (NTFS). This is somewhat novel within the DM market, as most solutions tend to favour one approach or the other, not both. The benefit of this architectural approach permits organisations to consider the pros and cons associated with each option, and to then implement the solution based upon their preferred option. Butler Group would currently advise most organisations to resist the temptation to go for the database approach – particularly if Enterprise Document Management is in mind; however, specific applications, where document and/or record volumes can be accurately estimated, may suit this implementation method.

On the server side, Wisdom implements a number of essential and useful services. First and foremost the Wisdom Document Service ensures that documents and records remain secure when stored with the server file system. Next, the Wisdom PDF Service allows documents submitted to the Wisdom Document Store to be rendered as PDF files, thereby ensuring access to documents from any terminal on which the Adobe Acrobat Reader is installed. The Wisdom Optical Character Recognition (OCR) Service provides Document Image Processing (DIP) capabilities, which enables the searching of scanned paper documents. DIP is something organisations tend to forget at the outset of a DRM project, as it is often thought that just because everything originates from some computer system or other, the only documents worth worrying about will already be in an electronic format. While this is partially true, many organisations – especially those dealing directly with the public – still receive a significant amount of paper-based correspondence, and so document imaging functionality will undoubtedly remain an important feature of DRM solutions for the foreseeable future.

Wisdom is well suited to geographically dispersed organisations or those with sites connected by relatively low bandwidth. By supporting a flexible, distributed architecture, repositories and the documents contained within them can be located 'closer' to the business units that access them.

Wisdom can manage electronic documents, electronic records, and physical assets. When deployed alongside Microsoft Content Management Server, Wisdom is also capable of managing Web content.

Diagonal's solution does lack a few features that are considered as nice-to-haves – such as document comparison and built-in redaction tools – but these can be integrated through either COM+ or Simple Object Access Protocol (SOAP) programming interfaces.

It has already been stated that the Wisdom document repository is seamlessly integrated with the record repository, and therefore acts as a direct feed to the record repository. Declaring a document as a record is achieved through a simple menu option presented alongside each document.

Records Management

As an integrated DRM solution, users of Wisdom can store documents in the repository and declare them as records directly. Retention periods for individual folders and records may be defined by allocating a retention policy from those defined by the organisation's Record Manager, and users with the appropriate privileges may create as many disposition schedules as are required to manage the company's records.

Wisdom has been approved by TNA and meets its 2002 functional requirements specification for the management of electronic records. As such, the functionality offered by this product is extensive. However, as is also the case with other approved RM products, Butler Group would expect businesses and organisations to only adopt those mandatory requirements which are specifically required by the business or industry regulator.

Wisdom holds a single copy of each record within the repository even though it may appear in multiple folders; this is achieved by having a link to the record from each folder. Records managed by Wisdom cannot be deleted any earlier than that specified by the retention policy applied to it, and when a record has been destroyed through a retention policy it is impossible to recreate that record without resorting to a back-up.

Where a record is made up of multiple documents or multiple parts, then it is possible to allocate different security policies to each of these documents or parts. It is also possible to allocate retention policies to categories of records so that when a record of that category is added to the system it is automatically assigned that retention policy.

As was stated in the previous section, record metadata is automatically garnered from the network environment and, in many cases, from the document itself. Whenever a record is of a type that requires a specific set of metadata attributes, Wisdom attempts to automatically collect this metadata. If mandatory metadata cannot be generated automatically, then Wisdom displays a form into which the user enters the required metadata manually.

Access to all documents and records stored within the repository is controlled and mediated by the Wisdom business logic layer, and in the case of a record, Wisdom does not allow any modification to that document or collection of documents.

Product Operation

The flexibility afforded by Diagonal's solution is immediately evident on the client-side, with support for Web browsers, 'rich' clients, and Microsoft Windows desktop integration through Web Distributed Authoring and Versioning (WebDAV). The Web-based Wisdom Client not only provides users with a customisable front-end to the Wisdom software, but it can also be integrated with existing corporate portals – thereby providing DRM functionality alongside, or even within, line-of-business applications.

The Wisdom Advanced Client has all of the functionality of the Web interface but is delivered through a familiar Microsoft Outlook-style user interface. The adoption of the Outlook paradigm is a clear indication that Diagonal understands the world of DM. It could (as other vendors have done) develop its own unique DM interface, but instead the company has considered the typical user of this solution and has provided an interface that will be instantly familiar to the majority of end-users.

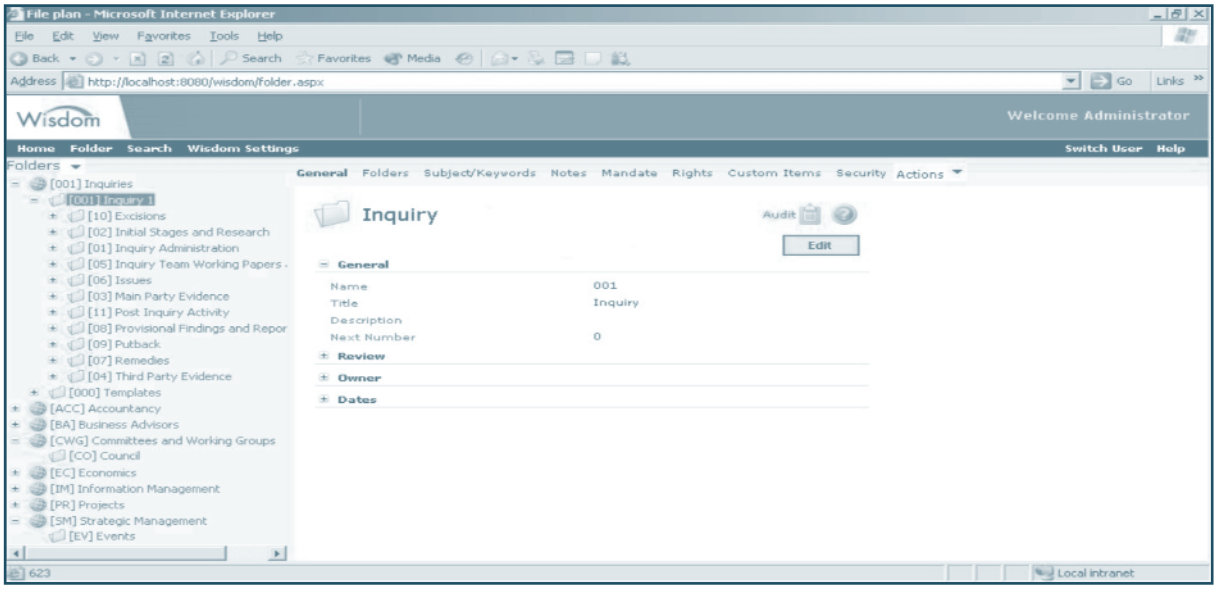


Figure 1: Viewing the Wisdom Fileplan

The product supports the use of Microsoft Office document templates – a facility designed to automate much of the document profiling effort usually required of DM systems. Each document stored in the Wisdom repository picks up a certain amount of 'system' metadata such as author, data, time, and application. The system is also able to support custom metadata fields as required by the organisation.

The ability to view, download, and upload files through Microsoft Internet Explorer 5 and above is provided through WebDAV – an extension to HTTP that was originally designed for Web site creation. Because WebDAV resources can be mounted within the Windows 2000/XP file system (and Mac OS X), any WebDAV-enabled application (such as Microsoft Office 2000) can access files stored in Wisdom directly. As a file system WebDAV is not perfect, and there are currently limitations in terms of functionality and performance when compared with other network file systems. Butler Group would advise organisations to fully understand the limitations of WebDAV before adopting this method of document access enterprise-wide.

Figure 1 on the previous page presents a user's view of the Wisdom fileplan, the general look-and-feel of which can be tailored or branded to suit. In this 'Folder' view a list of 'Divisions' are shown; opening a Division displays its nested 'Classes' until the lowest level is reached – a 'Folder'. Selecting a 'Folder' displays its electronic content (if any) in the right hand pane. Folder properties provide folder metadata, life history, retention policy, and security access restrictions. Access to documents and files within a folder can be restricted by the security options chosen for the folder. The granular control provided by Wisdom permits selected users to be able to set these details, specific to one or several users or other security constraints. Security restriction may also be inherited from parent classes.

DEPLOYMENT

Like many solutions built to leverage the Microsoft technology stack, Wisdom requires only modest technical skills to install. However, Butler Group would advise organisations to engage the services of a trained Wisdom consultant, possessing the necessary Microsoft systems skills to perform the implementation, as this is more likely to result in an optimum system configuration. As a precursor to installation, we would also advise organisations to invest in the services of an independent records management consultant, as we believe this is where DRM projects are won or lost.

Although largely dependent on the size of implementation, the software deployment phase of a Wisdom project is typically completed in a couple of days. However, the preparatory work – in terms of information audits and configuration workshops – coupled with data migration and training is more likely to last four to six months for a small to medium installation.

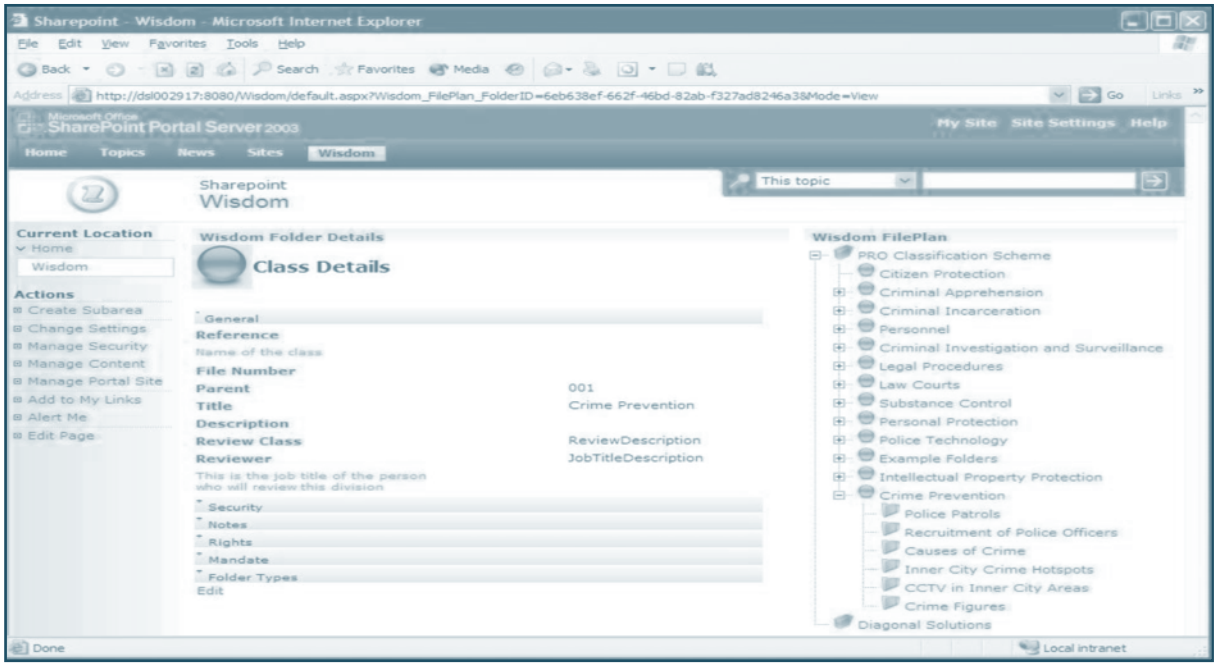


Figure 2: Wisdom Integration with Microsoft SharePoint Portal Server

The underlying technical requirements for the deployment of Wisdom are straightforward enough: Microsoft Windows Server 2003 and Microsoft SQL Server 2000. While these platform requirements might appear to be rather restrictive, in practice Diagonal finds that organisations opting for this solution spend less time than they might otherwise do on IT infrastructure issues. This being the case, Butler Group would like to see Diagonal engaging with Microsoft to produce a tried-and-tested 'reference' or even 'prescriptive' architecture guide for this solution, as we feel this would not only accelerate the 'time-to-value' but would also reduce the technical risks associated with a project of this type.

The Wisdom DRM solution accommodates a modular approach to deployment as the Case Tracking and Workflow modules can be deployed separately. Organisations considering Microsoft SharePoint Portal Server integration should decide early if the DRM project is to be of primary or secondary importance, as otherwise contention for project skills and resources is likely to result.

Out-of-the-box Wisdom utilises the Microsoft search engine. However, the architecture of this solution permits search technologies from other vendors (such as Mondosoft, APR Smartlogik, and Convera) to be used should the client require it. Butler Group believes that DRM solutions should be architecturally de-coupled from search technology, as many organisations already have a search strategy tied to a product from a different vendor.

Once implemented, a support contract provides Wisdom clients with incremental updates and service packs. According to Diagonal, the ongoing cost of ownership of Wisdom is very low. However, IT departments and business units should determine these requirements for themselves during the pilot or evaluation phase of the DRM project. The skills and experience required for periodic tuning and maintenance of the system can be provided by Diagonal directly or by one of its partners.

Wisdom training is usually carried out by the client directly or through a professional training agency. Diagonal undertakes to train the trainer, and if more formal CBT or classroom training is required then the firm's training partners usually provide this.

Technical support is provided by Diagonal's dedicated Wisdom support team, and is available 8am to 6pm 5 days per week. On site cover can also be provided at a cost if required.

Technical issues aside, the implementation of a DRM solution is primarily that of a change programme – especially if implementing enterprise-wide, and experience shows that much of the project's success will rest on the change management experience of the team chosen to implement the solution. Diagonal believes that its solution enables organisations to focus more on the business-change issues rather than technology issues, and as a result is more likely to deliver the solution required and expected by the client.

▶ SOLUTION STRATEGY

Diagonal's target market is predominately the public sector and its sub sectors. The company already has significant experience in delivering solutions to meet the specific requirements of this sector – The Freedom Of Information Act for example. However, whilst Diagonal has undoubtedly focused its solutions strategy on the public sector, it also recognises the value that Wisdom can bring to other market segments, especially those with a need to address compliance issues. Diagonal has a clear view of how Wisdom can be used to address Basel II, Sarbanes-Oxley, and the Financial Services and Markets Act, and is now starting to extend its reach and range into these new areas.

The sweet-spot for Diagonal's DRM solution at present is anything between 200 and 5,000 users. The company is developing a partner channel in order to target specific vertical markets; it is also cognisant of the fact that very large projects are likely to require partnerships with SIs and IT delivery organisations. The recent acquisition of Diagonal plc by Morse plc – a company with a turnover of £390 million and a strong reputation in the IT services sector – will, in Butler Group's opinion, provide the company with the confidence and backing required to take-on large enterprise DRM projects.

Key competitors for Diagonal are the likes of Meridio, Valid Information Systems (now owned by Hummingbird), Open Text, and TOWER Software. Diagonal is keen to highlight its staff as a market differentiator; pointing to the fact that many of its employees have been with the company a great deal of time and have significant experience in working with Registry systems.

The pricing model for Wisdom is refreshingly transparent (although of course, this is open to negotiation): Wisdom Server licence UK£20,000 per processor; User licence UK£100 per seat; Case Tracking module UK£50,000; and Workflow server UK£30,000. An Enterprise License is also available for around UK£300,000. Support is charged at 22% of the product retail licence price, and includes help desk cover and a limited amount of onsite support. There are a total of 26 additional service levels that can be purchased at an additional cost.

Diagonal's current release strategy is to release an incremental version of Wisdom once every six months, with a full release to be produced every two to three years.

COMPANY PROFILE

Diagonal Solutions is now a wholly owned subsidiary of Morse plc, an IT consultancy which has revenues of approximately £400 million. Headquartered in Leeds and employing 60 people, Diagonal Solutions has a well established history dating back to 1969, when the organisation was originally formed as MFT Computer Systems Limited. Since that time the company has developed many different applications based on a variety of technologies and software architectures. In 1986 Diagonal Solutions moved into the RM market, and over the years has developed its offering to encompass the requirements of organisations seeking to control documents produced by desktop authoring packages and e-mail systems.

Following on from a number of successful implementations of Microsoft-based solutions – particularly SQL Server 2000, SharePoint Portal Server 2003, Biz Talk Server 2002/2004, Content Management Server 2002, and Commerce Server 2002 – Diagonal has recently achieved the status of Microsoft Gold Certified Partner for Collaboration Solutions.

The services and solutions offered by Diagonal Solutions are not purely restricted to DRM; the company also has significant expertise in the areas of Content Management, Knowledge Management, electronic forms consultancy, content syndication, Business Process Management (BPM), e-business projects, and technology consultancy.

All revenues for Diagonal are derived from UK business. In November 2003 the company reported a gross profit of UK£0.75 million on revenues of UK£4.9 million.

Key clients for the company include: The Coal Authority – a departmental deployment of Wisdom with 300 users, and the first authority to fully meet the UK Government's target for the management of paper and electronic records; Teacher Training Agency – a 400 user, organisation-wide deployment; Pesticides Services Directorate; Health Development Agency; National Library of Wales; and several other Government Agencies.

Deployments range between 200 to 500 users. However, the company has recently embarked on a number of projects with a user base in excess of 2,000. There are currently 10 organisations using the latest version of Wisdom, and the company has in excess of 100 customers in total.

Morse plc (now the parent company of Diagonal Solutions) is a UK listed company (FTSE:MOR) and has a market capitalisation of over £173 million. Morse is a technology integrator skilled in project management, business applications, deployment and management, architecture and planning, and technology provision. With a blue-chip customer base, it is a major European partner of IBM, Sun Microsystems and HP. It employs 1,200 people across the UK, France, Germany, Spain, and Ireland. Group turnover for the year to 30 June 2004 was UK£390 million (2003: UK£351 million), of which UK£133.5 million came from Continental European operations (2003: UK£111.9 million).

SUMMARY

Wisdom is an integrated DRM solution which has been approved for use within the UK public sector by TNA. A 100% Microsoft .NET application, Wisdom provides an integrated solution for all aspects of information management. Wisdom is an intuitive tool to use, and provides opportunities for deep integration with a number of Microsoft technologies and products, most notable of which are SharePoint Portal Server and Content Management Server.

The company's solution for The Freedom of Information Act extends the core Wisdom system with a case tracking module and is designed to help alleviate the administrative burden that public bodies will face as a result of their compliance with the Act. The company has a rich heritage in the management of paper-based records, and continues to grow its business beyond its core public sector market through a growing number of compliance solutions based on Wisdom.

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EMC DOCUMENTUM: Documentum 5

Butler Group
Analysis without compromise

EMC Documentum Documentum 5

Abstract

Documentum 5 is an Enterprise Content Management (ECM) platform, which provides unified content services, such as Records Management (RM), and supports a number of packaged solutions including Enterprise Document Management (EDM), Web Content Management (WCM), Digital Asset Management (DAM), and Collaboration. An increasing number of organisations have a requirement for RM, driven predominantly by compliance, and a desire to manage information more efficiently, to derive real business value from it. A strength of the solution is the integrated approach with the ability to manage all types of information, both electronic and physical. A weakness is the lack of National Archives (TNA) 2002 approval, preventing the company from fully exploiting the public sector, although the company is currently going through the approval process. The RM capabilities are suited to any organisation that has a requirement to retain high volumes of records.

KEY FINDINGS

- ✓ Native authoring capabilities from many applications.
- ✓ Support for virtual documents.
- ✓ Overwrites deleted records 26 times.
- ✓ Provides storage solutions supporting true ILM.
- ✓ Integrated solution to manage physical and electronic items.
- ✓ Supports voting logic.
- ✓ Unlimited categorisation levels.
- ✗ Lack of National Archives approval.

Key: ✓ Product Strength ✗ Product Weakness *i* Point of Information

LOOK AHEAD

Future plans for Documentum include tighter integration with EMC's storage devices, enabling the movement of information between storage devices to be fully controlled by Documentum. The company is also currently in the approval process with TNA, and hopes to be approved early in 2005.

▶ FUNCTIONALITY

Product Analysis

Documentum 5 is an Enterprise Content Management (ECM) platform, which provides a number of unified content services. These include information creation and capture, lifecycle management, delivery, and archiving, which incorporates Records Management (RM). On top of this platform sits pre-packaged applications, including Enterprise Document Management (EDM), Web Content Management (WCM), Digital Asset Management (DAM), and Collaboration tools.

Document Management

The Document Management (DM) functionality is tightly integrated with many applications at the menu level, which allows documents to be created and saved into the Documentum repository from a large number of applications. Butler Group believes that this is a strength of Documentum 5, as most ECM products provide integration with Microsoft Office suite applications, but many do not have such an extensive list, which includes CAD, SAP, Siebel, XMetal, Abortext Epic, Dreamweaver, FrontPage, Adobe Photoshop, Adobe Forms, and QuarkXPress as well as MS Office Suite.

Another strength is support for compound documents, called Virtual Documents by EMC Documentum. Each component of the document is called a chapter, and a number of chapters make up a book, which is the complete document. Each chapter, which could comprise an individual paragraph of a document, or a section of a report, for example, can be worked on by different users, and may also be at a different version or revision number. Because a full audit trail is retained, the document can be reproduced as it stood at any time. Versions can also be locked so that the book contains a particular version of a chapter on a specific date.

A piece of functionality that Butler Group feels is valuable in a DM solution is the ability to support voting logic, where a document may need to be reviewed and approved by a specified number of users. Once the specified number of users have approved the document, it is progressed to the next stage in its lifecycle. Documentum 5 supports this functionality, with such features as majority voting allowed.

Records Management

There are a number of different ways in which information can be declared as a record. Records often start their life as documents, and Documentum 5 supports the creation of records from documents via user action, automatically at a specific stage in the lifecycle of the document, through an event controlled by workflow, or on the creation of the document.

Retention periods are set via categorisation, which is based on the fileplan. Separate disposition schedules may be defined, which can comprise multiple stages, and could for example involve reviewing the record at regular intervals, and moving it to different levels of storage. At the end of its retention period, records are typically reviewed before being deleted, and Documentum 5 supports a multiple stage process before the deletion of a record. Once it is to be deleted, all copies of the record are deleted, and the physical address is overwritten 26 times, to ensure that the record cannot be recreated. Butler Group believes this to be a strength, as the technology now exists to recreate records that have only been overwritten a few times.

A piece of functionality required of a RM solution is the ability to delete records before the end of the retention period, if for example, requested by a court. Documentum allows this, but only by reclassifying the record. Butler Group would not expect this piece of functionality to be required very often. However, much more common is the requirement to put a record on hold, to prevent its deletion when it reaches the end of its retention period for compliance or litigation purposes.

On deletion of the record, another record is created that provides details of the record that was deleted, the time it occurred, and the identity of the person who deleted it.

Documentum addresses the requirements of the public sector to support the management of physical records as well as electronic ones. In addition to managing the location of physical records, full check-in and check-out of the record is supported, as is the imposition of access rights to the record. A full audit trail is maintained of the lifecycle of the record, and support for barcodes improves accessibility to the physical item, which for example, could be an individual item, or a box.

Product Operation

Documentum 5 has a component-based architecture, which enables it to be implemented in several different configurations. These configurations vary from a single server, single repository implementation, to a multiple server, multiple repository system that is deployed on a global scale in a distributed configuration. Each implementation must have at least one DocBase – the Documentum repository. In the single server configuration there is a single DocBase, which is a relational database that is used for storing both the metadata and the information.

For larger scale distributed deployments there may be multiple servers, but still a single DocBase. The advantage of a server in each location is an increase in performance for local users, as requests are processed locally. There is also an option to use multiple content databases to store content locally, while still having a single central DocBase.

It is also possible to have multiple DocBases using replication services. This allows the content to be distributed with the automatic replication of metadata as well as content. Cabinets, and the folders and documents contained within them can be replicated from one DocBase to other DocBases. To maintain integrity of content, and in particular records, any editing can only be performed on versions held in the central repository. Information stored in local DocBases have read-only access.

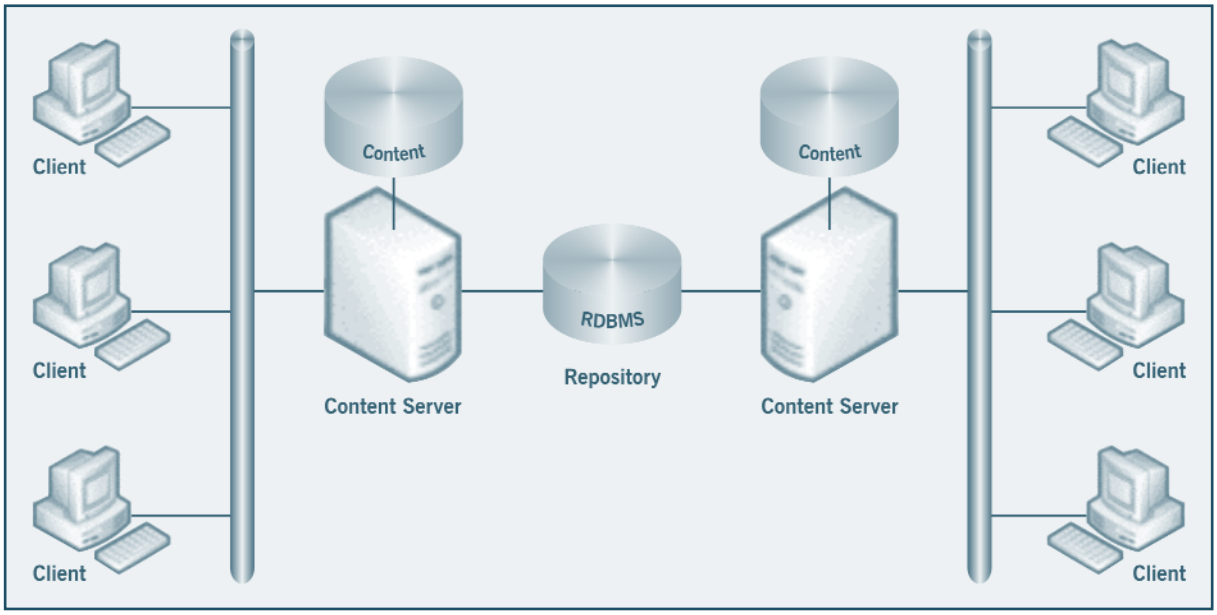

Figure 1: Architecture of Implementation Comprising Multi-Server Docbases with Distributed Content

In the past, a weakness of EMC Documentum's ECM solutions was its workflow capabilities, which was extremely limited in its abilities. The company has now rectified this situation and has extensive BPM and workflow capabilities. Although it does not match the full BPM solutions of a few ECM vendors, it does provide all of the features that Butler Group believes is required by the vast majority of organisations. It supports process modelling with an easy-to-use graphical interface or e-Forms design tool, application and process integration, queue management, user management, and audit data generation.

Tasks may be escalated based on start and end dates, and there are ten levels of task prioritisation. The BPM capability supports complex processes including parallel processes, branching, and sub processes.

Documentum 5 also includes search and retrieval capabilities with searches based on metadata and full text supported. Both simple and complex searches can be made on all items, physical or electronic, in the DocBase repository. A graphical query builder is provided to enable users to build queries, which can be run and the results saved for future use. A thesaurus is included enabling 'sounds like', 'same meaning', and word proximity to be deployed in searches. A high level query language, Documentum Query Language, is provided, which is a superset of ANSI-standard SQL, and serves as a single unified query language for all of the objects managed by the Documentum Server.

The search capabilities include the ability to search cabinet and folder hierarchies, combine attribute and full text searching in a single query, automatically explode compound documents at any level, link work process status and document information, and join document and work process information with business data. There is also an ODBC gateway, which provides access to metadata through third-party reporting and data analysis tools such as Crystal Reports.

DEPLOYMENT

Documentum 5 is available on Windows, Solaris, HP-UX, AIX, and Linux platforms. It also requires a relational database, and an application server when Web-based clients are deployed.

Documentum implementations typically use EMC Documentum or third-party professional services. The skills required for the implementation are typically: Consulting Principal who manages the project strategy and objectives at the sponsor level, Lead Architect to manage the platform and solution design, Business Analyst to map the business requirements to the solution, Technical Consultant to map the design to the solution configuration, and Project Management to manage EMC Documentum and customer resources and to ensure that the project is completed on time.

A typical implementation takes between three and six months. However, EMC Documentum Consulting offers a 'Rapid Deployment Service' that provides a quick deployment in a tightly controlled site environment, often within a 40-day delivery timeframe. This service focuses on the implementation of content creation, management, and delivery requirements within a controlled implementation methodology. A combination of configurable products, standard interfaces and templates, and delivery best practices are used to enable the rapid deployment.

The Content Server is the core module, and this must be present in all implementations. There are a number of add-on modules that can be deployed as required, these include Media Services.

A comprehensive range of training is available including classroom – both off-site and on-site – CBT, and Web-based courses.

A wide choice of technical support offerings is available. Standard Support provides an Electronic Support Centre for instant access to vital product information, expert telephone support for problem resolution, and proactive technical alerts. Mission-Critical Support comprises access to the EMC Documentum worldwide support network 24x7, immediate round-the-clock response to critical production problems, priority response times for all types of problems during office hours, multi-vendor co-ordination for problem isolation after hours, additional authorised contacts, and twice-a-year after-hours project support for non-critical problems. Enterprise Support offers 24x7 business-critical support, dedicated technical support, and priority case escalation. Migration Support provides Pre-Migration Review and Infrastructure Planning, after hours migration support, and application development support. Extended Support offers uninterrupted access to technical support beyond the end-of-support date for the version deployed, optional Mission-Critical Support extension, and flexibility program pricing providing Extended Support in increments of six months to one year.

Content may be moved from third-party products or legacy applications using a bulk loading tool such as Import Manager. Off-the-shelf integrations are available to specific products such as SAP, Siebel, PeopleSoft, and Oracle Financials.

Enterprise Content Integration Services allow the integration of content sources both inside and outside the enterprise. This enables users to access all relevant content using a single query. Enterprise Content Integration Services consists of a set of adapters to access content sources in specific applications, a back-end query broker that federates each end-user request, and a user interface enabling end-users to formulate their requests and also to sort and analyse search results. Results may be imported into a Documentum repository.

As already mentioned Content Services is the core module of Documentum 5. Bundled services include: Library Services (incorporates version control, rendition management, and search), Security, Workflow, Compound Document Management, and XML Management. Optional modules include Client Interfaces, Integrations, Developer Services, Platform Extensions, and Content Storage Services.

PRODUCT STRATEGY

EMC Documentum targets both horizontal and vertical markets in every industry sector. There are also a number of solutions available for horizontal markets, for example, Compliance, Document and Image Processing, and Plant and Facility Management. In terms of company size, Documentum 5 is suited to any organisation from the largest enterprises to Small to Medium-sized Enterprises (SMEs).

The solution is suitable for the public sector, and the company does have public sector clients. Butler Group expects EMC Documentum's market share in the public sector to increase once it is TNA 2002 approved.

EMC Documentum sees its major market opportunity deriving from managing the information lifecycle of content creation, use, archival, and disposition. Butler Group believes that a huge driver for this will be compliance, particularly in the public sector as bodies adopt electronic RM solutions to supersede their physical systems.

EMC Documentum has multiple routes to market, which include direct sales, via the channel, and through partners. The company has business relationships with leading Systems Integrators, Independent Software Vendors, and Value Added Resellers that specialise in specific vertical and business areas. There are also relationships with multiple technology partners relevant to specific vertical and application areas.

EMC Documentum competes with other ECM vendors and specialist Electronic Document and Records Management (EDRM) vendors, depending on the vertical markets and solutions required by customers.

Annual cost of maintenance and support is a percentage of the acquisition cost and provides for maintenance and upgrade of licensed products covered by the maintenance agreement.

The release strategy for the product is generally a major release approximately once every three years, with one or two significant releases each year.

Butler Group believes that the major threat to EMC Documentum's market share potentially derives from its acquisition by EMC, and the way in which potential customers perceive this. There has been a feeling in the past that EMC has not made the most of its acquisitions, and there is a danger that customers may believes that it will try and push Documentum 5 into being a sub-set of its storage solutions. However, Butler Group believes that the acquisition provides a tremendous opportunity for EMC Documentum, particularly as features are introduced into Documentum 5 to allow Documentum to fully manage the lifecycle management of information. This includes its movement between different storage devices to reflect the value and usage of information at any stage of its lifecycle.

▶ COMPANY PROFILE

EMC was founded by Richard J. Egan and Roger Marino in 1979, having evolved from providing intelligent cached storage arrays to a complete suite of software and hardware products. It is headquartered in Hopkinton, Massachusetts, US. The company employs in excess of 17,400 people with over 100 sales offices and distribution partners in more than 50 countries, with approximately 60% of staff in the US, 25% in EMEA, and 15% in Asia-Pacific. About 30% are in Research and Development, 30% in Sales and Marketing, 30% in Support and Services, and 10% in Administration.

EMC systems are manufactured in the US and Ireland. In addition, EMC has Research and Development facilities in the US, Ireland, Israel, Japan, Belgium, and France with customer support centres in Australia, the US, Ireland, and Japan.

EMC has made several significant acquisitions during the last few years. This started with Data General Corporation in 1999, which added the CLARiiON line of midrange information storage systems to its product family. Other acquisitions have included FilePool NV, a venture-backed software development company; CrosStor Software, Inc. a producer of software for networked storage systems; Avalon Consulting Group a supplier of rich media management software for the television broadcast industry; Softworks, Inc; and Terascape Software, Inc. Two important acquisitions in 2003 were Legato and Documentum, the latter adding ECM to EMC's portfolio. Both companies are now divisions of EMC. A significant acquisition in 2004 has been that of VMware, which is being operated as a separate subsidiary of EMC.

The company's stock is traded on the New York Stock Exchange under the symbol EMC and is a component of the S&P 500 Index. In 1986, it went public on the NASDAQ stock exchange. Gross revenue for 2003 was US$6.24 billion, 15% higher than the $5.44 billion in 2002. This equated to a net income of US$496 million, compared with a net loss of US$119 million in 2002. In 2001, gross revenue was US$7.09 billion and there was a net loss of US$508 million.

Customers of EMC Documentum's RM or DM solutions include, Anadarko, Algeria Company, Astra Zeneca, Canada Council for the Arts, Commerzbank, Foreign and Commonwealth Office, Norwich Union, TotalFinaElf, and UBS.

SUMMARY

The ECM market space is currently consolidating, which will lead, Butler Group believes, to a few vendors surviving in the long-term. As an ECM vendor providing an extensive ECM portfolio, and with the backing of the leading storage vendor EMC behind it, we expect to see Documentum as one of the survivors. Documentum 5 is an evolving product, and one of the biggest changes in the past two years has been the addition of BPM functionality. Although not yet at a stage to compete with the BPM vendors, its extensive functionality has nevertheless successfully addressed a previous weakness in the product, providing all of the features required, to allow organisations to manage the lifecycles of documents and records. In Butler Group's opinion, the evolution of the product will ensure EMC Documentum's position as a leading ECM vendor, and we believe that the product is well worth further examination.

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FABASOFT: Fabasoft eGov-Suite Version 6

Butler Group
Analysis without compromise

Fabasoft Fabasoft eGov-Suite Version 6

Abstract

Fabasoft eGov-Suite combines Electronic Document Management (EDM), Electronic Content Management, Records Management (RM), and workflow to develop DRM solutions for public sector organisations. Highly scalable, with comprehensive functionality, and impressive integration tools, it is ideally placed to support a wide range of e-Government projects. The RM functionality conforms to three national standards, including UK TNA 2002, and the EU MoReq standard. It is highly agnostic of other applications, which means that it is ideally suited to extract value out of the information that currently resides in legacy systems. Fabasoft's key differentiators are its 100% public sector focus, and that the pricing of the software is based only upon the number of registered users irrespective of platform. Available on Windows and Linux there is nothing to dislike about eGov-Suite. It is just a pity that the company only works with the public sector, because this is a best in class product.

KEY FINDINGS

- ✓ Highly flexible, standards-based suite of functions.
- ✓ Company is 100% public sector focused, with appropriate domain expertise.
- ✓ Licensing is based only on price per registered user.
- *i* Certified to UK, German, Swiss, and EU RM standards, with multi-lingual operation.

Key: ✓ Product Strength ✗ Product Weakness *i* Point of Information

LOOK AHEAD

Butler Group believes that by focusing exclusively on the Public Sector, Fabasoft is not only establishing domain expertise, but also a level of thought leadership. The Linux support introduced in Version 6 will broaden its appeal and adoption further.

▶ FUNCTIONALITY

Product Analysis and Operation

Fabasoft eGov-Suite Version 6 was released in December 2004, and is designed to be a highly flexible and scalable environment for developing e-Government business applications. The core functions of e-Gov-Suite are:

- Document Management (DM).
- Records Management (RM).
- Content Management (CM).
- Workflow.
- Customer (Citizen) Relationship Management (CRM).

These include a large set of predefined objects, and metadata sets, so that a significant proportion of any development can be undertaken using configuration, rather than having to write, and therefore maintain code. eGov-Suite has been designed from the outset to work with a highly scalable Web architecture, recognising that it is whole populations of citizens that have to interact with government departments. eGov-Suite also offers point-in-time recovery by continually logging all application activities, and allowing restoration of an installation to a specific point.

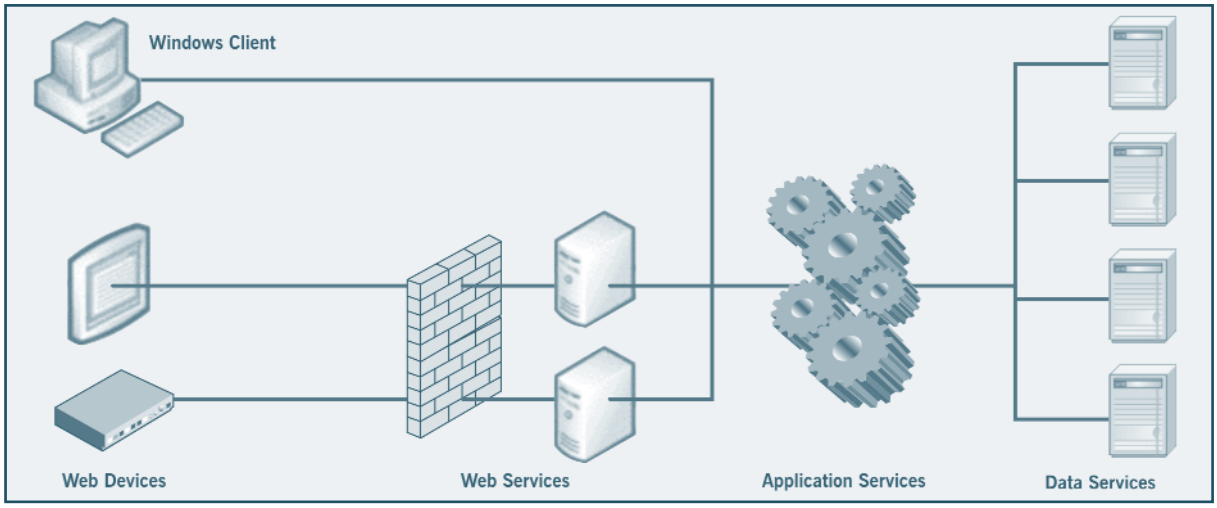

Figure 1: Architecture

The architecture of eGov-Suite is divided into five sections:

1. At the base are **Data Services**, the stores in which eGov-Suite holds information, both structured in relational database, and unstructured in standard file stores. Through the Application Services, these form a single virtual repository for all content. Data Services also support a wide range of storage mechanisms including SANs.
2. **Application Services** are the core functions of eGov-Suite, combining the unstructured and structured data from the stores into logical objects for presentation. They also hold the Access Control Lists, ensuring highly granular security of the data.
3. The **Windows Client** allows users to natively connect to eGov-Suite from any Microsoft Windows PC. This is predominantly used for specialised functions such as application development.
4. **Web Services** provides the highly scalable platform to allow access to eGov-Suite by Web devices. Web servers can be organised into 'farms' as necessary, and eGov-Suite runs in a' stateless' mode to ensure most effective use of the server farm.
5. **Web Devices** are the predominant method of access to eGov-Suite. This is normally a Web browser on a PC, notably without any plug-ins required. The user interface is generated by a technique called VAPPS (Virtual Applications), which facilitates access on other Web devices including PDA's and mobile phones.

Optional products that support eGov-Suite 6 include:

- Fabasoft e-Gov Forms – For the management and capture of forms-based data in an Internet environment. Unlike other elements of Fabasoft software it is licensed on a per processor basis.
- Fabasoft e-Gov-Suite/WBT – This is a Computer-Based Training (CBT) package, which in addition to allowing users to train flexibly on-line via a Web browser, maintains a record of their activity and achievement.
- Fabasoft Operations Manager – Used to monitor and manage the production environment of the Application Services across multiple servers.
- Fabasoft iArchive – This removes objects from production storage onto appropriate archival media. It stores structured content in XML format, and unstructured content either in its native format or converted into PDF. Fabasoft iArchive supports EMC's Centera solution.
- Fabasoft iArchive Link – This enables Fabasoft eGov-Suite to be integrated in SAP R/3.

The Fabasoft eGov-Suite 6 repository consists of COO-stores (based on a SQL database) that hold the structured information e.g. metadata, and MMC-stores based on a normal file system that holds unstructured data, such as documents. These elements are combined through Fabasoft Components Services into a single logical entity. The repository therefore contains both metadata and content.

Metadata for objects i.e. documents or records, can be mandatory, and is created automatically either in accordance with defined business rules, for example, object creation date, or creator, or during an import process. It can also be entered and amended manually.

Document Management

Documents stored in the eGov-Suite repository are normally generated using applications such as Microsoft Word on the client platform; with WebDAV being used as the standard mechanism for content to be uploaded/downloaded to/from the repository. There is also an in-place-editor for HTML documents.

eGov-Suite will support in excess of 200 formats for documents stored natively in the repository, but can convert them to PDF or XML format for publication.

There is full-version control and audit trail at all stages of a document's lifecycle. Fabasoft uses a simple version numbering system for both major and minor revisions. This means that there is the ability of full rollback to any point in time, for a single object i.e. a document, or a group of objects i.e. an entire folder.

Records Management

In eGov-Suite, Records can be created in four ways:

1. Automatically as part of a batch input process.
2. Manually by a user through the eGov-Suite desktop.
3. Via a class change of an existing document, either automatically or manually.
4. Directly from a desktop application, e.g. Microsoft Outlook or Microsoft Word.

When documents are declared as records they are encapsulated in an object class that implements the additional behaviour and metadata, defined by the appropriate RM standard. E-mail items can be managed as records within eGov-Suite, their capture ranging from simple 'drag and drop', to integration with an e-mail server.

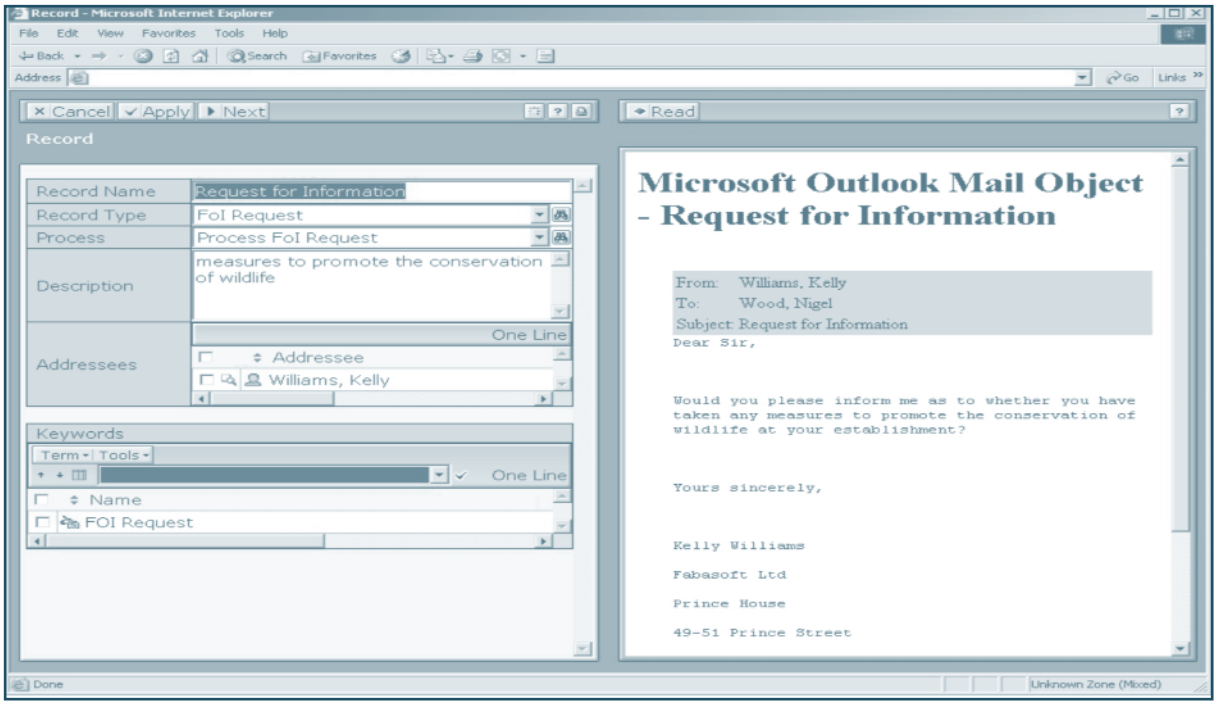

Figure 2: The Capture of an E-mail into eGov-Suite

The RM functionality is about as comprehensive as it gets, as eGov-Suite is certified to three European national records standards:

1. DOMEA in Germany.
2. GEVER 99 in Switzerland.
3. The National Archives (TNA) 2002 in the UK.

It also meets the European Union (EU) MoReq standard. Because it was developed originally for the Austrian government, and is used extensively as the e-Government interface for the citizens, eGov-Suite is the de facto RM standard for Austria.

Besides the ACLs for managing content access, eGov-Suite has full integration with Microsoft Active Directory and other Lightweight Directory Access Protocol (LDAP)-compliant directories, to allow users to be positioned in an organisational hierarchy, and thus facilitating roles-based management of the access to content. eGov-Suite includes a comprehensive search and retrieval capability that will search documents, records, and associated metadata from a single interface. For content-based searching it will utilise Microsoft Index Server and permits integration with other search technologies if required. A 'Research' tool is included that combines multiple search methods into effectively a single query, and searches may be shared with other users by placing results into a container object.

It does not provide full BPM capability, but the integral FSC/Wf workflow subsystem delivers:

- Process definitions and activity definitions.
- Process instances and activity instances.
- Sub-processes and conditional elements.
- A graphical process editor.
- Dynamic access rights dependent upon workflow participation.

eGov-Suite provides out-of-the-box integration with a variety of third-party products including:

- Kofax Ascent Capture.
- "TWAIN" compatible scanner products.
- Xerox Textbridge Imaging, Professional Edition.
- Microsoft Office.
- Microsoft Exchange.
- Microsoft Outlook.
- Microsoft Internet Explorer.
- Microsoft Index Server.
- Eastman Software Imaging for Windows, Professional Edition.
- SAP Archiving Common Store using Tivoli Storage Manager.
- IBM Content Manager (includes Tivoli Storage Manager license for media management).
- IBM Tivoli Storage Manager.
- Kofax Ascent Storage.
- Microsoft Exchange archive.
- IBM Common Store using Tivoli Storage Manager (alternatively also with Content Manager).
- Microsoft Access.
- IDS Prof. Scheer GmbH ARIS Toolset.
- Microsoft MapPoint.
- COM/CORBA Bridge.
- IBM Bridge2Java.
- IONA ORBIXComet Desktop.
- Microsoft Host Integration Server 2000.

In addition there are two Application Programming Interfaces (APIs) available for integration with eGov-Suite:

1. A low-level interface supporting C#, VisualBasic.NET, C++, and VisualBasic.
2. A high-level interface based upon SOAP/XML and supporting Web services.

DEPLOYMENT

For deployment eGov-Suite 6 requires a back-end server, with a database, and a Web server, to support the Data Services, Application Services, and Web Services elements of the architecture. Supported back-end servers are:

- Microsoft Windows 2000 Server/2003 Server.
- RedHat Enterprise Linux version 3 AS.

Supported databases are:

- Microsoft SQL Server 2000.
- Oracle 8*i*/9*i* (Windows deployment).
- Oracle 10*g* (Linux deployment).

Supported Web servers are:

- Microsoft Windows 2000 Server/2003 server.

Additionally, back-end servers may be required to provide document conversion services, e.g. to PDF. In larger deployments servers would be expected to be load balanced, and use distributed processing to provide the scalability and resilience required.

A range of skills are required for deployment, both from the organisation and from Fabasoft's consultants. Fabasoft offers a range of training, held at Fabasoft's premises or the customer's as required. Training can be delivered instructor-led in a classroom environment, as CBT via the Fabasoft eGov-Suite/WBT, or one-to-one for specialist roles such as Records Manager, or Security Officer.

Fabasoft offers both Standard and Premier support packages, which integrate customers' existing user and Technical support operations. It would expect that reported issues have already been isolated from the underlying network or infrastructure. Under normal circumstances, support is available from the Fabasoft's Bristol office on working days between 8:00 am and 6:00 pm. Support may also be provided beyond the times stated above, subject to contract. For each support call, the customer and Fabasoft agree a priority, which determines the agreed level of response times. This also determines a 'Multiplier' factor', which is used to determine a value on a call-off basis against the 50 (100 on Premier contracts) support tokens provided by the annual support agreement, with additional support call units available as required by each customer. Support calls resulting from faults in the Fabasoft Software do not count against the support tokens.

Annual maintenance is charged at 20% of software licence costs and covers both minor and major upgrades. Fabasoft reports that support packages range from UK£10,000 to UK£60,000 dependent upon customer requirements.

Reported benefits of eGov-Suite deployment include:

- Reduced time to access information.
- Improved communication – particularly across departments.
- Reductions in cycle-time – making processes happen faster.
- Consistent compliance.

In Fabasoft's experience, EDRM projects are most successful when they address not just the information storage/retrieval requirements of an organisation, but are also used as a vehicle for bringing about change in the organisation. Good records management then becomes a by-product of those improved processes, with the result of a more efficient organisation.

Deployment Example

The **Austrian Central Government** has developed the 'Electronic File' – abbreviated to ELAK – as a central element of its administrative reform program. ELAK constitutes a core component of the Austrian e-Government initiative for improvement of quality and speed of services in the federal administration, and is planned to be used in all federal ministries. The organisation of the entire project is the responsibility of a Joint Venture called "ARGE ELAK" consisting of the Bundesrechenzentrum GmbH, and its subsidiary BITS GmbH, in cooperation with all 12 ministries and subcontractors; IBM and Fabasoft. Fabasoft designed and implemented a software solution based on Fabasoft eGov-Suite called "The Electronic File in the Austrian Ministries Referencesystem 1.0". In addition for each ministry, a special departmental configuration was implemented, which reflects the organisational structures, drafts, reports, and access controls. This configuration allows workflow to be used within the department as well as between different departments.

The **UK Planning Inspectorate** is using eGov-Suite to provide a Planning Casework Service to handle appeals in planning applications. From receipt of the appeal until the final decision, eGov-Suite is used to manage the complete process including all workflow, interaction with those involved via the Internet and the management of all documents and records involved in the process. After a successful pilot, the Planning Inspectorate began a UK-wide rollout in November 2004.

▶ SOLUTION STRATEGY

Fabasoft has a policy of only working in the Public sector environment, to the local EDRM standards that apply in those countries. Fabasoft reports that deployments of eGov-Suite have tended to be on a departmental basis, although this is normally after the product has been selected as the strategic solution for the whole organisation.

The target market for e-Gov Suite 6 is any public sector organisation with more than 50 employees, although installations to date have ranged from 300 to 10,000 seats. Fabasoft has a direct sales model exploiting the domain expertise of its staff, but will work with other partners as required by its customers.

Fabasoft reports that there is no standard project, and hence no average project pricing. Services are reported to equal licence costs but will increase dependent upon levels of integration required. Unusually in the DRM market, licensing is priced per-registered user, and Butler Group believes this to be a key differentiator giving predictability for project budgets. Fabasoft will also offer customers a variety of appropriate contracts ranging from just software licences, through to a full fixed-price turnkey solution.

Butler Group believes that the support for deployment on a Linux platform in Version 6 is key to wider adoption, as this is becoming more favoured by the public sector across Europe.

Fabasoft provides major releases on an 18-month cycle, with service packs every four to six months.

▶ COMPANY PROFILE

Started in 1988, Fabasoft has its headquarters in Linz, Austria, with further offices in Germany and Switzerland, and a UK office in Bristol. Publicly quoted it is listed on the Deutsche Boerse in Frankfurt, Germany.

The majority of Fabasoft's revenues in 2003/2004 were generated in Austria, but the medium term objective is that only 50% will come from the home country. The company's commitment to the public sector is demonstrated in its Austrian consultants attending the Austrian Civil Service College and undertaking examinations. This, Fabasoft believes, gives its staff a deeper understanding of the cultural and organisational issues that are faced in a public sector deployment. The company has 186 employees, 150 of whom are based in Austria, and 11 in the UK. It is expecting to increase employee numbers by approximately 15% in the coming year. Fabasoft expanded in 2000 into the UK through the acquisition of Bristol-based Jenson Technology, which was already providing both software and professional services to the public sector.

Reported revenues and profits for the last three fiscal years are:

	2003/2004	2002/2003	2001/2002
Revenues	€16,942,000	€10,200,000	€9,401,000
Profit (loss)	€2,563,000	(€930,000)	(€1,056,000)

Fabasoft's key business and technology partners include:

- IBM.
- CSC.
- Unisys.
- Microsoft.
- Oracle.
- EMC.

Key customers for Fabasoft include:

- Planning Inspectorate (UK).
- Austrian Central Government.
- Department of Economics (CH).
- German Federal Bureau of Railways.
- City of Vienna.
- Swiss Federal Banking Commission.
- Technische Universitat Munchen (DE).
- Rheinlandpfaiz – Department of environment and forest (DE).

Fabasoft has more than 200 customers with an installed base of in excess of 45,000 seats.

SUMMARY

eGov-Suite is an EDRM solution developed specifically to support public sector organisations. It meets multiple national standards for RM – the UK's TNA 2002, Swiss GEVER 99, German DOMEC, and EU MoReq. It can be deployed on either Windows or Linux platforms and offers both a Windows client and Web browser access. eGov-Suite has been designed for very high-scalability, and has extensive out-of-the-box integration with a variety of products, including an optional connector for SAP R/3. Pricing is per registered user, and all Fabasoft staff, have a deep understanding of public sector operations and culture. There is nothing to dislike about the product. It is just a pity that the company only works with the public sector, as Butler Group believes that the DRM functionality is best in class.

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FILENET:
FileNet Records Manager

Butler Group
Analysis without compromise

FileNet FileNet Records Manager

Abstract

FileNet Records Manager is a component of FileNet's P8 architecture, which provides comprehensive Enterprise Content Management (ECM) and Business Process Management (BPM) capabilities. As a modular solution, P8 addresses a number of requirements of organisations including a need to manage documents and records more effectively. Compliance is currently a huge driver for the implementation of Records Management (RM) solutions to provide the ability to manage the lifecycle of records, including disposition, and also to provide discovery and retrieval. A strength of FileNet Records Manager is the P8 framework, which provides extensive BPM capabilities enabling organisations to manage the processes concerned with the lifecycle of records and documents. A weakness is the lack of National Archives 2002 approval, which has made it difficult for the company to move into the public sector, which FileNet is working within The National Archives process to address. FileNet targets large organisations across a wide range of industries.

KEY FINDINGS

- ✓ Full BPM capability.
- ✓ Multiple search methods supported for single discovery.
- ✓ Same repository can be used for documents and records.
- ✓ Retention periods do not have to be tied to a fileplan.
- ✓ P8 is modular, and supports SOA architecture.
- ✗ Lack of National Archives 2002 approval, although this is being sought.

Key: ✓ Product Strength ✗ Product Weakness *i* Point of Information

LOOK AHEAD

FileNet will continue to enhance the P8 architecture, improving and continuing to add new pieces of functionality to the individual components. The company is also currently working to achieve The National Archives 2002 approval.

▶ FUNCTIONALITY

Product Analysis

FileNet's Document Management (DM) functionality is contained within its Content Management module. Both this and the Records Management (RM) module are components of FileNet's P8 platform, which provides an Enterprise Content Management (ECM) and Business Process Management (BPM) platform.

A strength of the solution and a differentiator for FileNet over many, but not all of its competitors, is the presence of a full-blown BPM solution, which allows business analysts to create complex processes to manage documents and records.

Document Management

The DM functionality supports the complete lifecycle of documents from creation to deletion or declaration as a record. It incorporates all of the features expected in a DM solution including check-in and check-out, version control with support for minor revisions as well as major versions, rollback to earlier versions, and a full audit trail.

There are various ways in which metadata can be associated with a document. The process can be fully automated, which in Butler Group's opinion, overcomes the perpetual problem of end-users' reluctance to spending time filling in fields on a form. However, there are occasions when human input is required, and so metadata can also be entered manually and users can be forced to enter certain information, which may then be validated where appropriate.

Support is provided for the creation of content using the favoured editing environment of the user, such as Microsoft Word. This provides the advantage that users are able to create documents using applications that they are familiar with. Additional FileNet menu options are available within the application environment, which enable users to check documents in and out, create new versions and revisions, and even declare records. Documents can also be saved directly into the FileNet repository straight from within applications such as Word, Excel, and PowerPoint. Application integration can also be achieved through the use of the WebDAV protocol. Users may also use other applications as the client including Microsoft Outlook and IBM Lotus Notes.

Not all documents that need to be managed within the repository will be in electronic format, and there may be paper-based documents that the organisation wants to store electronically. FileNet supports the capture of paper-based documents through integration with scanning products, fax, and also the auto ingestion of XML documents.

Records Management

Butler Group believes that any organisation with large volumes of records to manage should consider employing a dedicated Records Manager or Information Manager to be responsible for the administration and management of records. This could either be a full-time role, or undertaken as part of a wider responsibility. FileNet RM module incorporates a Records Manager interface, which provides access to the administrative functions.

The Records Manager is able to create fileplans, and also define retention periods and disposal schedules, which may be, but do not have to be associated with a fileplan. This Butler Group believes to be a differentiator, as most RM solutions tie retention periods to the fileplan. It is also the responsibility of the Records Manager to apply security to the record to restrict access to it, and determine the actions that can be performed on it, and the people who may undertake these actions.

Records may be declared as soon as a document has been created, or they can be declared at a particular stage in the lifecycle, such as when a new version of a document is created. These event-driven declarations can be automated using the BPM capabilities. When a document is declared as a record it becomes a record object, which has rules applied to it. These rules control who has access to the record and what tasks can be performed on it. If a record needs to be amended, a copy is made which becomes a new document, leaving the original record unchanged.

The RM module also supports the management of physical items by creating metadata for the record that provides a pointer to the physical location of the record rather than to the record object itself. The metadata contains security information about who is able to access the record, the retention period, and also the disposition schedule. It also has check-in and check-out features and a full audit trail of all events relating to each physical item. Barcodes are supported, providing the ability to track the physical location of the record or box.

Product Operation

FileNet P8 is built as a highly modular architecture, which can be implemented as an enterprise wide ECM and BPM solution, or customers are able to expand their solution as their requirements evolve.

FileNet P8 provides an *n*-tier architecture, which can be deployed in a J2EE or .NET environment. Its scalability is dependent upon an organisation's hardware and software configuration and the optimisation of the platform. The core engines of FileNet P8 can be scaled both horizontally and vertically, and cache services are an integral part of content management to enable distributed architectures. To provide fault tolerance capability, FileNet says that the product's architecture has been developed to take advantage of the high availability systems provided by the operating system, database, and application services.

An advantage of the P8 platform is the modular nature of the FileNet applications that it supports, with organisations able to purchase the modules they require. An important element of the architecture is the BPM functionality and its ability to provide integration with multiple applications, both from FileNet and third-party vendors, using a Service Oriented Architecture (SOA). This allows FileNet to integrate with multiple data sources.

FileNet supports a single or multiple repositories. It is possible to use the same repository for documents and records, which makes it very easy to manage records and documents alongside each other. Alternatively a separate repository can be deployed for each. The metadata is stored in the same repository as the content.

Metadata can be automatically created when a document is created or imported into the DM system. However, users can also be forced to enter metadata manually, which may be validated.

Content is stored in the repository in its native format, although there is a rendering capability that enables content in the repository to be transformed to XML and other formats.

FileNet has a competitive advantage over many of its competitors and also a differentiator in that it has a full BPM product, which is a part of the P8 architecture. This enables organisations to develop very complex processes that take information from multiple applications, manage both manual and automatic tasks, and provide support for sub processes, conditional steps, and parallel steps.

The BPM functionality supports both roles and rules, and has an easy-to-use interface that enables business users to create processes. Tasks can be prioritised and also escalated, with the ability to reassign tasks should they not be completed in the allotted time.

A search engine is embedded in the solution, which enables organisations to perform property-based and full text searches on the repository. A strength of the product is the ability to deploy multiple search methods for a single discovery, which enables users to refine searches. Users are also able to search on physical items. Items in the repository can be automatically or manually categorised depending on the requirements of the organisation, and barcodes can be utilised for the categorisation of physical items.

The searching capability has a great deal of flexibility built-in. Search results may be stored and shared with others, and search templates can be created, enabling search criteria to be reused.

▶ DEPLOYMENT

FileNet P8 runs on the following platforms: Microsoft Windows, Sun Solaris, IBM AIX, and HP-UX. Customers have to supply their own database with support provided for Oracle, Microsoft SQL Server, and IBM DB2.

The solution requires a database and a J2EE application server. FileNet supports a range of existing market products including, databases from Oracle, Microsoft, and IBM and application servers from BEA, IBM, and JBOSS/Tomcat. FileNet does not resell any of these products.

The resources required for an implementation are generally a systems architect, DBA, solution architect, and domain expertise for the RM implementation. Although the product is very easy and quick to install, most implementations require some form of consultancy to help with the configuration and RM elements. Butler Group believes that it is vitally important to ensure that a RM solution is implemented correctly to ensure that the appropriate fileplans are created, records are classified correctly with the appropriate retention periods and disposition schedules, and that they can be discovered quickly. Only if the organisation is confident that it can undertake this task effectively should it attempt this in-house.

The software installation of the FileNet RM component generally takes around a week, with the configuration taking anything from a matter of days to weeks, but the requirements gathering, which we believe is key to a successful implementation, can take weeks or even months depending on the scope and the scale of the implementation. There are several approaches to implementation and FileNet does undertake proof-of-concepts, which some customers treat as phase one of the project. Because the FileNet client is Web-based, the implementation can be rolled out across the enterprise in one go if required.

As FileNet uses the P8 architecture, all of its applications are modular, enabling organisations to deploy the components that are relevant to their requirements. It is a simple task to turn on additional modules when required.

FileNet offers a number of global training courses to enable customers to maintain and manage the products, and works with its partners to support customers and give them the necessary skills to manage their solutions. The courses are tailored to the level of skill of the customer and the business arrangement that the customer has with the partner that implemented the product. Training is provided in one of FileNet's 26 training locations around the world, and courses are provided for all types of users, including business analysts, systems administrators, technical staff, and end-users.

FileNet Worldwide Customer Service and Support is manned by skilled engineers who provide a global service. The technical support programme offers a wide range of services, and optional services provide 24x7 telephone support, on-site technical consultants, technical account manager programme, and Software Development Kit (SDK) support.

▶ PRODUCT STRATEGY

FileNet P8 is targeted at organisations across the world in a wide range of industries including Financial Services, Insurance, Government, Telecommunications, Utilities, and Manufacturing. FileNet's approach is horizontal, but it has many partners with domain expertise that have developed vertical solutions utilising P8. The size of organisations implementing P8 is typically in the US$500 million and above revenue range.

ROI is often achieved through increased productivity, efficiency, and accuracy. It is something that Butler Group feels is difficult to calculate and will differ for every organisation depending on the particular implementation. However, FileNet and its partners are able to work with potential customers to identify the expected ROI.

FileNet sees its key market opportunities deriving from the Financial Services, Insurance, and Government sectors that currently have a need for solutions to help them address compliance issues and also from companies that require a process-centric approach.

The route to market is both via its partner network of resellers, Systems Integrators (SIs), and application developers, and also through FileNet's direct sales model. FileNet has 300 partners that combine its software products with services, applications, and expertise in vertical sectors to provide bespoke solutions.

Key business partners that support the product include implementation partners such as Cap Gemini Ernst & Young, Accenture, LogicaCMG, Atos Origin, Getronics, and Keane.

FileNet has a number of strategic technology partners, which include, Sun Microsystems Inc., Microsoft, BEA Systems, IBM, Oracle, Verity, SAP AG, Siebel, Abortext, VERITAS, Network Appliance, EMC, Hewlett-Packard, ILOG, Plumtree and SoftCell, and ESPS.

FileNet finds itself competing mainly with other ECM vendors and BPM vendors.

The licensing payment structure depends on the requirements of the individual customer, and the solutions are individually priced to reflect this. The software is sold using a perpetual licence model, and pricing can be based on concurrent users or by CPU.

There are two levels of annual maintenance and support: Premium, which offers office hours support, and new versions are charged at 18% of the licence, and Premium Plus provides full 24x7 support and costs 22% of the licence fee.

FileNet sees the major threat to its market share deriving from economic factors deterring companies from implementing ECM, BPM, and EDRM solutions, and also from other major vendors entering this market space. However, Butler Group believes that any major new entreats to this market will be made via acquisition rather than the internal development of an entirely new product. In general the ECM market space is contracting as the smaller niche players are acquired by major ECM vendors.

COMPANY PROFILE

FileNet Corporation (NASDAQ:FILE) was founded in 1982, and is headquartered in Costa Mesa, California, US, with offices across the world. It employs approximately 1,800 people and operates in 90 countries, through direct sales, professional services, and partner organisations. The P8 Platform is a combination of its former Panagon, Brightspire, and Acenza products with electronic forms management software following acquisition of Shana Corporation in 2003.

Reported revenues for 2003 were US$364 million, and the company has invested 21% of revenues in Research and Development for the last two years.

Key business partners for FileNet include:

- Cap Gemini Ernst & Young.
- Accenture.
- Bearingpoint.
- Getronics.
- Sun Microsystems Inc.
- Microsoft Corporation.
- BEA Systems.
- IBM.

Key customers include:

- Con Eddison.
- State Street.
- Centrica.
- National Assembly for Wales.
- Sainsburys.
- Prudential Assurance.
- Zurich Financial Services.
- Department for Work and Pensions.

FileNet states that it has more than 3,900 customers using its products.

SUMMARY

As a vendor that provides Electronic Document and Records Management (EDRM) capabilities within a wider ECM and BPM product, FileNet is in a strong position to increase its market share in the competitive area of EDRM. Although there are no guarantees that any of the major ECM-centric vendors will survive as independent entities in the long-term, FileNet, as a leading ECM vendor, is one of the more likely vendors to survive. Should it achieve The National Archives 2002 approval, the company will find new market opportunities emerging from within the public sector, and is well-positioned to exploit this growing market. Butler Group believes that with the combination of ECM and BPM, FileNet should be considered for any process-heavy document and records management requirements.

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HUMMINGBIRD: Hummingbird Enterprise Version 5.1.05

Butler Group
Analysis without compromise

Hummingbird Hummingbird Enterprise Version 5.1.05

Abstract

Hummingbird Enterprise is an extensive Enterprise Content Management (ECM) solution that includes Content and Document Management (DM), Records Management (RM), E-mail Management, Knowledge Management, Enterprise Workflow, Collaboration, Instant Messaging, Mobility, Query and Reporting, Data integration, and Portal Framework. An increasing number of organisations are implementing Document and Records Management (DRM) to address the issues of compliance and achieving efficiencies and cost savings through the better management of information. An advantage for Hummingbird is the extensive tightly integrated suite of products that provide full ECM capabilities providing end-to-end management of the lifecycle of information. A weakness is that Physical Space Management is not supported. Hummingbird has been designed for all organisations that have a requirement for DM and RM, and is typically deployed in medium-sized and larger organisations. The best way to evaluate the product is to undertake a pilot or a proof-of-concept, both of which are supported.

KEY FINDINGS

- ✓ An extensive, tightly integrated suite of products.
- ✓ Security administrator and Records Manager can be separate roles.
- ✓ Extensive workflow and BPM.
- ✓ Nine levels of permissions for documents.
- ✓ Records and documents stored in single repository.
- ✗ Physical Space Management not supported.

Key: ✓ Product Strength ✗ Product Weakness *i* Point of Information

LOOK AHEAD

Hummingbird has a number of enhancements planned for Hummingbird Enterprise. These include enhanced automatic document categorisation and profiling, expanding the Mobility platform to access and manage all forms of content, and collaboration projects will be able to be saved as records on completion of the project.

▶ FUNCTIONALITY

Product Analysis

Hummingbird Enterprise is an integrated Enterprise Content Management (ECM) platform that enables organisations to manage their information throughout its lifecycle from creation to destruction. It is a modular product that provides functionality in the areas of: Content and Document Management (DM), Records Management (RM), E-mail Management, Knowledge Management, Enterprise Workflow, Collaboration, Instant Messaging, Mobility, Query and Reporting, Data integration, and Portal Framework. The E-mail Management functionality complements the RM capability by providing the ability to capture, manage, preserve, and leverage corporate e-mail through integration with the major corporate e-mail systems.

Document Management

A strength of Hummingbird Enterprise is the extent of the suite, which adds additional functionality to the DM and RM capabilities, such as enabling users to collaborate on documents, workflow, presentation of content through a portal interface, and the provision of extensive query and reporting functionality.

Hummingbird Enterprise provides out-of-the-box integration with Office Productivity suites enabling users to work with the applications they are most familiar with to create and manage documents. This addresses a potential problem faced by organisations when implementing a new system – reluctance on the part of employees to embrace new applications. It also reduces the amount of training required.

The DM functionality is very tightly integrated with the RM features, so that documents can be classified within the RM fileplan. Metadata may be created automatically, or users can be forced to enter information, which may then be validated. Access to documents is controlled by up to nine levels of permissions. Butler Group regards multiple levels of access rights to be important in a DM solution, and believes this to be a strength of the Hummingbird offering.

Extensive workflow and BPM capabilities allow complex document processes to be initiated. Users are able to receive event notification via a range of communications channels including e-mail, Hummingbird Enterprise 2004 — IM, or on a mobile device.

All of the standard functionality expected of a DM system is present including check-in and check-out, major and minor revisions, and the ability to rollback documents to earlier versions.

An important element of DM, in Butler Group's opinion, is the ability to support compound documents, which is a requirement in various market sectors, and Hummingbird allows compound documents to be created and managed.

Another advantage of Hummingbird Enterprise is that documents and records are stored in the same repository, which enables them to be accessed through the same interface, retrieved as a result of a single search, and accessed via the same application. The end-user may not even be aware that he or she is using a record and not a document. The only difference is that a record is indicated by a small icon, and cannot be amended, unlike a document.

Records Management

A Document can be converted to a record at any stage in its lifecycle, including as soon as it is created. The declaration can be performed automatically at a specific stage in the life of a piece of information, or manually by a Records Manager.

Multiple levels of Records Administrator are supported, enabling a Records Manager to delegate certain tasks to other administrators, for example to departmental representatives.

Physical records can be managed by the RM functionality as well as electronic records. Physical records can be checked-in and checked-out, and reminders may be sent when checked-out items become overdue. Bar codes can be created to help identify the physical location of records, and the actual location, such as a warehouse can be barcoded as well as boxes and files. Administrators are able to compare the information within the system with the physical location of records, to ensure that the system is updated each time the location of records changes. Just as with electronic records, events can be set in the lifecycle of the record, for example, to move it from one location to another. However, a current weakness is that physical space management is not currently supported.

Fileplans can either be created within the system or third-party fileplans may be imported. Multiple subcategories are supported with no limit on the number of levels allowed. Rules are inherited by subcategories, and support is provided for multiple file naming conventions.

Events can be triggered by a status change of a record, for example, when it is first declared as a record, or it reaches the end of its retention period, and its status changes to disposition, or they can be triggered by date or elapsed time. Events can include moving physical items to a new box or location, or moving electronic records to a storage archive system, such as EMC Centera.

There are various disposal actions. One is to retain the record permanently, another is to transfer the record to a permanent archive such as The National Archives (TNA), in which case once the transfer is complete all copies of the record held by the organisation are destroyed. A third option is to destroy the record. As part of the destruction process, Hummingbird by default overwrites the physical address seven times, which is sufficient to satisfy the current requirements for compliance, but is not sufficient to ensure that the record cannot be recreated. However, this setting is configurable at the system level and can be set from 1 to 15 times overwrite, as data can currently be recreated that has been overwritten about 14 times.

Product Operation

The core module of Hummingbird Enterprise, the Content Server, requires a Microsoft Windows Server. Clusters of Content Servers provide failover and load balancing, and also allow client requests to be distributed to improve performance and ensure redundancy. Searches can be undertaken across a single or multiple content libraries.

The metadata is stored in SQL databases, which can reside on multiple platforms, and all database platforms across the enterprise can be searched, and the best-fit SQL engine used for each workgroup, department, or location. Content may also be stored on multiple platforms including Microsoft Windows servers, Novell IntraNetWare, and UNIX Generic. Hummingbird NFS Maestro is used for connectivity.

Index Servers store content, which is indexed by the Enterprise Indexer. A way of improving performance is to deploy multiple Index Servers to enable search requests to be distributed, and also to provide failover.

Compression and content caching at the workstation level is supported. The performance of remote workstations in centralised environments can be improved by deploying the Content Cache capability. Content that needs to be accessed by remote users is saved on a local cache, with changes to content automatically synchronised between the local cache and the source repository.

A number of user interfaces are available to suit the requirements of all types of users. These are: a Webtop interface, a Microsoft desktop, e-mail clients, mobile devices, and third-party portal frameworks.

An advantage for Hummingbird, in Butler Group's opinion, is that it recognises that the Records Manager may not necessarily be the person that has responsibility for security in the system and for setting up the access rights and permissions. Therefore the roles of Security Administrator and Records Manager are separate, so that they may be assigned to different people.

Various search techniques are supported including metadata searching, full text searching, which includes relevance ranking, proximity, and wildcards, boolean searching, and fileplan browsing. Search results may be saved and shared with other users, and search queries may also be saved.

Because they are stored in the same repository, documents and records can be discovered in a single search. When returned, records are identified by a red dot.

There is also a Query and Reporting capability that provides a fully featured query and reporting package that provides graphical summaries of content.

Extensive workflow capabilities are provided, and Enterprise Workflow incorporates the ability to initiate processes, monitor status, and assign tasks as well as processes required for the management of the lifecycle of content. Process definition and modelling tools are included to enable business users to create processes to manage documents and records. Many manual tasks involved in the management of a document or record will be the responsibility of a role, rather than an individual or a group.

Workflows may be triggered by events, and support is provided for sub-processes, which are often started following an event in the main process. Because process steps can be coded using Java, a great deal of flexibility is provided in the types of processes that can be created, although the business user will probably require technical assistance to create coded processes. Conditional steps and parallel steps are supported, and voting logic may be introduced via coded steps.

Tasks may be escalated and prioritised, with users notified of overdue tasks, which are based on the timescales entered in the properties of tasks. A full audit trail is maintained, and version control is supported. There is also a full reporting capability, which can be enhanced by integration with BI Query.

DEPLOYMENT

Hummingbird Enterprise runs on Windows platforms, and requires a database, which is not provided with the product. This can be SQL Server, Oracle, or Sybase.

An implementation typically requires a Project Manager, change consultants, integration consultants, and technical consultants. These roles are normally undertaken by a combination of the customer's own staff, Hummingbird staff, and a third-party Systems Integrator. The average time for a deployment is dependent upon the scale and scope of the implementation, and also upon the amount of preparation the customer has already carried out.

Hummingbird has been designed to be deployed in a modular fashion, enabling customers to implement the core functionality and modules to address a specific issue first, and then add additional functionality later, as its requirements grow.

Once implemented, Hummingbird requires a minimum amount of maintenance, which is mainly confined to checking audit files and storage files, as well as managing the general health of the application and database servers. These are tasks that can normally be carried out by the customer.

Training courses are available at the customer site, authorised training centres, or at Hummingbird training centres, and the cost is dependent on the complexity of the solution and the number of users being trained.

Ongoing technical support is provided through a dedicated support desk and by partners. Contact is by telephone, e-mail, and the Web.

Legacy integration is possible using the Application Programming Interface (API), and the development time for this varies, depending on the complexity of the solution and the level of integration required with Hummingbird Enterprise.

The major process change that is needed when implementing DRM relates to change management, which requires end-user buy in. Butler Group believes that it is inevitable that there will be changes to the way in which users manage documents and records. The implementation of a new system is always the ideal opportunity to look at existing processes and procedures and see how these can be improved.

Hummingbird Enterprise implementations include, City of Rotterdam with 8,000 users, Arcelor with 8,000 users, and The British Bankers Association with 120 internal users. Up to 8,000 of the municipal staff of the City of Rotterdam uses Hummingbird Enterprise, which is deployed in every department to store, manage, retrieve, and share paper and electronic documents from a central repository. This has created faster, more efficient, and secure access to a wide variety of content, improving services and the ability to share information with citizens.

The British Bankers Association has 120 internal Hummingbird Enterprise users, where it is used as a repository and an on-line workspace for each discussion project. It also provides Extranet access to senior executives within 42 banks.

PRODUCT STRATEGY

Hummingbird Enterprise is targeted at both vertical and horizontal markets. Solutions such as Contract Management, Compliance, and GIS Linked Content are relevant across a number of different vertical markets. The company also has extensive vertical expertise in legal and government sectors, and is making inroads into the financial sector. In general, Hummingbird Enterprise is deployed in medium and larger organisations, although the company does have smaller customers. It has been designed for all organisations that have a requirement for DM and RM.

Butler Group maintains that it is difficult to calculate ROI, but the expected ROI from Hummingbird Enterprise depends on the nature of the business issues being addressed.

Hummingbird sees its key market opportunity deriving from Content Lifecycle Management, as it has a full suite of offerings to manage information, from creation to destruction. Butler Group feels that another major opportunity for Hummingbird in the coming years will be compliance, as more and more organisations are required to retain information for longer periods, necessitating RM functionality.

Hummingbird's go to market strategy is evolving through a shift from selling point technologies to leveraging an integrated platform, Hummingbird Enterprise, which in turn is the basis of its own business solutions, partner developed solution templates, or deriving best-of-breed functional modules. In this context, Hummingbird aims to align its own direct client engagement with a portfolio of technology, solution, platform, implementation, and business consulting organisations in a strict partner centric strategy by region, industry, and solution.

It has a number of key business partners across the globe. In North America this includes CGI, which first partnered with Hummingbird in 1997 when both companies were selected for the Canadian Government's 14,000 seat RDIMS project, and Alphawest a reseller in Asia-Pacific. Across EMEA this includes over 150 aligned partners including Unisys, Xerox, LogicaCMG, IBM, Emprise, ATOS-Origin, Oracle, Logon SI, Cap Gemini, WM Data, Workshare, and Titan Systems.

Hummingbird's routes to market are through direct sales, via the channel, and through partners. It has a number of key business partners that include: CGI, which first partnered with Hummingbird in 1997 when both companies were selected for the Canadian Government's RDIMS project and is now a Hummingbird Global Strategic Alliance partner; Alphawest, a reseller in Asia Pacific; Integic, an integrator partner; and EDS.

Hummingbird owns all of the core technologies within Hummingbird Enterprise, but has technology partners to deliver specific components for vertical markets.

Hummingbird competes with other ECM vendors that have originated from different areas. These include Web Content Management (WCM) vendors that have acquired DM and RM vendors to supplement their own offerings, storage vendors that have acquired ECM vendors, infrastructure vendors that have moved into WCM and collaboration, and the pure play ECM vendors, which is the area that Hummingbird feels that it plays in.

The licensing and payment structure for the product is based either on named users or by CPU. The products can be installed separately or together on the same server, depending on the environment in which they are deployed and the intended use. Typical project values range from US$200,000 to US$1 million, depending on the optional modules selected. Larger deals are worth multi-million dollars, while pilots and proof-of-concept are below US$200,000.

In terms of services, Hummingbird can be deployed out-of-the-box with very little customisation, so services are generally focused on revising business processes and end-user training. Depending on the size of the project and the amount of training required, the cost of services can range from 40% of the cost of the software licence to 1.5 times the value.

The cost of annual maintenance and support starts at 18% of the software licence cost for the Standard Plan.

Hummingbird Enterprise is not National Archives (TNA) 2002 approved. However, the product is DoD 5015.2 certified. Hummingbird has another product Hummingbird R/KYV, a DRM system, specifically positioned for government compliance and open platform requirements, following its acquisition of Valid Information Systems, which is TNA 2002 approved.

▶ COMPANY PROFILE

Hummingbird, which is headquartered in Toronto, Canada, was founded in 1984, initially as a consulting firm specialising in mainframe communications. Within five years the company had expanded into software development, initially in the area of connectivity software. Through a series of acquisitions Hummingbird moved into providing managing software for unstructured and structured content. It introduced an integrated suite of ECM applications under the brand of Hummingbird Enterprise.

In addition to several offices in Canada, the company has offices in Australia, Belgium, France, Germany, Italy, Japan, Korea, Mexico, The Netherlands, Hong Kong, Singapore, Sweden, Switzerland, the UK, and the US. There are 1430 employees split between these locations. Its staff inludes 18.2% in research and development, 43.1% in sales and marketing, and 9.6% in general and administration.

Hummingbird is publicly owned and listed on NASDAQ (HUMC) and the Toronto Stock Exchange (HUM). Revenues for the financial year of 2004 were US$220.2 million, with a gross margin of 88.2% and a net margin of 3.1%. In 2003 revenues were US$192.6 million, with a gross margin of 90.4% and a net margin of 1.9%, and in 2002 revenues were US$180.4 million, with a gross margin of 91.4% and a net margin of (1.6%).

Hummingbird has approximately 8,000 customers worldwide using Hummingbird Enterprise, with over two million users. The company has about 33,000 customers across all of its product lines. Customers using Hummingbird Enterprise include City of Rotterdam, Arcelor, and The British Bankers Association.

SUMMARY

The ECM marketplace is currently consolidating, as large ECM players buy up small niche specialist vendors to plug gaps in their own functionality. Hummingbird has itself engaged in this practice through its acquisition of the Electronic DRM (EDRM) vendor, Valid Information Systems. Butler Group expects that there will only be around six major ECM players at the end of this consolidation period. We believe that Hummingbird stands a good chance of being one of these vendors. With its extensive ECM capabilities to manage the entire lifecycle of information, Butler Group regards Hummingbird Enterprise to be worth further investigation for any organisation that has a desire, or a need, to manage its information more effectively.

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HUMMINGBIRD (VALID INFORMATION SYSTEMS): R/KYV Version v9.1

Butler Group
Analysis without compromise

Hummingbird (Valid Informations Systems)

R/KYV Version v9.1

Abstract

R/KYV v9.1 is an Electronic Document and Records Management System (EDRMS) that is built around open standards, and has been developed to address government defined Records Management (RM) requirements. Highly modular and using XML, R/KYV v9.1 is most suited to those public sector organisations that require a wide range of functionality on an open platform, meeting UK TNA 2002 or EU MoReq standards. R/KYV v9.1 has a wide range of integration tools, although all objects must be managed within R/KYV's database. The capture and user interface components are also extensive, allowing R/KYV v9.1 to be deployed alongside existing systems and processes, reducing disruption, aiding adoption, and thus successful deployment. A thorough and comprehensive solution set, with features and enhancements being driven by user groups and national requirement, it is one of the 'solid' players in this market, and is a natural for any shortlist for a TNA 2002 approved solution.

KEY FINDINGS

✓ Comprehensive range of functionality and strong adherence to government-defined standards.

✓ Standards-based, open *n*-tier architecture, with extensive use of XML.

i Uses a proprietary XML Object Database, or Microsoft and Oracle databases.

✗ Integration with legacy DRM systems is not possible, existing data must be migrated.

Key: ✓ Product Strength ✗ Product Weakness *i* Point of Information

LOOK AHEAD

Closer integration with other parts of Hummingbird's Enterprise suite is an obvious development for R/KYV v9.1, although its robust and comprehensive component set will make it attractive to customers who do not want a full Enterprise Content Management (ECM) suite.

▶ FUNCTIONALITY

Product Analysis and Operation

R/KYV v9.1 (pronounced 'archive') is a tightly integrated suite of modules, which deliver Electronic Document and Records Management (EDRM) solutions that address government-defined standards for Records Management (RM), and that are flexible in deployment to be tailored to organisational needs.

The suite has a set of core functionality which is complemented by additional components to deliver appropriate features for respective organsiational requirements.

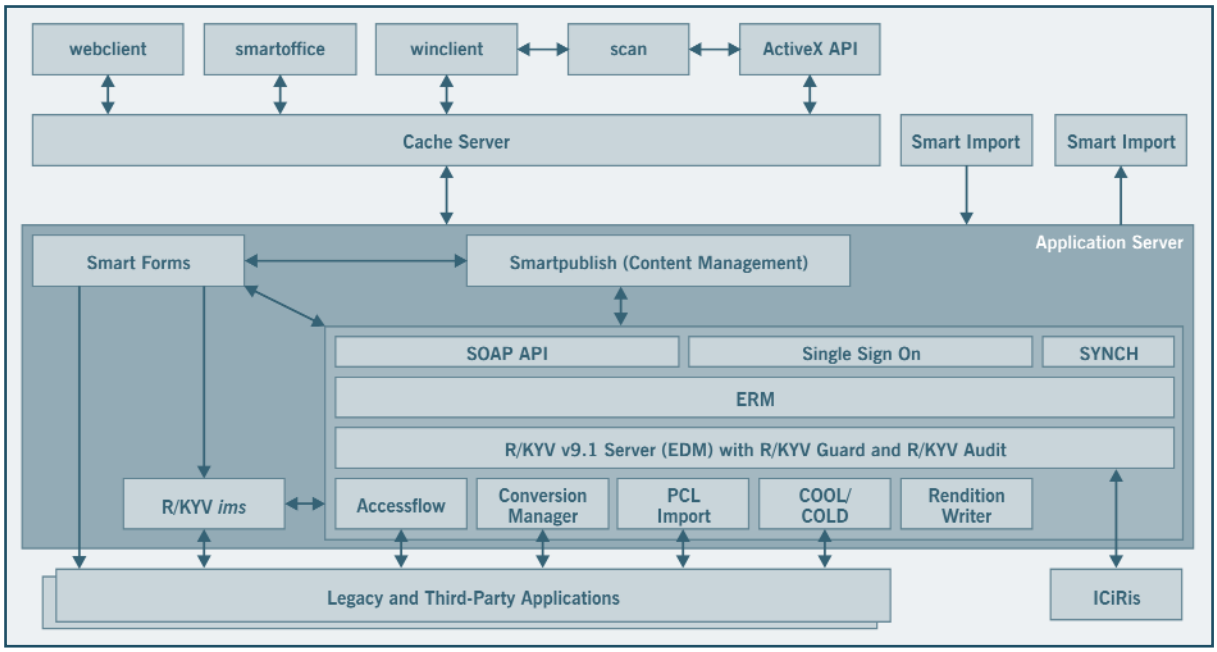

Figure 1: Hummingbird R/KYV Component Architecture.

The core EDRMS comprises the R/KYV v9.1 Server, the Electronic Records Management (ERM) Pack, and the regulation enforcing elements of the suite:

- **R/KYV v9.1 Server** is the foundation of every R/KYV deployment. It is an Electronic Document Management (EDM) system incorporating security policies, Document Management (DM), electronic-Government Interoperability Framework (e-GIF) compliance, search, storage, audit trail, and authentication. It can manage any electronic object including word-processed documents, spreadsheets, e-mails, videos, audio files, scanned images, or even Web pages, storing those objects in the proprietary R/KYV XML Object Database, or Oracle 9*i* or Microsoft SQL Server databases, as customers require.
- The **ERM pack** provides the regulation-compliant management of objects handled by v9.1 Server. The functionality delivered by the ERM Pack is tested to UK National Archives (TNA) 2002, and meets European Union MoReq standards.
- The **EDM Client** allows users to access document management functionality through R/KYV's Webclient, Winclient, or SmartOffice user interface components.
- The **EDRM Client** is UK TNA 2002 approved, and enables users to manage TNA 2002, MoReq compliant records, and other documents through Webclient, Winclient, and SmartOffice.
- There are a range of **Language Packs** for all R/KYV v9.1 components. Packs are available in most Western and European languages, supporting the translation of all text and formats within R/KYV v9.1.

In addition, there are a wide range of optional components for R/KYV v9.1, which are used to create organisation-specific solutions. These are grouped into functional sets that predominately support the DM elements of the solutions.

Document Management

The DM functionality of R/KYV v9.1, particularly the capture and user interface components, is extensive, allowing R/KYV v9.1 to be deployed alongside existing systems and processes, reducing disruption to users and aiding adoption, and thus successful deployment. The range of components can be grouped into: Capture, User Interface, Workflow and Business Logic, Integration, Extraction, and Security.

- ***Capture Components:***
  - **ICiRis** – An Intelligent Character Recognition (ICR) engine used for text extraction, and the ICR reader application. ICiRis can extract text from any electronic object for word and/or phrase searching.

- **R/KYV Scan** – Enables R/KYV v9.1 to capture information held on paper via scanning. It supports both KOFAX and TWAIN scanning interfaces, and can operate in both ad-hoc and bulk/batch scan modes.
- **Conversion Manager** – Converts R/KYV v8 databases and other data forms directly into the v9.1 XML Object Database format. It also converts data associated with any document, such as security markings, records, and audit data.
- **SmartOffice** – Integrates R/KYV v9.1 functionality into users' existing desktop tools such as Microsoft Office, StarOffice, OpenOffice, Outlook, Lotus Notes, and GroupWise. It provides direct access to operations such as Save, Open, Check-in, Check out, and Search for R/KYV v9.1 from within applications such as Microsoft Word. It also allows content held in R/KYV v9.1 to be brought directly into desktop applications.
- **SmartForms** – Enables users to partially complete Web-based forms, and to save them for subsequent retrieval, completion, and 'submission' to the next step, independently or in a workflow.

- ***User Interface Components***
  - **SmartOffice** – Enables users to directly work on documentation held within R/KYV v9.1 using their existing desktop tools.
  - **Webclient** – Enables users to work on documentation held in R/KYV v9.1 via a Web browser. All elements of the user and records administration functionality are available as well as additional elements such as book marking, e-mailing, retention, and disposal.
  - **Winclient** – A Windows-based client, used in conjunction with R/KYV scan, enabling users to manage the process of scanning paper documents.
  - **ActiveX API** – An Application Programming Interface (API) for integration with third-party Windows applications. This allows the user to access both the application, and the relevant documents and records from R/KYV v9.1, through a single interface.
- ***Publishing Components***
  - **SmartPublish** – A secure content, organisation, and publishing environment, providing both a system management tool, and a portal builder for Internet and Intranet sites.
  - **Presenter** – A standalone browser-based presentation tool for displaying off-line content from R/KYV v9.1, designed for courtroom, boardroom, and CD-ROM presentations.
  - **Rendition Writer** – A tool that enables objects stored in R/KYV v9.1 to be automatically rendered to PDF and subsequently stored as a PDF object alongside the original object.
- ***Workflow and Business Logic Components***
  - **Accessflow** – Enables comprehensive workflow creation through full access to the v9.1 API set, and integrated database triggers. Accessflow discriminates between group and individual inboxes, and can apply workflow to either single documents, or multiple document batches.
  - **Accessflow GUI Designer** – A graphical workflow design tool enabling the creation and maintenance of workflows, incorporating intuitive 'drag and drop', and Wizard interfaces to simplify workflow creation. It also utilises JavaScript to connect external systems into the workflow.
  - **SmartForms** – As discussed above, and integrated into the workflow.
- ***Integration Components***
  - **ActiveX API** – As discussed above.
  - **SOAP API** – A full-featured API to integrate with third-party products, which has been used to integrate with both Window and Web applications. Webclient, Winclient, and SmartOffice suites all use the SOAP API to communicate with the other R/KYV v9.1 components.
  - **R/KYV IMS** – The Integration and Middleware Server (IMS) provides real-time transactional access to third-party systems via a Web browser. This allows users to directly access and modify data in external systems whose format is controlled by a set of configurable display rules.

- **XML / XSLT / HTTP / JDBC pack** – This enables R/KYV v9.1 to interact with systems that can provide XML data via SOAP, HTTP, or through JDBC.
- **LDAP integration pack** – providing synchronisation with a coporate Lightweight Directory Access Protocol (LDAP) compliant directory, and bringing R/KYV v9.1 access under the corporate security model.
- **File / XML / CSV pack** – Allows R/KYV v9.1 to use XML and CSV files as data sources. This is particularly useful for importing content from legacy systems.
- **UDDI / WSDL pack** – Enabling R/KYV v9.1 to integrate with and publish to, UDDI/WSDL-based services.

- ***Extraction Components***
  - **SmartWork** supports remote working. Allowing for document check-out, check-in, and auto synchronisation with the main R/KYV system.
- ***Security Components***

  R/KYV v9.1 has its own security model, but as detailed above, it can be linked to an organisation's LDAP-compliant directory for authentication and rights management as required. There are also two specific security components:
  - **Audit Reader** – An audit tool that provides multiple grouping, sorting, and export functionality.
  - **Single Sign On pack** – This ensures that all other authentication requests to systems outside R/KYV v9.1, are automatically handled using the original sign-on information.

Records Management

As detailed above, the RM functionality is delivered through the ERM Pack of the core EDRMS. Being tailored for European and particularly UK public sector bodies, the RM functionality enables organisations to manage the disclosure requirements of the UK Freedom Of Information (FOI) Act 2000, and Data Protection Act (DPA) 1998.

▶ DEPLOYMENT

R/KYV v9.1 is built using J2EE, and has been tested on a range of deployment platforms. The currently tested servers are:

- Microsoft Windows Server 2000/2003.
- Linux.
- HP-UX.
- Sun Microsystems Solaris.

The currently tested databases are:

- Oracle 9*i*.
- Microsoft SQL Server 2000.
- R/KYV XML Object Database.

The currently tested application servers are:

- Apache/Tomcat.
- Oracle 9*i*AS.
- BEA WebLogic.
- IBM WebSphere.

Additional platforms, such as IBM DB2 database and IBM AIX operating system are supported, but will become current tested platforms if required by customer requirements.

R/KYV v9.1 is deployed based on a true *n*-tier architecture, with the ability to scale out the application layer. Where the scaling requirements of an organisation exceed that of workgroup levels, R/KYV v9.1 has two additional components to facilitate growth:

1. **R/KYV Cache** – A configurable repository to store frequently accessed objects, to accelerate access speeds.
2. **Clustering pack** – Which supports Tomcat/Oracle 9*i*AS clustering, and enabling both scaling and fail-over.

Normally implementations of R/KYV v9.1 are undertaken by a combination of staff from the organisation, Hummingbird, and a third-party Systems Integrator (SI). Hummingbird states that implementation times have ranged from four weeks for a standard TNA 2002 EDRMS deployment for 120 users, to 40 weeks for a highly customised solution supporting 1,500 users.

Hummingbird provides a range of training options dependent upon customer requirements, ranging from train-the-trainer through formal classroom sessions, to Computer-Based Training (CBT).

Support is normally via phone, e-mail, or Web form, and is provided through both Hummingbird's support desk and those of its partners involved in the implementation. Support and maintence is charged at 17.5% of licence costs per annum.

Integration to legacy repositories is not possible, and migration of existing data will be required as part of implementation of any solution.

SOLUTION STRATEGY

R/KYV v9.1 is vertically focused on the government sector, in particular that of the UK. The DM/RM functionality is, however, horizontal in application and offers an open platform alternative to the Hummingbird Enterprise platform, and other vendors EDRM offerings. It is designed for medium to large organisations. Target markets are Central Government, Local Government, Financial Services, Justice, and Housing. It is sold either directly by Hummingbird, or via its partners.

The component nature of R/KYV v9.1, means it can be purchased and deployed in a modular fashion. There are two modes of sale:

1. Workgroup – less than 75 users.
2. Enterprise – more than 75 users.

Hummingbird offers per user licencing for a five year period, but will also offer leasing if appropriate to the customer. Reported project values for R/KYV deployments range friom UK£150,000 to UK£20 million, with an equal split of costs between licences and services.

Planned developments include adherence to emerging public sector standards, and the creation of solutions that meet specific public sector business requirements. Hummingbird emphasises that it utilises its active user groups as a major source of development ideas. New versions of Hummingbird products are released on an 18-24 month cycle, with functional upgrades each quarter, and bug fixes as required.

COMPANY PROFILE

Hummingbird, which is headquartered in Toronto, Canada, was founded in 1984, initially as a consulting firm specialising in mainframe communications. Within five years the company had expanded into software development, initially in the area of connectivity software. Through a series of acquisitions the company moved into providing managing software to manage unstructured and structured content. It introduced an integrated suite of ECM applications under the brand of Hummingbird Enterprise.

In addition to several offices in Canada, the company has offices in Australia, Belgium, France, Germany, Italy, Japan, Korea, Mexico, The Netherlands, Hong Kong, Singapore, Sweden, Switzerland, the UK, and the US. There are 1430 employees split between these locations. Its staff includes 18.2% in research and development, 43.1% in sales and marketing, and 9.6% in general and administration.

Hummingbird is publicly owned and listed on NASDAQ (HUMC) and the Toronto Stock Exchange (HUM). Revenues for the financial year of 2004 were US$220.2 million, with a gross margin of 88.2% and a net margin of 3.1%. In 2003 revenues were US$192.6 million, with a gross margin of 90.4% and a net margin of 1.9%, and in 2002 revenues were US$180.4 million, with a gross margin of 91.4% and a net margin of (1.6%). Then Valid Information Systems Ltd released the first version of the R/KYV product in 1998. The company was acquired by Hummingbird in July 2003, and operates as a wholly owned subsidiary.

The key technology partnerships for R/KYV v9.1 are with Oracle and HP. Other business partners include those systems integrators who also focus on government projects for example: ATOS Origin, Capita, IBM, ITNET, and LogicCMG.

Specimen UK customers for R/KYV include:

- Tunbridge Wells Council.
- Isle of Wight Council.
- The Welland Partnership. (Five local authorities).

Hummingbird has about 33,000 customers across all of its product lines.

SUMMARY

R/KYV v9.1 is an EDRMS, with RM functionality that is certified to the TNA 2002 standard and meets the EU MoReq standard. A complete product set, with extensive input and output modules, and a range of user interface tools, including seamless integration with 'office' suites, and existing e-mail solutions, it is designed to sit alongside existing systems, and will integrate with the organisation's corporate security model. It is most appropriate for medium to large public sector organisations, and offers out-of-the-box support for UK FOI and DPA compliance. Thorough and extensive in functionality, with features and enhancements being driven by user groups and national requirements, it is one of the 'solid' players in this market, and is a natural for any shortlist for a TNA 2002 approved solution.

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HYPERWAVE: eKnowledge Suite and eRecords Suite

Butler Group
Analysis without compromise

Hyperwave eKnowledge Suite and eRecords Suite

Abstract

The Hyperwave eKnowledge Infrastructure (eKI) integrates many disparate yet related content-centric functions, such as document management, records management, asynchronous and synchronous collaboration, information discovery and retrieval, and e-learning. These functions or disciplines are frequently implemented in a piecemeal fashion throughout organisations, and so in response to specific needs Hyperwave has produced a solution – Hyperwave eKI – which integrates them all within a consistent framework. At the heart of eKI is Hyperwave's Information Server Release 6, otherwise known as IS/6. IS/6 is an extremely robust, object-oriented platform, which provides the core functionality for a wide range of applications. As a vendor Hyperwave is able to offer much more than document and records management, but in Butler Group's opinion, the company needs to do a better job of product positioning and branding: eKnowledge Suite, eRecords Suite – one vendor, one suite.

KEY FINDINGS

- ✓ Hyperwave Explorer provides good offline capabilities.
- ✓ A tightly integrated set of suites which can be easily extended.
- *i* Strong appeal to UK local government and wider public sector.
- *i* Approved by The National Archives.
- ✗ Product positioning and branding needs to improve.
- ✗ Restricted to Microsoft and Oracle databases.

Key: ✓ Product Strength ✗ Product Weakness *i* Point of Information

LOOK AHEAD

Butler Group expects to see Hyperwave rise in profile over the next 12 months as a vendor offering a fully integrated, broad-based solution for DRM and KM. Hyperwave is focusing resources on the next major release of IS/6 which is intended to provide improved J2EE and application server support.

▶ FUNCTIONALITY

Product Analysis

Both public and private sector organisations are finding themselves faced with a range of competitive and legislative issues which mandate a closer look at the way corporate documents and records are created, handled, managed, stored, and disposed of. This has given rise to an increased demand for Document and Records Management (DRM) solutions as organisations desperately seek to gain a greater level of content control.

Butler Group believes that the disciplines and processes pertaining to DRM need to be addressed more now than ever before, and that technology solutions alone are unlikely to deliver real business benefits unless accompanied by a real desire to change corporate culture. Just as in the world of structured data where a data warehouse supports additional value-generating activities through a consolidated data platform, Butler Group believes that Enterprise Content Management (ECM) – and DRM in particular – should support the many different ways that an organisation will wish to interact with content.

Hyperwave has adopted this kind of approach by placing core content management functionality at the centre of its portfolio, forming the basis for building powerful solutions through the addition of other elements of the vendor's portfolio.

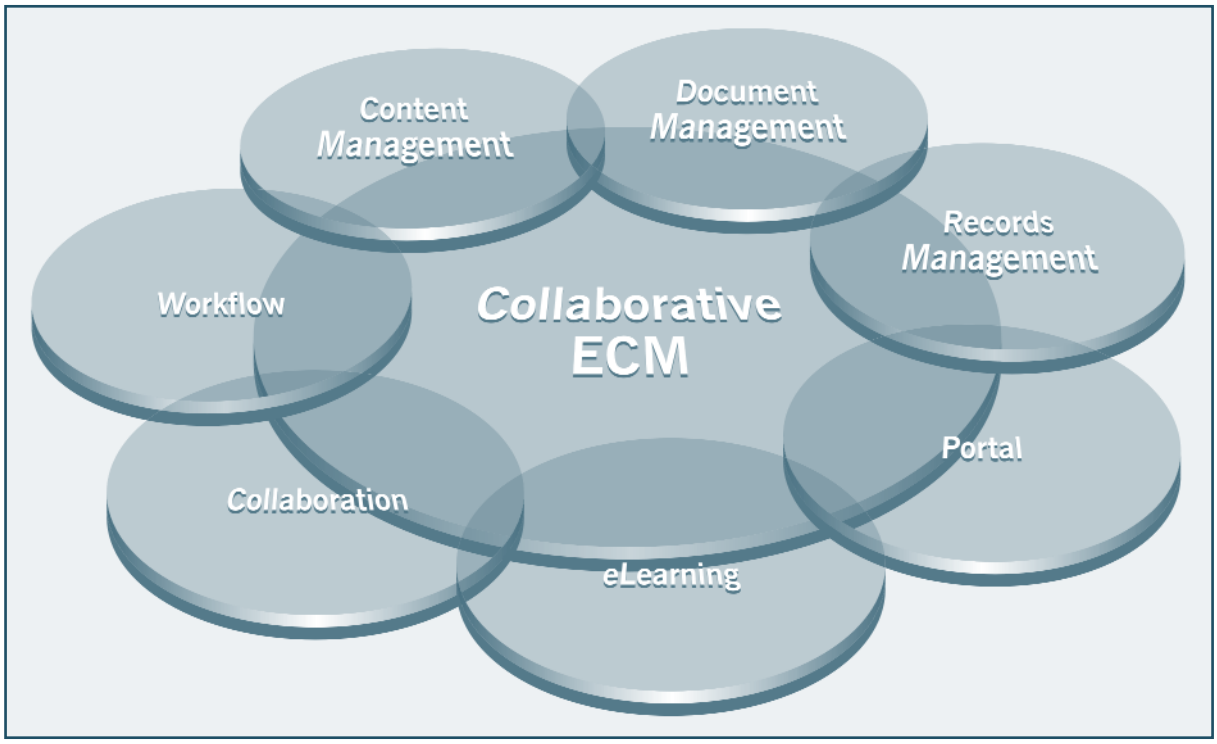

Figure 1: Hyperwave eKnowledge Infrastructure

eKI is the term used to describe Hyperwave's entire portfolio of products and solutions, and includes:

- Hyperwave Information Server (IS/6) – this provides core underlying content and document management features including full version control, access control, and link management.
- Hyperwave eKnowledge Suite (eKS).
- Hyperwave eLearning Suite (eLS).
- Hyperwave eConferencing Suite (eCS).
- Hyperwave eRecords Suite (eRS).

In addition, Hyperwave has developed a number of modules to complement these base level products – these include Team Workspace Option, Workflow Option, Web Content Option, Scanning Option, Archive Option, and Hyperwave Explorer.

Hyperwave eKS can be considered as a front-end to IS/6, exposing the underlying content and document management functionality. It is a customisable application that allows users to access relevant activities or functions, such as content and document management, collaboration and knowledge exchange, and information search and retrieval. In this regard, the boundaries between IS/6 and eKS become blurred, making it difficult for potential customers to pinpoint or isolate the relative functionality of each component. It is therefore easiest to consider eKS as being the core generic offering from Hyperwave, which incorporates the IS/6 platform with the necessary management and administration controls, user interface, and content and information features of eKS.

Specific areas of functionality delivered as part of eKS include:

- **Document Management** – eKS supports a wide range of document formats (for example, MS Office, HTML, XML, PDF, and multimedia). Standard document management functions such as version control, check-in/check-out, individual rights assignment, and full document history are supported.
- **Content Management** – Publishing from browser interface via drag-and-drop, integrated workflow and release processes, document life cycle management, dynamic link management, and automatic notifications.
- **Interaction and Communication** – Search for experts on specific topics, on-line discussion forums with archiving, chats and instant messaging with presence awareness, e-mail integration, as well as document annotation for the adding of comments. Such annotations can be stored as separate objects with their own attributes and security properties.

Document Management

Hyperwave's DM solution is based on well proven technologies and platforms, and is therefore assured to scale-up to accommodate the most demanding requirements of organisations in both the public and private sectors. The DM functionality afforded by Hyperwave's solution is delivered though the company's eKS, which in turn utilises the Hyperwave IS/6 enterprise content management platform – a Web-based platform designed to simplify the building of enterprise solutions.

IS/6 provides the underlying functionality that is surfaced by Hyperwave's eKS, including:

- Document management with version control.
- Hierarchical document management.
- Support for over 200 file formats.
- Archiving with configuration management.
- Extensible metadata.
- Creation of own document classes.
- Search in arbitrary indexed metadata.

All documents and metadata are stored in a standard database, which, argues Hyperwave, provides optimum data security. Once stored in the Hyperwave repository, all documents are indexed by either a Verity or Autonomy integrated full-text search engine.

Hyperwave provides a built-in WYSIWYG HTML editor that can be used to quickly create HTML pages based on templates. Furthermore, a complete forms-based publishing environment is available to create simple input forms for users that in turn create complex pages. An in-built text editor is also available.

The company has a number of existing integration modules for third-party applications including SAP, Kofax Ascent, and EMC Centera. Where the integration of other content from other sources is required, Hyperwave points to its very capable SOAP interface.

When it comes to converting a document to a 'document record' nothing could be simpler: the user selects the document, and then clicks the menu entry 'Declare As Record'. If at this point additional metadata is required, the user is presented with an easy-to-use form.

Records Management

Hyperwave eRS has been developed in reaction to the challenges faced by UK and US government organisations and the wider public sector. In particular, these organisations are trying to reconcile their responsibilities with regards to important legislation including, in the UK, the Data Protection Act and Freedom of Information Act.

Records management forms a critical part of these legislative efforts, providing as it does the necessary document security controls, document retention policies, auditing/reporting and transparent workflows, and content classification. Hyperwave eRS is one of only a few solutions approved by The National Archives (TNA) in the UK, and is therefore likely to be more attractive to public sector bodies than solutions from more familiar vendors that have yet to receive TNA approval.

Features of the Hyperwave eRS include, dynamic hierarchical fileplan, supports for classes, folders, and parts, multiple index entries per document, automatic ranking and sorting, automatic assignment of context attributes, full-text indexing of over 200 formats, disposal schedules (time-based/event-based), support for external trigger events, and secure auditing through servlet authentication.

eRS is fully integrated with eKI, therefore declaring existing documents as records is straightforward. An optional e-mail module is available for those organisations wishing to use Hyperwave as an e-mail management tool.

Hyperwave has proven integration capabilities with a number of storage and archive technologies including: EMC Centera, IXOS, IBM TSM, and others. By default all data is stored in either an Oracle or Microsoft SQL Server database.

Hyperwave's RM solution achieved TNA approval in May 2004, and the company has a test date in early 2005 with the US Department of Defense for DoD 5015.2.

Product Operation

The primary interface for users of this solution is delivered through a standard Web-browser. HTML and Java Script combine to produce an attractive and easily understood user interface. However, should the user be more at home using a native Windows application, then Hyperwave Explorer is an alternative way of interacting with documents held in IS/6. A Win32 application, Hyperwave Explorer enables users to drag-and-drop documents to and from their desktop. It also provides access to common DM functions such as the ability to check-in and check-out documents; modify and manage document metadata; and perform off-line working – a very important feature for organisations with a mobile workforce.

Within Hyperwave, documents are controlled throughout the information lifecycle. Authorised users are able to check a document in and out, or create new versions through their Web browser or directly from their Windows or Java desktop using Web Distributed Authoring and Versioning (WebDAV). An extension to HTTP, WebDAV was originally designed for Web site creation. Because WebDAV resources can be mounted within the Windows 2000/XP file system (and Mac OS X), any WebDAV-enabled application (such as Microsoft Office 2000 for example) can access files stored in Hyperwave directly. As a file system WebDAV is not perfect, and there are currently limitations in terms of functionality and performance when compared with other network file systems. Butler Group would therefore advise organisations to fully understand the limitations of WebDAV before adopting this method of document access enterprise-wide.

Document security is based on a user's rights and roles, and as a result Hyperwave is able to provide very granular access control to all items stored within the Hyperwave repository.

Hyperwave supports either Verity or Autonomy as full-text search engines, thereby enabling organisations to select the technology most able to meet business requirements.

By supporting WSRP – Web Services for Remote Portlets – Hyperwave can be embedded into portals from other vendors. WSRP defines how to plug remote Web services into the pages of a portal and other user-facing applications, and is supported by companies such as BEA, IBM, Microsoft, Oracle, Plumtree, and Sun. WSRP is important from a product operation point of view because many organisations have adopted the corporate portal approach when it comes to deploying applications and providing access to information.

▶ DEPLOYMENT

Hyperwave states that deployment of the core IS/6 component can be performed within one or two days, and that at this point the organisation will have access to at least 70% of available functionality. Depending on the scale of the deployment and the requirements of the client, complete deployment can take anything up to six weeks. The fact eKI supports modular or phased deployment is of significant benefit to organisations, as it allows for a small initial deployment (for example, to trial the technology), followed by a number of smaller upgrades. Deployment and integration is carried out by Hyperwave's own professional services team or through the use of partners.

While the installation and configuration of Hyperwave will undoubtedly require specific product knowledge, organisations will often provide the skills and resources required to implement the supporting operating system and database.

Supported operating systems:

- Windows 2000 Server
- Red Hat Enterprise Linux AS 2.1
- SUSE Linux Enterprise Server 8
- Solaris 8

Supported databases:

- Microsoft SQL Server 2000
- Oracle 9*i*

Audit Server:

- Java Development Kit (JDK) 1.4
- Tomcat Servlet Engine 4.1.12
- Microsoft SQL Server 2000

While this list of supported operating systems cannot be considered extensive by any stretch of the imagination, in practice, this is likely to cover the majority of corporate IT landscapes, and so Hyperwave's solution should have no problem fitting in.

Even though this solution will be accessed primarily through a Web browser, Butler Group was surprised to learn of the strict requirements:

- Internet Explorer 6.0 (Windows 2000/XP).
- Netscape 7.1 (Windows 2000/XP and Mac OS X).
- Internet Explorer 5.2.x (Mac OS X).

We would argue that any application designed to be accessed via a Web browser should endeavour to support all main-stream browsers, and given that Microsoft Internet Explorer is currently experiencing a significant challenged by the open-source browser Firefox, we would like to see all vendors adding support for this and other browsers.

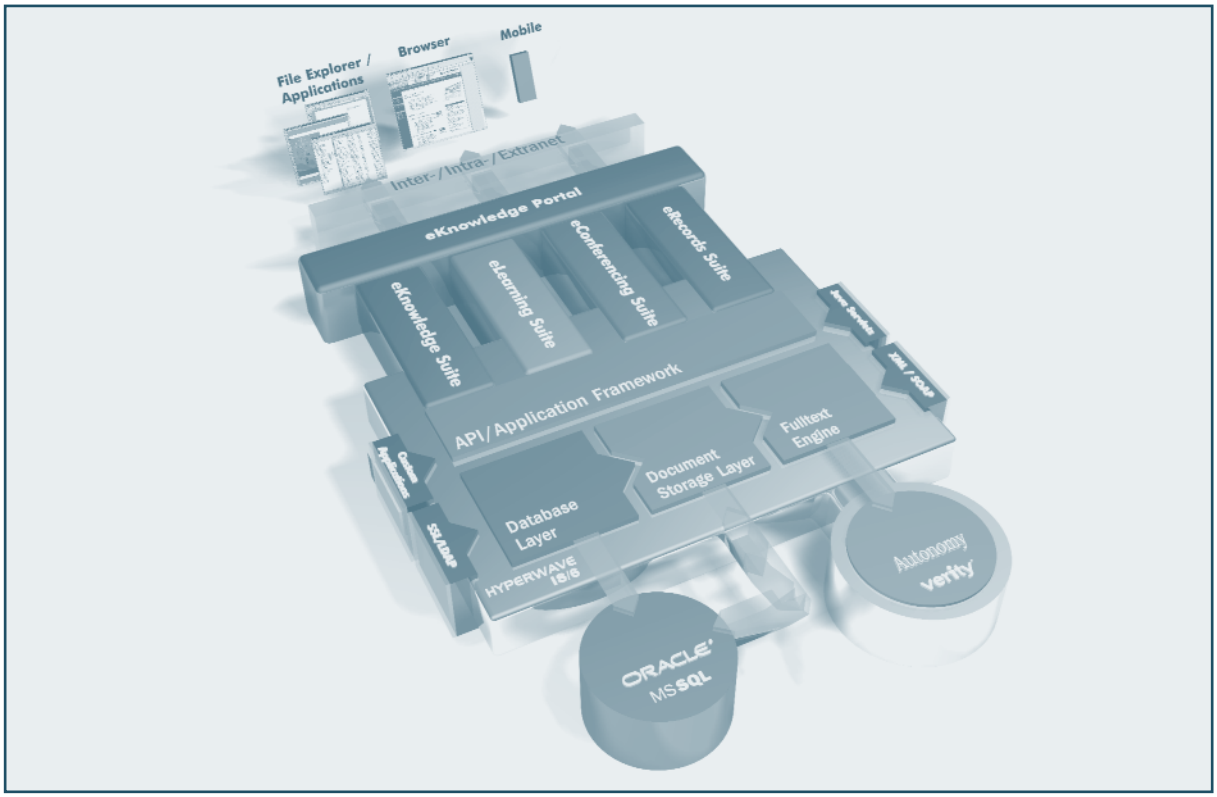

Figure 2: Hyperwave eKI Architecture

The underlying architecture of IS/6 gives tremendous deployment flexibility to large and distributed organisations. Hyperwave Server Pool technology simply allows any number of servers to be connected as if they were one – alleviating the need to replicate data to central server platforms. What is more, scalability can be managed easily by the addition of new severs only in the areas that are required, thereby allowing functions and operations to be spread across servers. For example, having a server dedicated to indexing reduces the load on the application server and ensures that end-user performance is not compromised.

Being entirely Web-based allows full administration and management to be performed across the corporate Intranet or even over the Internet. Ongoing customer support (both front-line and dedicated) is provided by a 24x7 help line, the responsibility of which is shared between several Hyperwave locations.

▶ SOLUTION STRATEGY

Hyperwave offers an excellent solution set and now appears to be dealing effectively with sales and marketing activities while also building strong relationships with partners such as IT Net and Bull Information Systems. The company sees Open Text as its primary competitor, but considers that its home-grown approach to application development has significant advantages over the 'acquire-and-integrate' approach pursued by a number of other vendors, in that more time is spent developing and extending existing product functionality than integrating often overlapping technologies and software development teams.

Target markets for Hyperwave eKI are many and multifarious. In terms of organisational size, Hyperwave is aiming at businesses with more than 500 users – due to the scalability and performance, there is no upper limit for Hyperwave, and global deployments covering many thousands of users are not uncommon. Hyperwave is in the process of devolving its vertical focus throughout the organisation to allow key markets to be approached directly.

The company's sales model is still primarily focused on direct sales. However, business partnerships have been formed with the likes of HP, Bull Information Systems, ITNET, and Axcelia, to support indirect sales. We feel that such a strategy will benefit Hyperwave significantly during a time of economic uncertainty and increased competition – most notably from large vendors such as Oracle, IBM, and Microsoft.

Hyperwave's capabilities are fully realised when the technology is applied enterprise-wide. The IS/6 architecture delivers excellent cross-platform performance and scalability. Furthermore, the core strengths of IS/6 such as the link management, document management, and search and navigation are targeted at scenarios where large volumes of documents and content is being generated, distributed, appended, and stored. These capabilities are augmented by vital eKI components, the modular design of which allows solutions to be deployed in line with customer requirements.

▶ COMPANY PROFILE

Hyperwave has strong academic roots; original development of the technology began in 1989 at the Graz University of Technology. Even now, the institution acts as a source of technical expertise for Hyperwave's research and development team. This means that Hyperwave solutions have a foundation of thorough and robust technology, which have been carefully developed devoid of the commercial pressures that sees many other solutions being rushed into the market.

The company remains privately held and has grown through investment and technical development. Hyperwave is headquartered in Munich, Germany, and currently employs 168 people, with sales offices in the UK and the USA (Boston). Hyperwave targets other European countries such as France, Spain, Italy, and Greece via reseller partners, and plans to expand over the coming months in order to target the Asian market (with full language support) and the Nordic market.

Hyperwave's customer list is impressive, ranging from Gallaher to Marconi. Like other vendors specialising in DRM, the company has been particularly successful winning business in local authorities and government departments; well illustrated by the Classroom 2000 (C2K) initiative in Northern Ireland, where 350,000 children in 1,300 schools gain access to course work through systems built on Hyperwave's technology.

Hyperwave has continued to prosper during a period where many content and document management vendors have failed or been consumed by a larger player. With 240 customers and over 10,000 academic institutions using the company's technology the future seems very bright.

SUMMARY

The breadth and depth of Hyperwave's offerings is impressive – records management, e-learning, portal, content management, document management, and workflow form an integrated suite, all developed in house and with a level of functionality that few surpass. Butler Group believes that the combination of eKS with eRS places Hyperwave in a good position to service the growing demand for integrated DRM solutions. Hyperwave's DRM solution is impressive. However, we believe that this solution comes into its own when combined with the company's complementary products and technologies. If an organisation is currently considering a DRM solution then Butler Group believes it should be doing so with a holistic view of content management in mind – taking a closer look at Hyperwave's products and solutions would be a good way of doing just that.

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IBM: DB2 Document Manager, DB2 Records Manager

Butler Group
Analysis without compromise

IBM DB2 Document Manager, DB2 Records Manager

Abstract

IBM DB2 Document Manager is a component of Content Manager, which provides extensive Document Management (DM) capabilities. DB2 Record Manager is an engine, which provides all of the functionality required to manage records efficiently. The provision of an API enables it to be integrated with any business application. Organisations are currently facing huge challenges, as they need to increase the auditability of the lifecycle of documents, and also retain many types of business-related information to comply with an increasing number of regulations and legislation. A strength of Document Manager is the way in which the product can be customised to support the requirements of an individual organisation, for example, to support the creation of metadata. A current disadvantage is the lack of PRO II approval, which should be addressed in the near future. These products are suited to any organisation that has a need to manage its documents more efficiently and has a need or desire to retain records.

KEY FINDINGS

- ✓ DB2 Document Manager is highly customisable.
- ✓ DM can be embedded in applications such as Word.
- ✓ Support for physical records.
- *i* DB2 Records Manager lacks built-in search engine.
- ✓ Multiple classification levels supported.
- ✓ Extensive and flexible workflow support.
- ✗ Not TNA 2002 approved.
- ✗ Currently limited platform support.

Key: ✓ Product Strength ✗ Product Weakness *i* Point of Information

LOOK AHEAD

IBM is planning to make a submission with The National Archives for TNA 2002 approval early in 2005, having ensured that its RM products already comply with the functional requirements. It will also extend platform support for DB2 Document Manager and DB2 Records Manager in line with other products in the DB2 Content Manager portfolio.

▶ FUNCTIONALITY

Product Analysis

The IBM DB2 Document and Records Management solution is comprised of DB2 Document Manager and DB2 Records Manager, which are components of and are tightly integrated with DB2 Content Manager, which is the core repository for all unstructured business information. The IBM Content Management portfolio consists of a wide range of products that span the IBM software brands DB2, Lotus, WebSphere, and Tivoli.

Document Management

DB2 Document Manager supports the complete lifecycle of documents from creation to deletion or declaration as a record. It is rules-based and totally customisable to suit the business requirements of organisations.

One of the major problems faced by organisations implementing a Document Management (DM) system for the first time, is the cultural change that is required of end-users. This can often result in resistance to the new application, especially if it is felt that training to use new technology is required. DB2 Document Manager overcomes this potential problem through the ability to 'hide' the technology within applications that the end-users are comfortable and familiar with. Butler Group believes this to be a major strength in an application, as user acceptance of an implementation can mean the difference between success and failure of the deployment.

For example, DB2 Document Manager integrates with Microsoft Word, so that users undertake DM functions through Word. Additional menu options are embedded into the Word menus that enable users to save documents directly into the DB2 Content Manager repository, check documents in and out of the repository, create new versions and revisions of documents, and access company templates. The menus are totally customisable, providing users with options based on their role and ID.

Many documents in the public sector become records as soon as they are created, and it is therefore important that documents can be declared as records at any stage in their lifecycle. By classifying a document as soon as it is created, most of the metadata required when it is declared as a record already exists. Because of the flexibility of DB2 Document Manager, users can be forced to enter metadata before a document is created. DB2 Document Manager conforms to The National Archives' functional requirements for RM by supporting multiple levels of classes for the business classifications or fileplan.

Other DB2 Document Manager features include support for compound documents, engineering file format support, renditioning services, remote printing and plotting, bulk document loading, and automated notification via e-mail or Instant Messaging.

Records Management

DB2 Records Manager is an engine that provides all of the features required to undertake successful RM. A major disadvantage for IBM at present is a lack of National Archives approval, although the company hopes that this situation will be rectified during 2005, when it applies for approval. In preparation for this, IBM has been working closely with the National Archives to ensure that all of the functionality required of an approved system is present.

Content Manager Records Enabler is a DB2 Content Manager component, and requires the Records Manager engine. It enables RM in DB2 Content Manager, CommonStore for Lotus Domino, CommonStore for Exchange, and Document Manager. It is DoD 5015.2 including chapter 4 certified.

Records can automatically be declared and classified, which is an important consideration in the selection of a RM solution, and may be controlled via workflow, i.e. occur at a pre-determined stage in the item's lifecycle. The Records Manager Enabler Server polls for items, which have been flagged to be declared, at a frequency which is administrator defined. The source of the classification information is flexible in that it can either be set from the DB2 Records Manager default, or from an item type in the fileplan classification. Until the server has processed the item it can still be modified, regardless of the fact that it has been marked for automatic declaration. However, access can be restricted to items, which are in this state through the workflow, if this is supported in the host application.

The Records Manager auto-classification engine determines the classification. If it returns more than one possible classification the configuration of the Records Manager Enabler will determine whether the highest weighted classification is used, or whether to put the record into a special bucket to signify that it needs to be classified further, or whether to not classify it. Records can also be manually declared. One way of achieving this is to drag-and-drop the item to be declared as a record.

Retention periods and disposal schedules are also set during the declaration process, as is the stage in the lifecycle of the record when it is to be archived, which may be set at part of the disposal schedule as an alternative to destruction if the record is to be retained indefinitely.

Support is provided to enable content to be rendered from the Records Manager Administration Console without having the application installed. During its life a record may need to be produced in many different formats, some of them due to subject access requests, and it is therefore vital that the information can be produced in whatever format is required. Also in situations where information is to be kept for many years, such as health records or building records, it is unlikely that the application that originally created the information item will still be deployed. This is the reason why it is so important that the information can be rendered and reproduced without the application that created it being present.

Records can be captured from applications and the directory management facilities of operating systems, via DB2 Document Manager, to support human resource departments.

Full support is provided for retention periods and disposition schedules, with the Records Manager able to specify what happens at the end of the retention period. Many records will need to be reviewed, but some may be flagged for immediate deletion, and others may be destined for long-term archiving.

DB2 Records Manager also manages paper-based records as well as electronic records, enabling a Records Manager to set up an indexing system for paper records making retrieval quicker and more efficient.

Product Operation

The DB2 Content Manager repository supports distributed deployments and includes storage management based on Tivoli Storage Manager. The embedded design of the RM engine enables the document to stay in place while the engine wrappers the document with the appropriate protection and retention rules. A single engine will thus enable users to declare records in multiple repositories without having to migrate the content.

The architecture is highly configurable. All server components may either exist on a single server or be distributed to support a geographically dispersed user community.

DB2 Document Manager is a component of DB2 Content Manager, and therefore utilises the DB2 Content Manager repository. The DB2 Document Manager desktop is delivered through a browser, with a user keying in a URL the first time the application is accessed. This downloads an ActiveX component to the desktop, which then enables checks to be made to see if there have been any changes to the application or the access rights of the individual. If changes are detected, then these are automatically downloaded. One advantage of this approach is that it negates the need for changes to be installed on each desktop. The screens seen by an individual are completely customisable, and are based both on roles and the ID of the individual, which determine access rights and permissions, which can be based on individual documents or sections of a document.

DB2 Records Manager is an engine that supports an *n*-tier architecture. It is a J2EE application, which has been used to allow the product to be more easily ported to different operating systems. WebSphere Embedded Messaging Server is used to facilitate asynchronous processing.

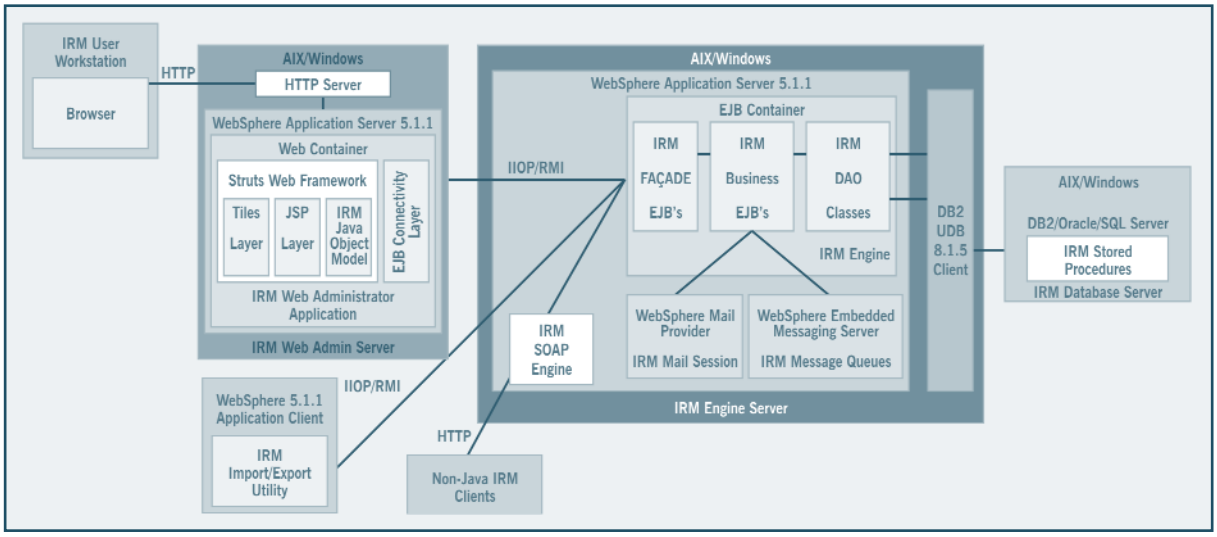

Figure 1: Architecture Diagram

Records Manager requires a Host Connector Application to provide the integration with the host application. The Host Connector Application provides three main functions. The Stateless Service provides services that do not require authentication, Stateful Service is for services that do require authentication, and the Message Listener is an optional service that receives permission synchronisation and security event notifications from the Records Manager engine.

The Records Manager Enabler provides centralised configuration via a Web-based user interface. The Server is a STRUTS-based WebSphere application that has three layers: a presentation layer, business logic layer, and repository isolation layer. There is a 1:1 relationship between the Records Manager engine and Records Manager Enabler. Each Records Manager Enabler supports multiple Content Manager hosts, but each Content Manager host can only be configured to a single Records Manager Enabler Server. In addition only a single Records Manager data source is supported.

IBM provides fully documented APIs enabling organisations to customise their integrations. For example with CommonStore users are able to drag-and-drop e-mails into folders to perform bulk e-mail classification, which is managed via policies. In order to manage e-mails and their attachments as separate records, they must be archived as individual items. A 'send' button in Outlook and Notes clients allows e-mails to be declared.

The solution includes both parametric and full-text search capabilities, which can be accessed via either template driven search interfaces or free-form interfaces. The search result sets are completely configurable by users or groups, and views can be assigned to searches and results to control what is displayed to the user.

Comprehensive workflow capabilities are provided. Although out-of-the-box integration is not currently provided with IBM's BPM solution WebSphere Business Integration Server Foundation (WBISF) Business Process Choreographer (BPC), sample coding is provided utilising IBM's Web services to link the IBM DB2 Document and Records Management solution with WBISF BPC.

▶ DEPLOYMENT

IBM Content Management solutions run on all IBM supported platforms, which are: Microsoft Windows NT, 2000, 2003 (xSeries), AIX (pSeries), i5/OS (iSeries), and z/OS (zSeries), as well as Linux (on Intel), HP-UX, and Sun Solaris for selected components. DB2 Document Manager is currently supported on Windows, and DB2 Records Manager is supported on Windows and AIX platforms. Butler Group perceives this as a current limitation, but it is the intention of IBM to port these products to align them with the other offerings in the DB2 Content Manager portfolio.

Customers are able to implement these products independently using extensive product documentation, which is provided by IBM. By attending standard education, something that IBM recommends, customers can build the skills they need in preparation for the deployment. However, many customers prefer to exploit the expertise of IBM Global Services (IGS), IBM Software Services, or IBM Business Partners to help with the implementation. IGS provides consulting, business transformation, application development, systems integration, supply chain, CRM, ERP, Web development, data management, infrastructure, business services, and training.

The IBM Software Services (ISS) group complements IGS delivery services for all products within the Content Management portfolio, with special focus on new IBM Content Management portfolio products and solutions. In addition, ISS provides technical partner and channel enablement, customer training, and integrated solution development to provide functionality not yet available in the Content Management portfolio.

Implementation time varies from around two weeks for a basic deployment to over a year for a complex deployment, with custom integrations to legacy applications. The product can be deployed using a modular approach, and there are a variety of installation, implementation, and configuration options available that help accelerate Return On Investment (ROI) for the customer.

IBM provides a full range of learning services, self-study guides, classroom training and workshops, technical conferences, Redbooks and whitepapers, certification guides and exams, and also e-learning. Classroom training is provided at a number of sites worldwide, and in some geographies training is provided on the customer's site.

Ongoing technical support is provided through IBM's software support organisation. This comprises a global network of centres that provide expertise across IBM's product portfolio. Specialised skilled product teams are available to address complex problems, and these have access to IBM's development laboratories when required.

The key to a successful RM deployment is developing the ability to declare records and classify them with minimum changes to the current processes operated by business users. Butler Group believes that in many cases it should be possible to incorporate these steps into existing processes by, where possible, automating the declaration and classification of a record. Where processes do have to change, these should be minor, for example, by adding an additional step in the lifecycle of a document to declare it as a record, and manually classify it.

The deployment of document and records management functionality can create change management problems, which may jeopardise the success of the entire project. Butler Group believes that the best way to minimise this risk is to 'hide' the RM functions within applications that users are familiar with, making sure that the declaration and classification of a record is achieved with minimum effort, and very little additional time overhead, and by not emphasising the fact that a user is accessing a record and not a document.

▶ PRODUCT STRATEGY

IBM Content Management software is targeted at both horizontal and vertical markets. Its aim is to provide document and records management technologies in the form of software solutions to help organisations to derive extra business value from their information across a horizontal set of target markets and industries. However, IBM's primary go-to-market model is targeted at industry vertical sectors.

The traditional primary focus of IBM has been large enterprises across all targeted industries, but IBM Software Group is also focusing on growing a significant share of the Small and Medium Business (SMB) market segment. In order to achieve this, IBM has enhanced its products to provide ease-of-deployment, ease-of-use, and pricing requirements. DB2 Document Manager is actively sold across large and SMB market segments, and DB2 Records Manager is predominantly sold into large enterprises, but is expected to cascade down into the SMB market over time.

ROI is dependent upon customer business challenges and objectives. It is typically based on customer specific current operational costs compared to the anticipated benefits to be achieved by deploying document and records management. While there are wide variations, customers can, in general, expect a one year payback and 150% ROI, according to IBM.

The key market opportunity for IBM is in large and multinational organisations, where it has been extremely successful over the past few years, and this trend appears to be continuing. IBM is able to extend penetration into current accounts by offering additional functionality based on its recent acquisitions in areas of content management including RM.

IBM sees another market opportunity deriving from the SMB sector, and also Financial Services including Banking, Insurance and Financial Markets; Public sector incorporating Government, Healthcare, and Life Sciences; Industrial, which includes Automotive, and Electronics; Distribution including Consumer Goods and Retail; and Communications which includes Telecommunications, Utilities, Entergy, and Media and Entertainment.

The route to market is through direct sales, the channel, and via partners. IBM's strategy is to deliver software solutions and services using a broad range of channels. Many customers work directly with IBM for solutions that include software and services. IBM also has an extensive business partner network, which extends IBM's reach to offer solutions targeted at specific applications. There are more than 90,000 companies that participate in the IBM PartnerWorld programme with 20,000 of these partners selling IBM software.

PartnerWorld is the foundation for the relationship with consultants, systems integrators, and Value Added Resellers (VARs). It provides support and development for partners, with business planning, collaborative marketing, campaign development, technical support, training, certifications, financing, and use of IBM products to run their own businesses. Similar benefits are available to Independent Software Vendors (ISVs), Software Developers, Web Developers, and Application Service Providers (ASPs).

Key business partners include Accenture, Adobe, Cap Gemini, Captiva, Cisco, IBM Business Consulting (Content Management solutions), IBM Global Service (PCE – Portals Content e-Commerce practice), iLumin Software, Intercope, Kofax, KPMG, PeopleSoft, Real Networks, SAP, and Siebel. There is also a network of geography-focused business partners.

The entire Content Management portfolio will be priced on an authorised user-pricing model from early in 2005. Annual maintenance and support varies between 12% and 20% of the licence cost depending on the eligible discount level under the Passport Advantage scheme. Standard software maintenance includes 24x7 access to IBM voice technical support for critical problems, and 24x7 access to a self-help database, and on-line problem submission.

COMPANY PROFILE

International Business Machines (IBM) is one of the world's leading, and best known, technology companies, with operations in 164 countries. IBM makes a broad range of computers, software, and peripherals, and has a global consultancy services arm.

IBM is a public company trading on the NYSE (IBM) and is headquartered in Armonk, New York, employing over 300,000 people across the globe.

Revenues for the financial year ending 2003 were, US$89.1billion, in 2002 they were US$81.2 billion, and in 2001 they were US$83.1 billion.

In 2002, Global Services accounted for 45% of revenue, Hardware contributed for 34%, and Software represented 16%, with the balance coming from other activities. In pure revenue terms, with no adjustments for constant currency, Global Services and Software are showing small growth, with hardware in decline. In 2002 IBM incurred a chargeable cost of US$292 million in relation to the acquisition of PwC. Historical financial information was also adjusted to take account of discontinued operations, and the figures shown above reflect those changes with the exception of the percentage increase/decrease between 1999 and 2000. IBM has numerous business and technology partnerships that help support its operations, and has invested heavily in the Linux area, and is now seen as a key player in this expanding market.

SUMMARY

IBM's document and records management capabilities are a subset of its Content Management solution. These capabilities benefit greatly from IBM's huge product portfolio, with elements from its storage management and BPM functionality readily accessible to enhance the capabilities. The Enterprise Content Management (ECM) market is consolidating, and at the end of the process Butler Group expects there to be only around six major ECM players, with IBM being one of these.

A disadvantage for IBM at present is its lack of TNA 2002 approval, which the company intends to address during 2005. Once approved, IBM will be able to compete for a wide range of public sector contracts, which Butler Group believes will extend the reach of its document and records management offering.

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INTERWOVEN: EDMS Suite

Butler Group
Analysis without compromise

Interwoven EDMS Suite

Abstract

Interwoven's EDMS Suite (based on WorkSite MP 4.1) provides a truly collaborative environment for Document and Records Management (DRM). Access can be via the Web or through tight integration with users existing desktop products, minimising the problems of adoption by deploying organisations. With a range of potential platforms and high-scalability, it will be of benefit to any larger organisation, which requires people to collaborate around documents and records in a structured manner. With extensive workflow and optional Business Process Management vertically aligned, Collaborative Document Management (CDM) business solutions can be constructed, which offer organisations the opportunity to derive operational benefits rapidly after deployment. There is a tight roles-based security model, and this makes WorkSite MP particularly relevant for banking and legal sectors, as well as public sector organisations that need to share records across organisational boundaries.

KEY FINDINGS

- ✓ Platform agnostic with an effective offline client.
- ✓ Underlying platform is collaborative.
- *i* Most suitable for high-end, or Enterprise deployments.
- *i* Still awaiting US DOD accreditation for RM functionality.

Key: ✓ Product Strength ✗ Product Weakness *i* Point of Information

LOOK AHEAD

Once the RM functionality is approved, then development of further vertically aligned CDM solutions (particularly for the public sector, which exploits the collaborative capability of WorkSite MP) will present significant opportunities for adoption.

▶ FUNCTIONALITY

Product Analysis and Operation

Interwoven's EDMS Suite is built on Interwoven's WorkSite MP 4.1 platform. This enables the collaborative management of documents, records, and e-mail within a single repository, and the development of Document and Record Management (DRM) solutions that align with vertical business needs. WorkSite MP 4.1 is Java-based, can be deployed on a range of platforms, and is particularly suitable for heterogeneous environments. The architecture is designed for high-scalability, and to support geographically dispersed users. Within a single WorkSite MP 4.1 installation, multiple organisations or multiple departments can be logically separated, and delegated to their own areas, whilst existing within a single security model. The architecture also facilitates federated repositories, where multiple instances of WorkSite MP 4.1, potentially in geographically dispersed locations, can be configured to provide a unified repository.

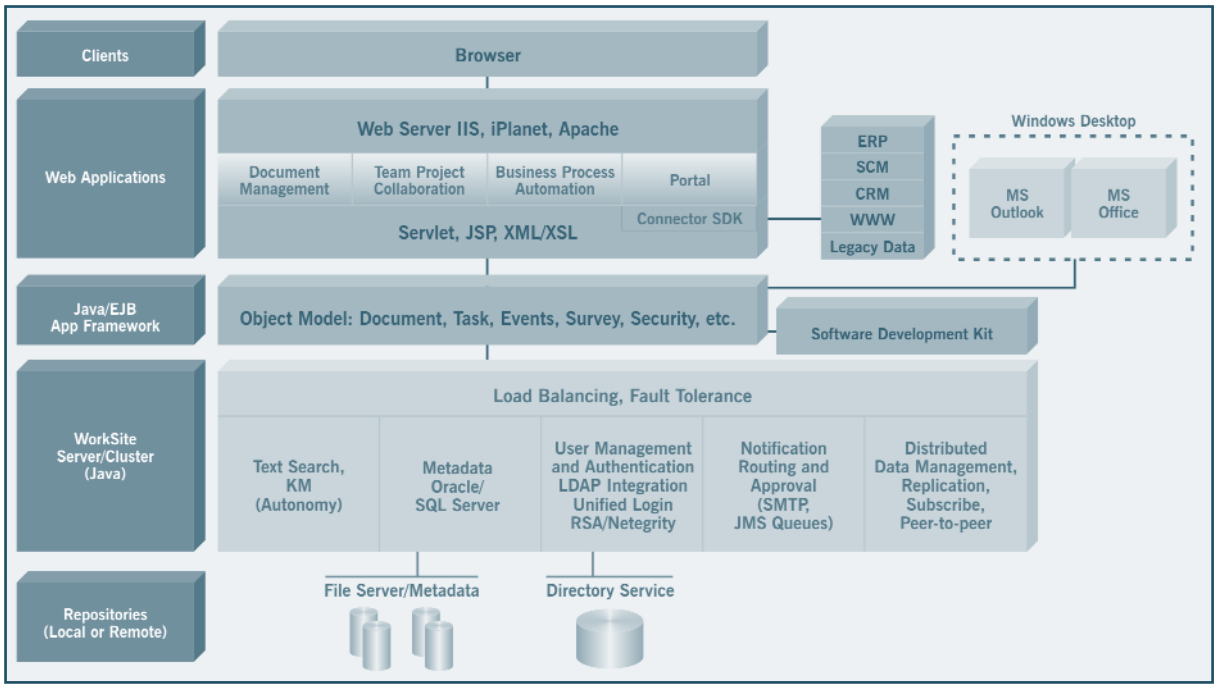

Figure 1: The Interwoven Enterprise Content Management Solutions Architecture

There are three layers of users within WorkSite MP 4.1: administrators, business process owners, and users. These are managed within WorkSite MP 4.1, using a roles-based security model. The administration can be fully delegated, allowing business users to develop their own projects and business solutions on top of the platform. This also facilitates the reuse best practices within and even across organisations.

WorkSite MP has full integration with Microsoft Active Directory Server and other Lightweight Directory Access Protocol (LDAP) compliant directories. Besides supporting delegated administration, this allows organisations to deploy multiple, virtually independent solutions on a single server. The architecture of WorkSite MP also allows for geographic dispersal of the repository across multiple servers, but retaining a single view of all content.

In WorkSite MP 4.1, Workspaces are created for each group or business unit, with defined projects and folders. Within each Workspace, Members are assigned from the internal directory within WorkSite MP 4.1. Assignment includes membership of user groups and respective privileges. Because the security model within WorkSite MP 4.1 is highly delegated, such privileges can be highly granular and include:

- Send Broadcast messages – to all members of the Workspace.
- Create projects and workspace root content.
- Assign tasks.
- View Document history.
- View Workflow watchlist.
- Create and modify tags or items.
- Delete items.
- Manage security policies (for the Workspace).
- Manage Workplace, membership, and workgroups.
- Or even full control of a Workspace.

The administrator of each Workspace can also set access rights to content items within the Workplace as required. Business process owners can define workflow, and set attributes for the content of folders and Workspaces.

Interwoven's ECM Suite offers additional functionality that can be deployed to complement the Document Management (DM) and Records Management (RM) capabilities of WorkSite MP 4.1, namely:

- Web Content Management.
- Digital Asset Management.
- Taxonomy Development, and Metadata Provisioning.
- Content Deployment.
- Repository Integration.

Document Management

The comprehensive DM package within WorkSite MP 4.1 includes:

- Routing.
- Approval / Sign-off.
- Versioning.
- Annotation.
- Tracking.
- Reporting.

As previously discussed, these are all tightly integrated with the collaboration functionality. Document, records, and the associated metadata for each object are all stored in their native format within a single repository; the metadata can be generated automatically on the creation or import of objects, or added/amended manually as required. In excess of 200 file types are supported.

WorkSite MP 4.1 supports multiple clients for the creation, or amendment of documents in the repository. These include a Web client, a Desk Site client with integration to Microsoft Office, and a Lotus Notes client. The level of integration means that users need not be aware that their documents are in a DRM system. At all stages a full audit trail is maintained for every object in the repository.

Because of this capability, Interwoven, its partners, and customers are using the WorkSite MP 4.1 functionality to create Collaborative Document Management (CDM) Solutions for specific vertical industries with varying levels of DM and RM as appropriate to the user organisations. These offer organisations the opportunity to derive benefits rapidly after deployment.

Current examples of CDM solutions include:

- Solutions for Marketing.
- Solutions for Sales.
- Solutions for Service.
- Solutions for Finance.
- Solutions for Legal.
- Solutions for IT.

For example, Interwoven has developed a solution with functionality highly appropriate for the Legal sector, where it has a significant presence. Here business process owners can create a personal 'filing cabinet' for individuals involved. This contains information that is personal to the user, and can be managed by the user, or his/her assistant, before being published to the wider workplace. By inheriting metadata from the file, the user does not have to complete profile forms for each document or record, thus reducing time and increasing accuracy. It is possible to file records in bulk, and delay filing to a preset time if required.

There are also Solutions for particular horizontal tasks that have been developed using WorkSite MP 4.1:

- Deal Management (proposals and contracts).
- Engagement Management.
- Deal management.
- Research Management.
- Sarbanes-Oxley compliance.
- Corporate Legal solution.
- Board of Directors Collaboration.
- IT Project planning and delivery.

Records Management

The optional WorkSite MP Records Management Server extends the functionality of Worksite MP 4.1, by including the features for control and oversight of records and processes, which are increasingly required in relation to compliance issues. The RM functionality is controlled by administrators and business process owners, through a point and click interface. Once enabled users can declare items as records from a right mouse click selection, or a drop-down menu from the application that they are in. The user is then either prompted to assign the retention rule and annotate the document, or the retention rules can have been previously set at folder or even Workspace level. Such rules do not only apply to items such as Word-processed documents, they can also be applied to e-mails, calendar, tasks, and milestones. If appropriate, records can also be declared automatically from the document's metadata.

This 'blended approach' to record declaration allows for the highly granular management of records without placing an undue overhead on users. As with the whole philosophy of Worksite MP, this is intended to increase adoption, and the Return On Investment (ROI). The design of the platform with high granularity in the management of the content enables retention periods to be set for projects, folders, workspaces, and even versions of documents.

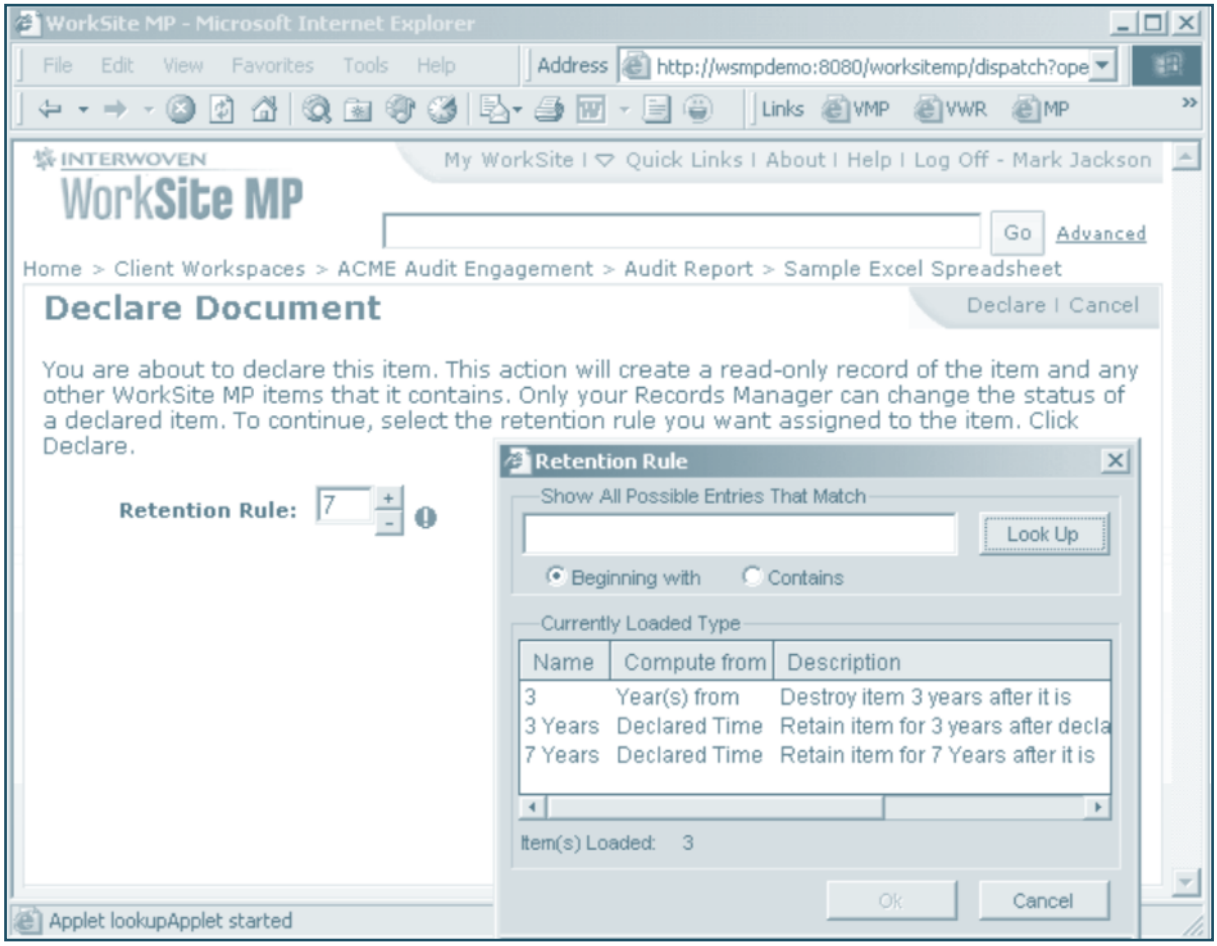

Figure 2: Manually Declaring a Record in WorkSite MP 4.1.

WorkSite MP 4.1 is currently in a queue for US Department of Defence (DOD) 5015.2 approval for its RM functionality.

In August 2004 Interwoven acquired Software Intelligence, and plans to integrate its paper RM capabilities with the electronic records capabilities in WorkSite MP 4.1 during the first half of 2005.

Workflow

There are two solutions to deliver workflow for documents and records:

1. Ad-hoc workflow – included out-of-the-box with WorkSite MP 4.1. Features include:
   - Document-driven review and approval.
   - Ad hoc workflow.
   - Sequential, Parallel Any, and Parallel All Routing.
   - Work-in-process tracking, with Watch Lists that display the history of the entire process.
   - Event Notification tells users when a document is uploaded, updated, or deleted, when a task is assigned, and when an event is established.
2. WorkRoute MP – This optional package, is an OEM version of the Fujitsu Interstage i-Flow Business Process Management (BPM) solution. It allows for the mapping of complex business processes, the creation of role assignments, plus the routing and approval of documents directly from Interwoven WorkSite MP. It includes:
   - A Java-based Graphical process designer.
   - Deadline and exception handling.
   - Process metrics allow you to analyse workflow execution.
   - Configurable rules engine to drive the workflow paths.
   - Role assignments enabling the system to notify all users associated to that role, via their WorkRoute Inbox.
   - Customisation of workflow custom scripting (JavaScript or Java).

WorkSite MP 4.1 include a full text indexing component out-of-the-box powered by the open source Lucene full text search engine. This provides comprehensive quick and advanced searches, including full-text and parametric, for all items in the repository, but third-party search and retrieval products can also be used. In line with the collaborative focus of WorkSite MP, all searches can be saved and shared with other users.

▶ DEPLOYMENT

WorkSite MP 4.1 uses a Java 2 Enterprise Edition (J2EE)-compliant Service Oriented Architecture (SOA). WorkSite MP Server and WorkSite MP Records Management Server are certified on Microsoft Windows 2000/2003 and Sun Solaris 8 servers, and Microsoft SQL Server 2000 and Oracle 8.1.7/9.2.0 databases.

The supported Web components are Microsoft Windows 2000/2003 Server, and Apache Tomcat Application server 4.1.30, and in addition from Q3 2004, Sun Solaris 8 Server. In Q4 Red Hat Linux ES and IBM AIX 5.1 support will be added along with IBM WebSphere Application server 5.0.2, and BEA WebLogic Application Server 7.0/8.1. The two certified Web servers are Microsoft IIS 5.0 and Apache HTTP Server 2.0.43.

Desktop clients require Microsoft Windows 2000 or later, and Microsoft IE 5.5 or later for Web access. The Office Integration Client and Offline Client require SP2 for Microsoft Windows 2000/XP.

There are multiple Software Development Kits (SDKs) available for WorkSite MP including; Java, .NET, COM, and Web services. Each SDK has sample programs, and the WorkSite Object Model (WOM) Application Programming Interface (API). The WOM API can be used to create connectors to other applications and to manipulate objects during workflow.

The architecture of WorkSite MP enables it to scale to millions of documents and thousands of Workspaces. By utilising intelligent caching and server-to-server proxy, it can make the most efficient use of available network bandwidth. The ability for multi-tenant support, such as organisations or departments within a single instance of WorkSite MP, enables the maximum usage of servers, reducing replication in software and administration, and thus Total Cost of Ownership (TCO).

The typical average time for implementation of a CDM is reported to be four to six weeks utilising Interwoven's client services team. Training consists of a technical administrator's class, and additional training on specific items as required. This can either be delivered in classrooms or if appropriate via on-site training.

On-going support is via phone, e-mail, and Web, and charged at 18% of software licence fees.

▶ SOLUTION STRATEGY

This is a horizontally applicable product, and Interwoven has a wide range of medium to large-sized organisations (500-999 employees), undertaking ad hoc DM projects with WorkSite MP 4.1. WorkSite MP 4.1 is marketed directly by Interwoven and through its channel partners. However, a key market for WorkSite MP 4.1 is likely to be Interwoven's extensive customer base, particularly in legal firms, which can derive benefits from the additional functionality in the product. Interwoven has over 200 partners across the world, and will be working with them to develop additional CDM Solutions.

Interwoven reports that organisations outside the public sector have to date seen RM as a 'nice to have', rather than a necessity. But the compliance agenda is pushing businesses to look for guidance from vendors, and others on the best practices for managing unstructured information.

Interwoven software is sold on a perpetual licence basis, either on a named user, or a server charge. The average selling price is reported as US$ 140,000, with a wide variation because of scale and level of integration.

Future developments will include more CDM solutions, and desktop integration with a wider range of products; examples include Adobe Acrobat and Microsoft Internet Explorer. Interwoven releases significant revisions of its products every eight to 12 months, followed by service packs, minor releases, language releases, and platform re-certifications.

▶ COMPANY PROFILE

Interwoven (NASDAQ:IWOV) was founded in 1995, and is headquartered in Sunnyvale California, US. Its origins lay in the need of its founder to manage Web content for his on-line business, and one of its first customers was Cisco, which was pushing the boundaries of the Web. These drivers provided a very good learning cycle, and gave the company its customer-driven approach.

Offices are located throughout the US, in Canada, Mexico, Brazil, the UK (which houses the European headquarters), Japan, and Australia. There are over 700 employees, approximately 75 of whom are based in Europe. Key partners for Interwoven include:

- BEA.
- Accenture.
- Fujitsu Consulting Services.
- IBM Global Services.
- Intel.
- Adobe.
- PeopleSoft.
- Kofax.

Interwoven merged with the collaboration specialist iManage in 2003, in what has been regarded as a highly complementary move. It is currently the 62nd largest software company in the world.

Revenues for the last three financial years, ending 31 December were:

	2003 (US$ '000s)	2002 (US$ '000s)	2001 (US$ '000s)
Revenues	111,512	126,832	204,663
Increase (Decrease)	(2.1%)	(38.0%)	53.1%
Net Income	(47,531)	(148,616)	(129,175)

Key customers using Interwoven ECM include:

- BT.
- Ford.
- Kaiser.
- Rothschild.
- Eisner.
- BCBS RI.
- Toshiba.
- Tesco.

Interwoven has approximately 3,100 customers worldwide, and a significant presence in law firms, noting 54 out of the top 200 UK practices as its customers, and 51 of the top 100 in the US.

SUMMARY

Worksite MP 4.1, provides a highly scalable, and flexible platform for the development of collaborative DRM solutions. With tight integration into users' existing desktop tools, integrated workflow, and optional BPM, ECM Solutions developed on the WorkSite MP 4.1 platform, should meet the majority of business needs balancing the requirements of DM and RM respectively. The integrated collaboration is a key differentiator for WorkSite MP 4.1, and the development of vertically aligned CDM solutions, should mean faster time for implementation and thus ROI for deploying organisations. DOD 5015.2 approval is awaited for WorkSite MP 4.1, but its collaborative functionality combined with a highly granular security model should make it an attractive product for public sector organisations that increasingly have to deliver information and services across organisational boundaries.

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MERIDIO: Meridio 4.2

Butler Group
Analysis without compromise

Meridio Meridio 4.2

Abstract

Meridio 4.2 is a Microsoft .NET-based Document and Records Management (DRM) solution, and is one of only a few such products to be approved by The National Archives (TNA). One of Meridio's undoubted strengths is its tight integration with Microsoft products and technologies – such as Office and SharePoint. Meridio 4.2 is suited to both Public and Private sector implementations, and organisations with a requirement for an integrated DRM solution in a predominantly Microsoft technical environment should consider this product. Butler Group believes that Meridio 4.2 provides a wealth of functionality in a product that is easy to implement and simple to use, negating the need for lengthy training. The Meridio solution framework for addressing the Freedom of Information Act is a good example of how the product can be combined with products and technologies from other vendors, to deliver vertical industry solutions. Backed with strong support from Microsoft and a number of high-profile System Integrators, Meridio continues to increase its profile within a very competitive market sector.

KEY FINDINGS

- ✓ Strong integration with MS Office and SharePoint.
- ✓ Extensive out-of-the-box features and functionality.
- *i* Strong support from some key System Integrators.
- ✓ Approved against TNA 2002 and DoD 5015.2 standards.
- *i* Aligned with Microsoft Enterprise pricing model.
- ✗ Technology stack may be too restrictive for some.

Key: ✓ Product Strength ✗ Product Weakness *i* Point of Information

LOOK AHEAD

Meridio will continue to enhance the functionality of the product in future releases, ensuring that it continues to meet the requirements of The National Archives, the US Department of Defense, and other standards organisations. Enhanced e-mail support, replication of objects across multiple Meridio systems, federated fileplan – distributed over several Meridio systems – and support for Microsoft's Information Rights Management technology, are scheduled for early 2005.

▶ FUNCTIONALITY

Product Analysis

Compliance and the need to retain more detailed corporate information are creating an increased demand for Records Management (RM) solutions. The information contained within a record can take virtually any format, for example, documents, faxes, e-mails, video, voice, paper-based documents or – as in the case of the police – physical items of evidence.

In Butler Group's opinion, the major issue that needs to be addressed within the context of RM is not the period of time that information needs to be retained for, but how easily it can be retrieved. For example, under the Freedom of Information Act 2000, public bodies have just 20 days in which to locate and respond with the information requested, and for the Data Protection Act it is 40 days. For many organisations, finding specific information can be like searching for a needle in a haystack, and with data volumes doubling year-on-year in some cases, the problem only looks set to worsen.

Meridio's integrated Document and Records Management (DRM) solution enables an organisation's information workers to manage the creation of 'documents' while at the same time providing organisations with the ability to capture or declare these documents as corporate records.

Document Management

Meridio 4.2, the latest version of Meridio's DRM product, continues to enhance the value of an organisation's IT investments in Microsoft SharePoint Portal Server and the Office products. The solution has been designed for users that are familiar with recent versions of Outlook, Word, and SharePoint Portal Server 2003. However, Meridio also works well with many other common desktop productivity tools. The Document Management (DM) features of Meridio can be seamlessly accessed from within the user's desktop applications, and as a result this greatly reduces the need for extensive training programmes.

All documents stored within the Meridio repository have standard metadata elements associated with them, such as title, date, and author. However, the system also allows any number of custom metadata elements to be associated with documents as required by the business. Depending on the category of the document, a different set of custom metadata may be associated. For example, a 'correspondence' category will include metadata for subject, receipt date, addressee, and so on.

Meridio exhibits all of the functionality one would expect of a modern DM system: check-in/check-out; version control; document profiling; audit trail; searching of both document metadata and content; and role-based security – exploiting Microsoft Active Directory and single sign-on solutions if required.

Document comparison and document redaction are two more commonly used features that we would expect to find within a DM system, and although this could be added through integration with third-party products, their absence does hint at a little product immaturity. One limitation Meridio does plan to address in the next release of its product is support for minor revisions – a feature that is frequently used in contract preparation scenarios.

One important area in which Meridio is strong is in the number of integration points that allow DM to be integrated with line-of-business applications. The underlying Microsoft .NET platform enables Meridio to expose Web services, which support DM, RM, and approval processes. In addition, Simple Object Access Protocol (SOAP), COM, Open Document Management API (ODMA), and Message Application Program Interface (MAPI) are all supported, as are event hooks that allow Meridio to trigger external processing such as workflow.

Meridio's tight integration with popular Microsoft authoring tools such as Word, PowerPoint, and Excel are evident through a set of custom dialogs (such as Open and Save) that include support for browsing the user's virtual folders and searching. These dialogs automatically hook into many ODMA-compliant desktop applications, and may also be hooked into many non-ODMA applications using native scripting and macro facilities.

Access to full Meridio functionality is only available through the Microsoft Internet Explorer (IE) Web browser. Although IE dominates the browser market, Butler Group would like to see less reliance on this piece of Microsoft technology. This Web interface to Meridio was new to version 4, and through its reliance on ASP.NET technology, the product clearly provides a richer and more efficient user experience than any previous Meridio Web interface.

Integration with Kofax Ascent Capture enables production batch scanning of paper documents to digital images, which can then be indexing using Optical Character Recognition (OCR) techniques. By accommodating document imaging, Meridio can claim to offer a complete set of DM services.

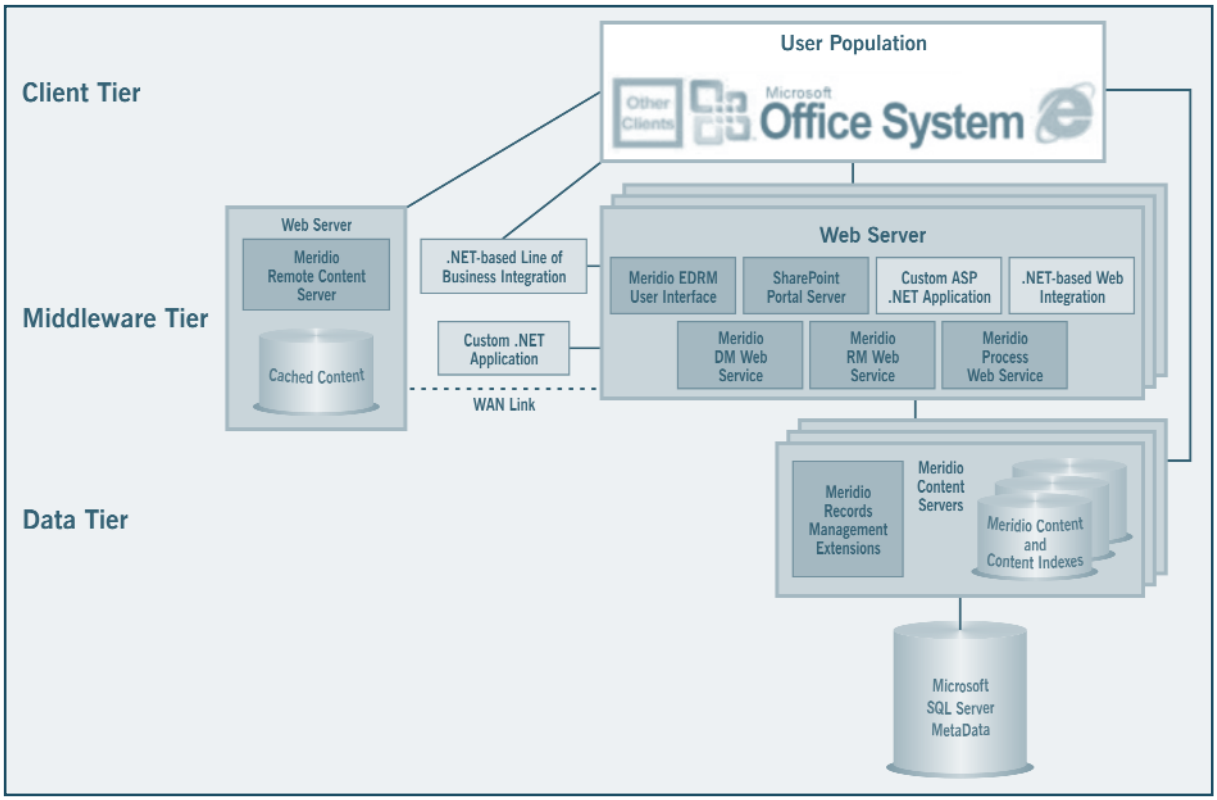

Figure 1: Meridio Architecture

Declaring a document as a record is very straightforward with Meridio, and typically consists of a single action for the user to carry out. Detailed record details – such as retention period, disposal schedule, and security settings – can be added automatically, and so end users do not necessarily need to understand RM principles or become RM experts.

Using Meridio for Microsoft Outlook, the user simply drags an e-mail item to a prescribed folder and Meridio does the rest. In Meridio for Desktop Applications, the user simply clicks a button and chooses a destination folder, and again Meridio can be configured to apply appropriate metadata properties and security restrictions. In Meridio for Web users, again the user simply clicks a button and chooses a destination folder to store a document or declare a record. In Meridio for Microsoft SharePoint, the user selects the "Save to Fileplan" option from a document's context sensitive menu, and chooses a destination folder in which to store the item as a document or record.

There is very little difference between a 'document' and a 'record' so far as the Meridio system is concerned; it merely places extra controls on documents that have been declared as records. When a document is declared as a record it simply receives extra metadata concerning retention, fileplan location, security, and so on. Since Meridio uses a single repository regardless of whether an item is to be treated as a document or a record, content is not changed or moved on declaration, and therefore administrative overhead can be kept to an absolute minimum.

Records Management

Meridio 4 Records Management and Microsoft Office SharePoint Portal Server with Meridio Records Management are approved against both the UK's The National Archives 2002 functional requirements for Electronic Records Management Systems (ERMS) and the US JITC DoD 5015.2 Electronic Records Management Standards. The functional requirements set out in both standards are very extensive, and so as one would expect the product provides comprehensive out-of-the-box RM functionality.

At the time of uploading or saving documents to Meridio, users are presented with an option to declare them as records, and as we have already seen, a similar option is available to declare as a record any document that already exists within the Meridio repository.

Meridio Records Management provides a hierarchical electronic fileplan, consisting of classes, electronic folders, and electronic folder parts. These are special types of Meridio containers, in which users may classify Meridio documents as electronic records. Once a document has been declared as an electronic record, further modifications to this document are prevented. Meridio RM also provides facilities for recording physical folders and physical folder parts, representing physical folders that exist outside Meridio. Retention periods can be set at class, folder, part, and record type level, and the three possible disposition instructions – Review, Archive, and Dispose – can be set at this level also.

Meridio implements a full MAPI message store which allows Microsoft Outlook to treat the Meridio container hierarchy in the same way that it treats standard Outlook/Microsoft Exchange message folders. Records can easily be created by using drag-and-drop, either from within Microsoft Outlook or on the desktop. Meridio has recognised the importance of DRM within the context of e-mail management, and so enables custom Outlook forms to be mapped to specific document types with document metadata mapping to form fields. Common e-mail information fields such as To, From, and Subject are automatically mapped to record metadata fields, along with other useful pieces of information such as transmission date and time. Meridio has identified further e-mail integration opportunities, and intends to implement these in the Q1 2005 time-frame as part of Meridio 4.3.

An important element of Meridio 4.2 is the enhanced integration with Microsoft SharePoint Portal Server. Through a collection of so-called 'Web parts', Meridio provides access to full RM functionality from within Microsoft's enterprise collaboration portal. These Web parts communicate with each other using the SharePoint Digital Dashboard Services Component (DDSC) client event functionality. Meridio for Microsoft SharePoint also contains a search protocol handler, which means that the Meridio server can also be used as an additional content repository within SharePoint.

Meridio states that the security of its solution is both multi-layered and comprehensive. In addition to utilising the security capabilities of the Windows operating system NT File System (NTFS), Meridio adds two more security layers of its own: Access Control Lists (ACLs) for both documents and records; and Protective Markings (PMs) for records only. ACLs grant specific permissions to named individual users and user-groups, whereas PMs state clearance levels that individual users must possess in order to access records.

A vital element of any records management solution is, in Butler Group's opinion, the ability to set policies to create records. Meridio supports policy management, providing administrators with the ability to use policies to manage the lifecycle of records from creation to destruction, or indeed to formal archive by transfer to The National Archives.

In e-mail management it is often difficult to know at which point to declare a message as a record – particularly if the organisation operates within a regulated industry. However, Meridio provides a high degree of flexibility by allowing administrators to decide when to declare an e-mail message as a record. For example, messages could be declared as a record as soon as they arrive at an organisation's e-mail server; alternatively, if retention is not required, they could be archived or disposed of without concern. Meridio for Microsoft Outlook enables users to create corporate records through a simple drag-and-drop action.

Policies can also be set to manage the destruction of records. Records can be categorised with different retention periods for each type, and different actions to be taken at the end of the lifecycle of the record. For example, some records may be disposed of immediately, whilst others may need to go through a review period before disposition. When records are deleted, they are overwritten to ensure that they cannot be restored – a requirement of some regulations.

Policies can also be created to move records from one storage media to another as they age. This may also be used for technology refresh to ensure that the records are always stored on current media so that they can be retrieved. The very long-term management of documents and records will undoubtedly require corporate records managers and archivists to manage successive data migrations as media formats change over time. The integration of Meridio with EMC's highly resilient Centera storage platform now provides organisations with resilience and long-term storage options.

A requirement of a RM solution in the public sector is the ability to suspend the deletion of records that are the subject to Subject Access Request (SAR) – a feature that Meridio 4.2 fully supports. Another requirement with regard to record retention is the ability to retrieve the information required for the regulator, or, as is the case of the Freedom of Information or the Data Protection Act, a member of the public. This requires strong search and retrieval capabilities, which Meridio provides through integration with Convera RetrievalWare and optionally through SharePoint search technology.

Product Operation

The access point into Meridio for end-users is often embedded into the menus and user interface of standard desktop applications such as Microsoft Word or Outlook. The Meridio server consists of several layers, which in combination provide scalability, functionality, and redundancy. Additional servers can be added to the system when needed, as they are stateless and load balanced – meaning that the first available server is able to respond to each user request. The ability of a DRM solution to scale-out as well as up is, in Butler Group's opinion, vital for any enterprise application, and as Meridio is a Microsoft Windows-based system, this solution is able to exploit the scalability of Windows Server 2003 as well as earlier Microsoft server operating systems. There is, however, no evidence to suggest that Meridio is going to offer a version of its DRM solution for smaller businesses, and yet given the company's close working relationship with Microsoft we would have thought it could fit well with Microsoft Windows Small Business Server 2003.

While the electronic content of documents and records are stored within the native Windows NTFS file system, the metadata pertaining to these files is stored within Microsoft SQL Server. Access to the Meridio database is highly optimised; for example, static data is identified and cached within the database server to minimise information look-up and retrieval times. As with any modern *n*-tier application, connections to the database are cached – as is access to the database – using cached stored procedures.

Users and groups can be synchronised with any directory service that supports Lightweight Directory Access Protocol (LDAP) – such as Microsoft's own Active Directory for example. Unified logins, where the Windows login credentials are accepted in place of repeated use of the username and password, are also supported.

When integrated with Microsoft SharePoint Portal Server, Meridio can be quickly configured to support a distributed, Web-based, collaborative working environment. Meridio offers full search and retrieval capability, allowing documents and records to be discovered and located either through metadata or free-text searches of the repository.

▶ DEPLOYMENT

The detailed server and client hardware and software specifications can be found on the Meridio Web site. However, in summary, Meridio 4.2 requires: Microsoft Windows 2000 or 2003 Server; Microsoft SQL Server 7.0 or 2000; and Internet Information Server (IIS) 4.0 or above. The client software requires Windows 2000 or Windows XP together with Internet Explorer 5.5. Outlook 2000 and above is required for e-mail integration, and Office 2000 and above for desktop application integration. Kofax Ascent Capture 5.5 and above provides document imaging functionality.

The Meridio solution can be deployed as an out-of-the-box product or customised to meet a specific set of business requirements. Meridio partners with System Integrators (SIs) such as Capgemini, Fujitsu Services, and HP. These companies provide not only technical services, but specific industry expertise as well.

In terms of DRM solutions it is generally good practice for an organisation to fully evaluate a potential software solution by means of a pilot or model-office implementation. Overall it is important that an organisation understands that investing time up-front in specifying the solution and requirements in detail will lead to benefits in the future, when minimal effort will be required to maintain the solution from a customer perspective. In both Meridio's and Butler Group's opinion, if time is not invested up-front then the entire solution could be put in jeopardy.

For installations of fewer than 500 users, there is a perpetual Server element and a Client Access Licence (CAL) element to the licensing. For installations of more than 500 users, Meridio's pricing model is aligned to the Microsoft Enterprise Agreement pricing model and is banded accordingly. There is a choice between perpetual and subscription agreements and subscriptions can run for either 3 or 5 years. An upgrade utility is provided with each Meridio solution in order for existing customers to conduct a clean and safe upgrade to the database and software. Product updates are included in the annual licence fee.

Meridio states that very little training is required to use the product, as the use of the Microsoft platform coupled with the look-and-feel being closely aligned with Microsoft applications, means that most end-users will have a familiar interface and way of working. Butler Group would certainly concur with this opinion where the end-user environment is predominantly Microsoft-centric. Administrators will usually require a maximum of three days of training, which may be on-site or classroom-based.

SOLUTION STRATEGY

The target market for Meridio is any organisation specifically requiring DRM functionality. At present the major driver for DRM within the UK Public Sector is compliance with the Freedom of Information Act 2000 and the Data Protection Act 1998; whereas in the commercial sector it tends more towards Sarbanes-Oxley, Basel II, and general corporate governance. However, compliance is not the only driver, as a great deal of knowledge is contained in information within the organisation, and so DM and RM together are an effective way of retaining this knowledge and making it available to users whilst providing significant organisational benefits and potential competitive advantage.

At present, Meridio is experiencing a great deal of success in the Public Sector, as it is currently one of only a few vendors to meet The National Archives functional requirements for electronic records management. Being an approved system is a strong competitive advantage for Meridio at the moment, and this has been further enhanced by the fact that the company has recently helped Microsoft to achieve TNA approval for SharePoint Portal Server with Meridio – a feat which is certain to provide Meridio with even more opportunities.

In Butler Group's opinion, Meridio's biggest market opportunity currently lies amongst organisations that need solutions to help them comply with a whole raft of regulations. To date the largest market for compliance solutions has been in the US, but Butler Group believes that over the next few months, the UK and Europe will become much more focused on compliance resulting in tremendous opportunities for vendors with solutions in this area. With its TNA 2002 approval, Meridio is well positioned to pick up a large proportion of this extra demand.

The market for Microsoft-centric solutions is huge, and so with the company's integration with Microsoft Office and SharePoint Portal Server now well proven, we expect Meridio to gain significant traction in the coming months. While many vendors talk of their 'special' relationship with Microsoft, Meridio's claim holds-up stronger than most. The firm has an office in Seattle with Microsoft developers, ensuring it has a close influencing relationship with Microsoft's development teams and Microsoft's long-term strategies.

Meridio currently favours an indirect sales channel, with firms such as HP, Capgemini, Fujitsu, and of course Microsoft taking the lead. Commercially Meridio is still a small vendor in what has become a fiercely competitive market, and Butler Group believes that one major hindrance to growth could be a market obsessed with ECM solutions rather than holistic content management strategies.

COMPANY PROFILE

Meridio was founded as a company in its own right in 2001 following the merger of two parts of different companies: the Products Division of UK-based software house Kainos Software Limited, and the Document Management and Process Division of Teamware Group – a Fujitsu subsidiary.

Meridio is a privately owned company headquartered in Europe with sales offices in North America and Asia-Pacific. The company is extending its reach globally by working with a wide network of system integration and software licensing partners. Meridio's UK sales office is in the Thames Valley and it has US offices in Washington DC, Seattle, and Chicago. Meridio currently employs over 100 people, ten of whom operate from the Bracknell office.

The company has several strong partnerships in place for both selling and developing its product. There are business partnerships with Capgemini, Deloittes.NET, Fujitsu Services Limited, Hewlett-Packard, Kainos, Logica UK Ltd., and Softbank. Technology partnerships exist with Convera (search and retrieval), Kofax (document imaging), Microsoft, and SourceCode Technology Holdings (K2 workflow).

Meridio has customers in a number of market sectors and include: Lloyds TSB; TNT; Scottish and Southern Energy plc; The Information Commissioner; Ministry of Defence; Department for Education and Skills; and the Home Office.

SUMMARY

RM has always been regarded as a niche market, but this changed when the large ECM vendors started acquiring RM vendors to add the RM functionality to their products, as all of a sudden they were providing compliance solutions. The requirements of compliance, however, go well beyond the management of electronic records. In Butler Group's opinion, Meridio has a big advantage over some larger ECM vendors in that its product is TNA approved; and as all UK government organisations are expected to establish electronic records management systems by 2004, Meridio has a vast potential market. Butler Group regards Meridio 4.2 to be a worthy of short-listing for any organisation in the public or private sector that has a requirement for a DRM solution – especially those with a predisposition to Microsoft products and technologies.

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OPEN TEXT: Livelink Enterprise Suite 9.5

Butler Group
Analysis without compromise

Open Text Livelink Enterprise Suite 9.5

Abstract

Open Text Livelink is an extensive fully-featured Enterprise Content Management (ECM) solution, which includes functionality in the areas of Document Management (DM), Records Management (RM), Workflow, Collaboration, and search and retrieval. Compliance is currently a huge driver for Document and Records Management solutions, as organisations have a growing need to retain information as records. A strength of Open Text Livelink is the in-built search and retrieval capabilities of the solution, developed in-house by Open Text. A weakness, in Butler Group's opinion, is the fact that customisation currently requires knowledge of the proprietary language Oscript. Livelink RM capability is suited to organisations across all market verticals that have a requirement for RM. The best way to evaluate the product is to implement a pilot, based on a single project, before rolling it out across the enterprise.

KEY FINDINGS

- ✓ Nine-level permission model applied to content.
- ✓ Full BPM capability.
- ✓ Manages physical space for records.
- ✗ Customisation requires knowledge of proprietary Oscript.
- ✓ Open Text has its own search capabilities.
- ✓ No limit on number of classification levels.
- ✓ Highly scalable solution.
- ✗ Extensive range of functions can be daunting for new users.

Key: ✓ Product Strength ✗ Product Weakness *i* Point of Information

LOOK AHEAD

Open Text will continue to enhance Livelink. On the roadmap are enhancements to the BPM capability, combining the best features of Open Text and IXOS functionality.

▶ FUNCTIONALITY

Product Analysis

Open Text's Document and Records Management (DRM) solutions are components of its Livelink 9.5 product. There are two versions of the Suite: Livelink 9.5 Enterprise Suite is the generic version, and Livelink 9.5 Suite is National Archives 2002 approved (formerly PRO II). Livelink comprises a suite of applications, which provide all of the components required to implement Enterprise Content Management (ECM). These components or modules are tightly integrated and provide collaborative and content management capabilities. The entire Suite is accessed via a single interface, minimising the training required.

Livelink is Web-based, which eliminates the need for an installation on the client. It provides all of the capabilities expected of a leading ECM application, including Document Management (DM), Records Management (RM), Workflow, Collaborative tools, and search capabilities. This Technology Audit focuses on the areas of Open Text Livelink 9.5 that are pertinent to DRM.

A criticism often levied at Open Text is that the extensive range of functions can be daunting for new users. Because of the flexibility of Livelink 9.5, it can be confusing for new users to immediately grasp how to achieve a certain goal, and this should be addressed through training.

Document Management

The DM functionality is accessed via the standard Web-based interface. Content can be created in the user's favourite editing environment such as Microsoft Word, and content can be saved from applications such as Word directly into Livelink, with the user having the ability to categorise the content, which is automatically indexed. A description is also created, which is retained throughout the life of the document and is accessible via task lists and reports. Although Livelink has been designed to utilise standard content authoring tools, in-line text and HTML text editors are also available.

Existing documents can be saved into Livelink, and a batch import facility is available. Content is stored in its native format, but Livelink includes HTML conversion tools for approximately 130 document formats.

Each time a document is edited a new version is created, with a full audit trail available of all changes that have taken place over the entire lifecycle of the document, with the ability to rollback to previous versions of a document. Livelink supports the creation of compound documents and both major and minor revisions are allowed within these documents.

In Butler Group's opinion, a strength of Livelink is the nine level permission level, which allows controls to be set on individual items of content. These permissions range from full editing rights including the ability to delete content, to the ability to view a document or its title. Permissions can be associated with roles, users, and groups, and are applied at the object level, which is most commonly a document of folder.

Records Management

The RM functionality is extensive with the ability to declare a document as a record at any point from its creation. As a National Archives 2002 approved solution, Livelink supports multiple levels of classification, with no limit imposed on the maximum number allowed, although Open Text had to demonstrate seven levels of classification in National Archives testing.

The management of record classifications is an administrative role, and Butler Group believes that this is a function that should be allocated to a dedicated person, either a Records Manager or Information Manager. Records can be declared in a number of ways including through the Web browser, or through standard office applications such as Microsoft Word, Excel, Outlook, or Windows Explorer. The record may be automatically classified depending on how the Records Manager has configured the system.

Retention schedules are applied at the classification level. Flexibility is applied to retention schedules, which can range from a single stage i.e., retain for a set period and then delete, to a multi-stage schedule, with various events occurring during the lifecycle of the record. At the end of the retention period, disposition reports are produced for the Records Manager, which identifies the records due for disposal. These can then be reviewed, and either flagged for deletion, exported to an archive for long-term retention, for example the National Archives, or updated to extend the retention period.

The decision whether or not to dispose of a record may not be the decision of the Records Manager, and so it is possible for the Records Manager to supply users with reports listing records due for deletion via workflow, providing the users with the opportunity to perform a review. The workflow can then provide the Records Manager with the necessary information and authorisation to proceed with any requested deletions.

Multiple RM classifications methods are supported. Records can be automatically classified based on the metadata. In assisted classification the application classifies the record but then allows the Records Manager to check the classification. Records marked as official are classified and then locked preventing them from being re-classified. Only the Records Manager has the authority to unlock such a record.

Butler Group believes the majority of records are still in a paper format, which creates a real headache for organisations when they are suddenly asked to produce historical records dating back several years. Livelink RM addresses this problem by also managing physical records with the ability to print bar coded or colour-coded labels to locate items in warehouses, check-in and out documents from the warehouse, and provide an audit trail of all activities relating to each record. Livelink also handles retention periods and disposition schedules of physical items. An innovative feature is the ability to manage the physical space that records are stored in by calculating the number of records that can be fitted into a box or even the warehouse.

Product Operation

Livelink has a 3-tier architecture. The bottom tier comprises the database, which can either be MS SQL Server or Oracle. The middle tier consists of the Livelink application, and the top layer is the client interface. A choice of interface options is provided, which is either to use a Web Server and a Web browser interface such as Microsoft Internet Explorer or Netscape, or an integrated desktop client such as MS Office applications or Windows Explorer.

Livelink utilises a single central repository, which Open Text believes provides a more manageable solution compared to distributed repositories. Both the metadata and content are contained within this repository. It is a highly scalable solution, with scalability provided through the deployment of clustered Web servers, and current implementations scale to over 100,000 users.

Open Text has developed its own metadata mechanism, which supports the leading cross-industry metadata standards including e-GMS. Standard metadata information such as author, document name, and creation date, are automatically assigned to a document or record, and the administrator or specified users can configure additional metadata fields, which end-users can be forced to enter information into. These entry fields can be validated. Metadata fields can also be populated via drop-down list boxes.

A differentiator for Open Text is that it has its own search capability, although third-party search engines can be bolted on if preferred. The Open Text search engine supports multiple search methods, which are free text, natural language, attribute, Boolean, and wildcard. It also includes a sophisticated query language. A brokered search capability provides the ability to perform simultaneous searches on multiple repositories.

Another advantage of Livelink is the BPM and Workflow capabilities, which provide a graphical workflow painter, which enables business users to create and visualise processes. The BPM capabilities enable users to create complex processes that cater for multiple stage document and record workflows that span many years, providing support for long-term retention.

A weakness in Livelink 9.5 is that customisation requires knowledge of a proprietary language called Oscript. There are currently some Java capabilities in Livelink 9.5, and this will be extended throughout the product in future releases.

▶ DEPLOYMENT

The Livelink server runs on Windows, Solaris, or HP-UX operating systems. It requires a third-party database, which can be either Oracle or SQL Server. Web or Application Servers legacy integration is possible and this is available through an API and development toolsets provided with Livelink.

Livelink has been designed for ease of implementation. A single install file will install the product on multiple sites. To configure the product, access to a database is required but the Livelink automatic configuration routines create the necessary links and schema structures. A business consultant would typically be involved in deployment projects to ensure that the content structures created within Livelink map to the business requirements of the organisation. Some organisations have the resources to perform this task themselves, but many use a Systems Integrator or Open Text.

Butler Group believes that the actual implementation of a DRM solution goes far beyond the actual installation of the product. Organisations need to take into account the development of business classifications or a fileplan, the retention periods for the various types of information, how much legacy information should be retained, the information that will actually be managed by the system, and how to manage paper-based records.

It is for these tasks that organisations often require additional support. Butler Group does not believe this is something that companies should perform themselves if they do not have the necessary skills in-house.

Some larger organisations and the majority of public sector bodies will already have Records Managers or Information Managers in place to manage records, but many companies will not. The key to a successful DRM implementation, in Butler Group's opinion, is the fileplan and also the way in which existing information is handled.

The average time for an implementation is a single day for the installation, and then up to 90 days for business solution mapping and user training. Livelink is modular, enabling customers to install just the components that they require.

Various levels of training are provided, ranging from basic end-user training to power-user and business training. Training is provided by Open Text and is based around the functions required by a typical user. Courses are generally one day in length and are provided at Open Text's training facilities, on-site, or via CBT. In addition, consultant and developer boot camps are available, at up to two weeks in length, and focus on all areas of the Livelink product.

Various levels of support are available ranging from local telephone-based support to full 24x7 support.

▶ PRODUCT STRATEGY

Livelink is targeted both at horizontal and vertical markets. As a generic product, Open Text has traditionally offered its solution across all industries, but is now developing applications to address the business needs of specific market verticals. Open Text has recruited teams dedicated to the needs of pharmaceuticals, construction, financial services, Government, and energy vertical markets.

Other line-of-business applications are offered to address the requirements of these areas including: Livelink for Learning Management, Livelink for Corporate Governance, Livelink Virtualteams, Livelink for Program Management, Livelink for Regulated Documents, and Livelink for Clinical. In terms of size, Open Text targets Fortune 2000 companies. The product is suited to the Public Sector and not for profit bodies as can be seen by the company's recent National Archives 2002 approval.

The ROI for Livelink has ranged from 201% to 635%. Butler Group believes it is very difficult to calculate ROI on any product, but these figures were calculated by an independent source.

Open Text sees its major market opportunity deriving from IT, line of business vendors, and industry vertical segments. Butler Group believes that with National Archives 2002 approved, the public sector will provide a huge market opportunity for Open Text in the future.

The route to market is primarily through direct sales, but Open Text does have some channel partners that sell the product, which accounts for approximately 10% of revenue.

Open Text has too many business partners to mention all of them, but some of the important partners are: Siemens Business Services, Deloitte Consulting, BearingPoint, Stonebridge Technologies, and Burke Consortium. Technology partners include Adobe, BEA, HP, Microsoft, Oracle, SAP, and Sun. They also include technology partners that build solutions to address specific business processes such as document capture and CAD file viewing and mark-up. Competitors include other ECM vendors, collaboration vendors, and enterprise application vendors.

The cost of an implementation depends on the requirements of the customer. However, the cost of maintenance is 20% of the licence fee.

The main threats to Open Text's market share come from the intense competition in the ECM market space, and also from specialist DRM vendors. Butler Group believes that over the next few years, the ECM market space will continue to consolidate with the eventual result being that there will be a few major vendors left, and the majority of the smaller niche players will have been swallowed up by the larger vendors, perhaps desiring instant National Archives 2002 approval. We believe Open Text is one of the major ECM vendors most likely to survive this consolidation process.

COMPANY PROFILE

Open Text (NASDAQ:OTEX TSX:OTC) is based in Ontario, Canada, with US headquarters in Chicago, IL. It has in excess of 2,000 employees, based in 30 offices around the world.

Approximately 50% of employees are based in North America, 45% in Europe, and the remainder in Asia-Pacific and the Middle East. Research and Development staff make up approximately 26% of the headcount and Support and Services 33%. It was incorporated in June 1991, having undertaken the first full text indexing and searching of the Oxford English Dictionary. The Initial public offering was completed in 1996. Open Text has acquired a number of companies over the years including IXOS, a market leader in SAP Document Management, and also e-mail archiving. Open Text has more than 17 million users across 13,000 deployments in 31 countries and 12 languages worldwide.

Revenue figures for the past three years are as follows: in financial year 2004, total revenue was US$291.1 million, which equated to a gross profit of US$212.7 million, and a net profit of US$27.8 million. In 2003, total revenue was US$177.7 million, and 2002 saw total revenue of US$154.4 million.

SUMMARY

Although the ECM market space is currently buoyant, it is consolidating as many of the smaller niche players are being acquired by the larger vendors plugging the gaps in their own functionality. One of the major areas where this is occurring is in the DRM space. Due to the demands of compliance, Butler Group expects to see the area of DRM continue to grow in importance. Once this consolidation process is complete we believe there will only be a few ECM vendors left offering a wide range of information management functionality, of which DRM will be key elements. With its extensive functionality in these areas, and its National Archives 2002 approval, Butler Group expects Open Text to be one of the long-term survivors.

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STELLENT: Stellent Content Management Version 7.2

Butler Group
Analysis without compromise

Stellent Stellent Content Management 7.2

Abstract

Universal Content Management is Stellent's primary software product, consisting of one server which delivers Web Content Management, Document Management, Records Management, Digital Asset Management, and collaboration. The Stellent system is easy to use and enables end users to submit or contribute business content to the system via a Web browser or through the Windows desktop. The Stellent Content Server fully supports Document and Records Management (DRM) functionality by providing features such as check-in/check-out, version control, and full document and record audit. Content Server also provides security, workflow, searching, archiving, and content distribution features – all of which are essential for any enterprise-class DRM solution. Stellent Records Management has not yet received approval from The National Archives; however, plans are in place to achieve this mid-2005. Despite this lack of formal approval, Butler Group would still urge public sector organisations to consider Stellent Records Management.

KEY FINDINGS

- ✓ A well integrated, Web-based DM and RM solution.
- ✓ Wide range of deployment platforms supported.
- *i* Part of an Enterprise Content Management suite.
- *i* Acquired Optika in 2004.
- ✗ Lacks a full Windows client for 'power users'.
- ✗ Stellent Records Management is not yet TNA certified.

Key: ✓ Product Strength ✗ Product Weakness *i* Point of Information

LOOK AHEAD

Stellent is preparing to launch Stellent Universal Content Management 7.5 which is to include enhancements in several areas including better integration with Microsoft Outlook and Lotus Notes. The successful integration of the recently acquired Optika business unit will be key in 2005.

▶ FUNCTIONALITY

Stellent Universal Content Management is a comprehensive end-to-end Enterprise Content Management (ECM) solution that is built upon a unified architecture designed to enable organisations to deploy Web Content Management (WCM), Document Management (DM), Records Management (RM), Digital Asset Management (DAM), and collaboration solutions on a single platform and through a common Web interface.

Stellent Content Server provides the foundation and core services upon which the company's five key application modules are built. Suited to organisations of all sizes and all industries, Stellent's products and technologies are able to address a wide variety of enterprise and line-of-business requirements, ranging from HR and employee portals, through to compliance and regulatory solutions.

Product Analysis

There are many challenges and issues facing business and IT managers today, and most of them in some way shape or form involve the management and control of documents, content, and process. Stellent's approach is to provide a layer of infrastructure, technology services, and out-of-the-box applications based on a single logical platform and repository. Through its support for open standards and the provision of a rich Applications Programming Interface (API), Stellent's various CM offerings can be integrated with line-of-business systems and enterprise applications.

Stellent's Universal Content Management architecture underpins the company's CM solution. Built from the ground-up using Java, this architecture presents a single logical repository and a set of core services which are arguably more effective and easier to manage than some of Stellent's competition. Although Stellent has in the past included technology from other vendors – and continues to do so in the case of indexing and search technology – all of the key modules and elements being offered by the company have been built in-house, and so organisations seeking a truly integrated solution for DRM would find the Stellent product-line very appealing.

Because Stellent's offerings can be deployed in a modular fashion, organisations could initially deploy DM and RM, and then add-on WCM and DAM at a later date, comforted by the knowledge that much of the deployment effort would have already been completed. While there are several vendors in this market offering ECM suites, very few can say, with hand-on-heart, that their solutions truly share a common architecture.

Stellent's DM and RM products are ably supported by the company's comprehensive implementation methodology, thereby ensuring a consistent, methodical, and predictable deployment projects.

The Web-centric approach adopted by Stellent to its products means that end users can access all of the functionality on offer through a standard Web browser. However, this does mean that integration with office productivity applications is not quite as slick as it might be when compared with other solutions on the market.

Document Management

Stellent Document Management provides users with the ability to capture, secure, share, and distribute document within an organisation. The differentiation between a document and a record can sometimes be rather vague, but if we consider a document to be something generally under the author's direct control, and a record as being something under the organisation's control, then perhaps things become clearer.

Common authoring tools such a Microsoft Office, IBM Lotus Suite, Sun StarOffice, and Autodesk AutoCAD are easily integrated with Stellent's Document Management solution, although the product's Web-based architecture does mean that this is perhaps a little less slick than products which offer a native Win32 client – Microsoft's native API for running applications under Windows.

Stellent Outside In technology provides the ability to view, filter, and convert more than 250 file formats without using native applications, and so provides the company with an enviable reputation when it comes to handling different file formats, even though the company licences this technology to many vendors in the DRM space.

Out-of-the-box templates are proved with Stellent Document Manager. However, the method by which documents are created and stored in the repository may not suit all usage scenarios. Stellent recognises the fact that a rich Windows desktop client can add value in some circumstances, and this has led to the development of Stellent Desktop.

Stellent Desktop provides secured access to files stored within the repository through Windows Explorer, and also supports the Open Document Management API (ODMA) together with WebDAV (Web Distributed Authoring and Versioning). This means that any desktop productivity tool or applications supporting ODMA is able to transparently access Stellent's DM system. Stellent Desktop can also be used to integrate Microsoft Outlook and Macromedia Dreamweaver with Stellent Document Manager, with the latter providing a good starting point for WCM.

Stellent Document Manager provides all of the features and functions one would expect of a DM system: check-in/check-out; version control; document profiling; audit trail; searching of both document metadata and content; and role-based security. Document comparison and redaction features are currently third-party add-ons such as iMarkup or Workshare. However, the company intends to provide content comparison features as standard in the next version of Stellent Content Server.

Records Management

Stellent Records Management was introduced to the core server platform in 2003, and became US DoD 5015.2 Chapter 4 certified in 2004. In the UK Stellent plans to submit its RM offering for approval by The National Archives (TNA) some time during 2005.

Converting a document to a record is a simple process using Stellent Content Management, and is usually accomplished by making changes to the document's metadata and declaring that document within the corporate fileplan. This can be achieved as a conscious action on the part of the user at the point in time where a document needs to be declared as a record, or it could be an automatic action based on a document being dropped into a particular folder, or some other even triggered by a metadata update or date event. Once declared as a record, the document remains within the same underlying repository, but is now subject to the additional controls, retention rules, and disposal actions resulting from its declaration within the records fileplan.

Because Stellent Records Management sits on top of the Stellent Universal Content Management architecture it inherits the same performance and scaling attributes of other Stellent applications. If an organisation has already deployed Stellent for say DM or WCM, then the deployment of Stellent Records Management is relatively straightforward from a technical perspective. However, this does not mean that implementing a RM system is easy, as it is the thinking behind the corporate RM policy that takes the time and effort to devise.

Stellent's RM solution is fully configurable and allows organisations to determine and set their own RM policy. Retention periods can be set for a variety of scenarios, and the product also enables the corporate manager to create a number of separate disposition schedules. At the end of a retention period an e-mail notification is generated and sent to the appropriately identified authority, and then only by conscious human action are records disposed of. The system also permits users to manually review records prior to their disposal.

When a record is deleted from the Stellent Records Management application the file system is 'scrubbed'; this ensures that the electronic file cannot be re-created from fragments that may be left on disk. Of course it is vitally important that system back-ups (tapes and optical media) are managed alongside on-line records and so Butler Group would advise all organisations to pay particular attention to this area, as many vendors deal with this management challenge through procedure rather than technology.

For organisations with a 'need-to-know' policy, Stellent Records Management can restrict access to certain elements of the records metadata. However, as records are managed at the content level, the product cannot restrict access to particular sections of content unless the item is checked in multiple times, each time with pieces of the document redacted. This may present something of a concern in some organisations, although according to Stellent, this is not a feature that it comes across often.

As with Stellent's DM application, record metadata can be created in a number of ways. Manual entry is one method, and this can be controlled by the creation and definition of metadata pick lists. Metadata can also be applied to a record based upon the folder used to create the record – a feature that works well with the product's drag-and-drop approach to RM.

Stellent also provides a number of tools and facilities to assist with the automatic creation of metadata. These range from: simple business logic which will apply metadata defaults to content during drag-and-drop actions; automatic metadata assignment by extracting document properties; through to integrations with taxonomy generation tools such as Autonomy and Verity Profiler.

To prevent users from altering records Stellent provides a robust security model which enables up to four custom levels of security to be applied to records. Once declared as a record, an object cannot be changed (checked out).

Product Operation

The Stellent Content Server is the foundation for any Stellent implementation. It is a standards-based content repository which is accessed via a standard Web browser communicating through Hyper Text Transport Protocol (HTTP) and the Common Gateway Interface (CGI). This Java-based server manages all of the application functions and runs continually as a service on a variety of Web servers.

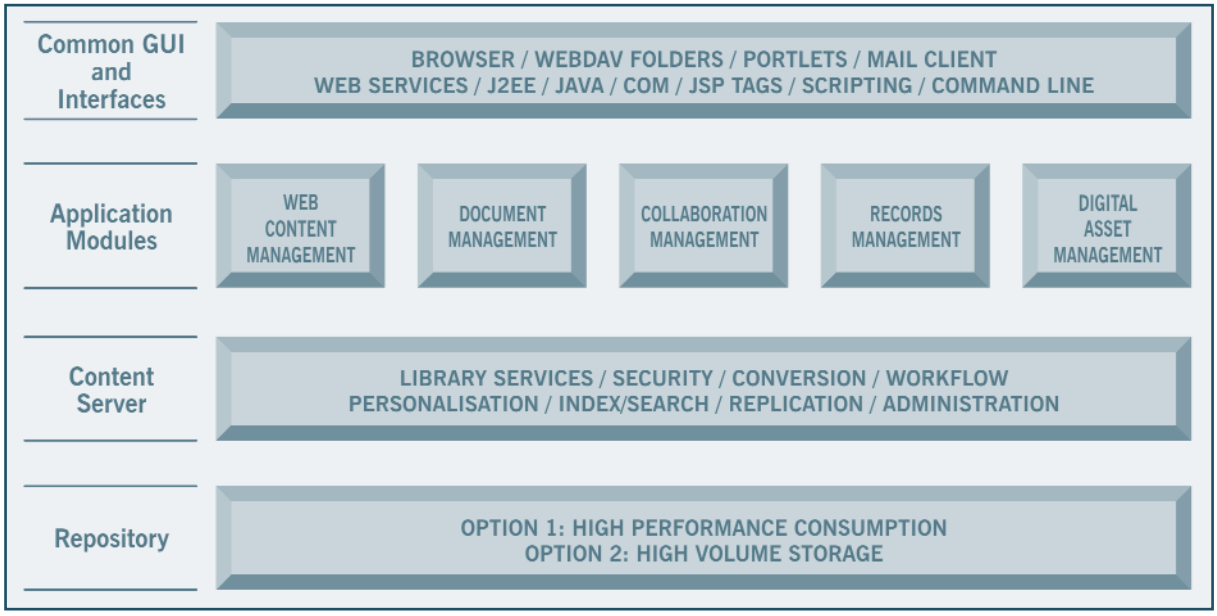

Figure 1: Stellent Universal Content Management – Logical Architecture

The Stellent Content Server has a Services-Oriented Architecture (SOA) and consists of around 600 services which provide the product's content management functions. These services are exposed as a set of well-documented APIs which can be used by System Integrators (SIs) and organisations to integrate Stellent's various products and solutions, with line-of-business systems and enterprise applications using technologies such as Java, Java 2 Enterprise Edition (J2EE – a Java-based, runtime platform created by Sun Microsystems used for developing, deploying, and managing multi-tier server-centric applications on an enterprise-wide scale), Microsoft's Component Object Model (COM), and Web Services.

This places Stellent very well either as a vendor providing end-to-end solutions, or as a piece of content management infrastructure, providing content and content management services to line-of-business applications, portals, and enterprise applications. The diagram on the previous page shows the logical architecture layers of the Stellent Content Server.

From inception the Stellent solution was designed to scale both horizontally and vertically. Horizontal scaling is accomplished through the clustering capabilities of the underlying operating system, while vertical scaling is achieved by deploying the various elements of the solution on a separate physical hardware platform. The flexibility of Stellent's solution means that organisations can chose the most appropriate physical architecture for their deployment, balancing performance against cost, and user activity with expected content volumes.

In terms of DRM, Stellent's offering is integrated right down to the repository level. Although DM and RM can have different physical repositories, at a system level they can be viewed as one logical store – an approach which eases system administration and also reduces complexity for end-users as the seek to access both documents and records.

We have already mentioned that DM and RM are just two elements of Stellent's ECM offering, with WCM being the company's other key area of focus. The architecture, which underpins Stellent's solution enables organisations to deploy different ECM modules in different parts of the business, and yet be certain in the knowledge that the underlying technology will deliver a holistic solution which addresses all key issues pertaining to the management of document, records, and any other media types.

One final architectural detail worth noting is Stellent's approach to content storage. While some vendors store metadata and content in a single database, Stellent has opted to separate the two: metadata and system configuration information are stored in a RDMS; content is stored natively in the host file system. Stellent argues that this is the optimum configuration in terms of performance, but there are those who consider this to be extra administrative overhead.

The search and retrieval capabilities of Stellent's solution are provided by embedded Verity search technology. However, the company also provides a mechanism for utilising the free-text search capabilities of the underlying RDMS. The embedded Verity search engine supports full-text and metadata searching. Searches can include Boolean logic, wildcards, word stemming, and advanced logic including thesaurus, word proximity, and Soundex matching.

The search features found within the Stellent offering are very powerful, and allow users to search within preview search results, and to reorder search results based on any number of metadata criteria. Search results are returned with the full metadata record for each returned object, and these are automatically filtered by the Stellent security layer to ensure that each user is only returned search results that they are permitted to see.

The Stellent Content Categoriser module enables business logic to be automatically applied to content during check-in to extract metadata. Metadata can be mapped automatically from document properties, or the document content can be interrogated to extract metadata based on pattern matches or keyword frequency. Stellent Content Categoriser also supports integration with third-party taxonomy generation tools including Autonomy and Verity Profiler.

Stellent provides a fully-featured workflow engine within the core Stellent Content Server application. Workflows can be defined as simple one- or two-step review process, or can be complex multi-branching workflows including sub-processes, time-based escalation, and rules-based processing. Whether or not this could be considered full BPM depends very much on the complexity and nature of the processes to be modelled. Stellent workflow is targeted at automating the process of reviewing and editing content prior to release.

Workflows are defined using the Stellent Workflow Admin tool (a browser-based tool allowing workflow administrators to create and maintain workflow definitions) or an optional plug-in that allows workflow modelling using Microsoft Visio. Rules-based branching, escalation, jumps, and several other functions are supported by the workflow engine, and workflow processes can be driven and controlled by a number of variables including role information and user metadata. Stellent uses e-mail to notify and alert users to workflow tasks.

There are no pre-built connectors for other systems within the Stellent workflow engine. However, the workflow functions are fully exposed via the Stellent API set, making integration with other applications possible.

▶ DEPLOYMENT

Stellent is an out-of-the-box solution, which, according to the vendor, requires little by way of maintenance and administration once it has been installed and configured. On average, a few hours per week are required for maintenance and administration over and above the normal system maintenance for the underlying operating system, database, and hardware.

A comprehensive training curriculum is provided by Stellent, ranging from basic end-user training through to advanced developer training. The level of training required depends on the role of the user. End user training is rarely required other than basic familiarisation with the product – often provided by the customers own resources in a workshop.

Technical support is provided by a 24-hour, multi-lingual centralised support centre at Stellent Corporate HQ in Minneapolis, US. Standard support is provided by telephone and e-mail during normal business hours in the country where the call originates. Extended support options including 24 x 7 x 365, dedicated support contacts and developer support are also available.

Stellent is available on the following platforms: Windows 2000 Server, Windows 20003 Server, Sun Solaris, HP HP-UX, IBM AIX, and Linux. Stellent utilises a third-party relational database for the storage of metadata, configuration and audit information. Supported databases are: Microsoft SQL Server, Oracle, Sybase, Informix, IBM DB2, and Software AG's Tamino. As a Web-based application, Stellent utilises Web server software to provide the Web interface. Supported Web servers are: Microsoft IIS, Apache, Netscape Enterprise Server, and iPlanet.

With Stellent's technology, legacy integration is possible through a fully documented API using any of the following technologies: Java, J2EE, Web Services/SOAP, COM, Command Line, WebDAV, and URL-level integration.

▶ SOLUTION STRATEGY

Stellent believes the trend toward companies using the Web for communicating and publishing business information will continue, and so the company's solution strategy maps closely to this. Stellent is fully aware of the continuing consolidation within the ECM software sector and the desire by most organisations to limit the number of software vendors they engage with. The company continues to invest in a broad set of content management offerings, and the acquisition of Ancept and Optika will ensure that the company's solutions can manage the media of the past (paper) just as well as the media of the future.

Stellent's RM offering is now maturing into a very competent product and together with the acquisition of Optika will enhance the company's capabilities in the areas of document imaging, BPM, and compliance.

In general, Butler Group believes that the success of IT projects are often determined by the skills and experience of those delivering the solution, and therefore Stellent's continued development of its consulting services business will undoubtedly continue to differentiate the vendor against the competition. Technical architecture, solutions development, integration with third-party products and technologies, and solid project management, are areas in which Stellent expects to continue to grow.

Stellent is determined to lead the content management market in product development and to this end invested over US $13.3 million in R&D in 2004. The return on this investment will come in the form of major product releases approximately every year, and so in a market characterised by rapid technological change, Stellent looks set to be one of the first vendors to incorporate new technologies into its product.

▶ COMPANY PROFILE

Stellent, Inc. is headquartered in Minneapolis, US, and maintains offices throughout the United States, Europe, Asia-Pacific, and Latin America, and employs approximately 525 staff. The Stellent product suite was launched in 1997 and now the company has a customer base of more than 3,500 organisations, including much of the Global 2000. Customers include Procter & Gamble, The Home Depot, Allina Health System, British Aerospace Airbus, Ltd., GlaxoSmithKline, Georgia Pacific, Bayer Corp., Coca-Cola FEMSA, Cargill Financial Services Corp., Sun Microsystems, GE Capital Corp., Honeywell, Merrill Lynch, Compaq, ING, Los Angeles County, Cox Communications, Emerson Process Management, Genzyme Corp, Toyota, and British Red Cross. Of this customer base approximately 1,200 are corporate customers that are using the company's Universal Content Management software.

A publicly traded company (NASDAQ:STEL), Stellent has made two major acquisitions over the past 18 months. In August 2003 Stellent extended its DAM capabilities by acquiring Ancept, Inc., and January 2004 the firm acquired Optika to bolster the company's capabilities in the fixed content document management market.

Stellent believes this acquisition will enhance its Universal Content Management software in the areas of BPM and compliance. Stellent continues to invest heavily in R&D, having spent an average 20% of total revenues over the last three years. In fiscal 2004 Stellent derived 72% of its revenue from the US market and the rest primarily from the European market.

Stellent's total revenue and net income for the last three financial years ending 31 March 2004 were:

	2004 (US$ '000s)	2003 (US$ '000s)	2002 (US$ '000s)
Revenues	75,774	65,434	88,340
Increase (Decrease)	16%	(26%)	32%
Net Income (Loss)	(10,513)	(32,400)	(22,298)

(Source: NASDAQ)

SUMMARY

The Stellent Content Management System is a powerful end-to-end content management solution, which delivers DM, WCM, Collaboration, RM, and DAM through one architecture (single repository) and one user interface (standard web browser). The company's product line is consistent with solutions from other ECM vendors. However, having built rather than acquired much of this technology one could argue that Stellent's offering is likely to exhibit more architectural uniformity than a solution-set acquired primarily through acquisition.

Stellent's DRM solution offers organisations plenty of technical implementation options and the product's openness lends itself very well to integration with other enterprise applications and line-of-business systems. The end-user Web interface may not be to everyone's liking, but for organisations where reach and range are important this will not matter so much.

Organisations implementing DRM on the back of WCM will undoubtedly find Stellent's offering a very attractive proposition – especially if portal integration and workflow facilities are important too.

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TOWER SOFTWARE: TRIM Context

Butler Group
Analysis without compromise

TOWER Software TRIM Context

Abstract

TRIM Context is a well established Document and Records Management (DRM) solution from TOWER Software – an Australian firm with 20 years experience in the provision of Records Management (RM) systems to government and regulated industries. This solution is based on Microsoft technology and as such integrates extremely well with many desktop and server products from the world's largest software company. This solution provides a number of modular features in addition to DRM: workflow; archival management; space management; and barcode tracking. TRIM Context can be accessed through a Web browser or a traditional 'rich' client application. The company has a strong RM pedigree, and continues to successfully deliver DRM solutions to large and medium sized organisations both directly and with a growing band of partners. TRIM Context has been approved by The National Archives and has achieved certification under the US DoD 5015.2 standard. Organisations seeking solutions for Compliance, Corporate Governance, or Freedom of Information should evaluate TRIM.

KEY FINDINGS

- ✓ A mature and well proven DRM solution.
- ✓ Extensive out-of-the-box features and functionality.
- *i* Now provides a SOAP-compliant Web service.
- ✓ Approved against TNA 2002 and DoD 5015.2 standards.
- *i* Well designed rich-client for Power Users.
- ✗ Technology stack may be too restrictive for some.

Key: ✓ Product Strength ✗ Product Weakness *i* Point of Information

LOOK AHEAD

Enterprise Application integration with SAP is scheduled, as is integration with more Microsoft technologies and products. A full migration to Microsoft .NET is underway, and the company has also announced plans to release its own Web Content Management tool.

▶ FUNCTIONALITY

Product Analysis

TRIM Context (TRIM) from TOWER Software is an integrated Electronic Document and Records Management (EDRM) solution which has evolved over a number of years to help organisations effectively manage unstructured business information. Through the application of business rules and information management constructs, this EDRM solution enables the efficient capture, reuse, storage, retrieval, navigation, and disposal of corporate information assets.

The Document Management (DM) and Records Management (RM) functionality found in TRIM are fully integrated within a single application, thereby providing the end user with a consistent approach to the management of electronic documents, electronic corporate records, and physical records.

Consistent with Butler Group's own view, TOWER Software believes that Document and Records Management (DRM) should form the backbone of any Enterprise Content Management (ECM) solution. In addition to DM and RM, TOWER Software's solution also includes: E-mail Management, workflow, Archival Management, Space Management (of physical records), and barcode tracking – useful for managing physical items. TOWER Software does not offer a Corporate Portal or Content Management as part of its ECM solution. However, TRIM readily integrates with solutions of this type from other vendors.

TRIM supports distributed file stores (using the operating system's file system or FTP) for documents and records, with the metadata for these objects held in a central database. The ability to manage separate object stores means that content can be held close to the business users of this information. TRIM offers full searching capability, and this can extend across multiple repositories that exist within a single database.

A Microsoft .NET-based solution, TRIM imposes no restriction on the size of the document or record that can be stored and managed within the system, and its ability to manage physical as well as electronic items ensures that this solution will meet the requirements of the most demanding enterprise. TRIM is designed to maintain strict compliance with US Department of Defense 5015.2-STD (Design Criteria Standard for Electronic Records Management Software Applications), ISO 2788 (Guidelines for the establishment and development of monolingual thesauri), and ISO 15489 (Records management). TRIM Context has also received approval from The National Archives – one of only ten systems to do so at the time of writing.

Business solutions from TOWER Software and its partners cover areas such as Compliance, Corporate Governance, Freedom of Information, Electronic Social Care Records, and risk mitigation. As one might expect from a company founded in 1985, TOWER Software's DRM solution is well established in many regions of the world and across many industry sectors. The company has also established a number of important partnerships over this time, including: Adobe Systems, Authentica, Captovation, HP, Kofax, Lexmark, and Microsoft.

Document Management

The DM functionality found within TRIM underpins TOWER Software's ECM solution, and as a result the company makes great efforts to ensure that potential clients understand the full value to be derived from its functionality. Even today many organisations still use unmanaged network file shares and private folders to store documents, and therefore TOWER Software believes that there is still a real opportunity for organisations to use this technology as a differentiator – regardless of sector or industry.

TRIM provides all of the key features that one would expect of an enterprise-ready DRM solution: version and revision control; full-text indexing, search, and retrieval; document imaging; and tight integration with the Microsoft Windows desktop operating system.

TRIM does not restrict or impose any application authoring systems on users. TRIM provides tight desktop integration, and so using standard desktop productivity tools end-users can seamlessly and securely store and retrieve business documents – an approach that ensures only minimal training is required for most users of the system.

Unlike Web-only DRM solutions, TRIM is designed to fit-in with the way users currently work, i.e. saving and opening documents from within an application such as Microsoft Word. Although one would think that this mode of operation would be a given for any DM system, Butler Group is surprised to find that some DRM applications insist that the user interact with a Web page in order to store or retrieve a document – something quite alien to most end users. TRIM does offer a Web interface which supports enquiries and updates – an indication, perhaps, that most users of the Web interface could be classified as 'casual' users.

TRIM can store and retrieve any type of electronic file within the system, and the built-in INSO viewing technology permits more than 250 file formats to be viewed, using the native file format and without the need for the applications to be installed on the user's PC. If a specialist view is available – for CAD drawing for example – then TRIM can be configured to use this tool.

One key aspect of DM systems is the use of document templates. Document templates ensure that corporate standards are adhered to and are also important to efficiency. TRIM fully supports templates, and the products Software Development Kit (SDK) can be used to automate many document production activities.

The TRIM SDK is COM-compliant and allows for manipulation of TRIM objects via scripting languages, and hence data contained within templates can be stored as metadata together with the document. Macros using Visual Basic for Applications (VBA) can access TRIM data via the TRIM SDK and place that data within the document.

Because TRIM stores content in a document repository, it is not possible for in place editing (Content Management) of Content on a Web site. TRIM features a Web publishing facility which enables users to select a number of documents/records which are then formatted into HTML ready to be published. Web Distributed Authoring and Versioning (WebDAV) is not yet supported by TRIM. However, TOWER Software does recognise that this is a feature required by an increasing number of business scenarios and so intends to add support for this in a future release.

Converting a document stored within the TRIM repository to a record is accomplished by 'declaring' it as 'final'. At this point the document becomes a corporate record and no further changes or revisions can be made to it from then on.

Records Management

TRIM permits records to be created from a wide-range of authoring applications including e-mail clients such as Microsoft Outlook. When a user saves a document for the first time they are prompted for metadata which is then used to create the record. This metadata is easily configurable through an administrator interface so that information relevant to the company's business activities is captured at the point of record creation. A document can be 'declared' a record at any stage within a business process.

TRIM treats documents and records in the same way, and so end users perform the same tasks on all items that are stored in the system – irrespective of whether the item is a 'document' or is to be declared as a record. TRIM's out-of-the-box metadata schema fully meets the ISO Standard for Records management (ISO 15489). There are over 70 standard metadata fields provided for Folders, Parts, Documents, and Records. Many of these fields are compound fields. For example a Contact field attached to a record consists of over 20 fields itself. In total there are over 200 predefined fields, which can be used on various aggregation levels. In order to control the vocabulary used in metadata fields TRIM provides an ISO 2788 compliant thesaurus – an essential feature for organisations relying on uniformity of information and perhaps applications integration. If an organisation requires a field that is not provided by TRIM, then a user-defined field can be created. There is no practical limit on the number of user-defined fields that can be created.

TRIM's Archiving component provides organisations with complete control over the lifecycle of corporate records from creation through to disposal, or archival to The National Archives for example. As one would expect of a product that meets the functional requirements of so many records management standards, TRIM is very flexible in its ability to accommodate various records retention and disposal policies/schedules. Triggers defined by a retention schedule enable TRIM to calculate transfer and destruction dates, and a single retention schedule can contain multiple date triggers. For example: 'transfer to an interim archive five years after closure and then destroy ten years after closure'.

Archival action within TRIM can take place at different record levels; therefore it is possible to assign retention schedules to documents as well as to folders/containers. When records are placed within a container, TRIM checks all the retention schedules for their 'severity' and will flag the container for review if there are any documents in the container with a more severe schedule. The corporate Records Manager would then be able to manually check the contents of the container and decide what to do with the records therein. It is important to note that within TRIM retention schedules apply to the archival process of destruction – deletion is a process that removes all evidence that a record ever existed, and is an option only available to the system administrator. Deletion of a series of records will be prevented even for the administrator if there are any records that are linked to the series.

TOWER Software's 20-year experience in the RM market is clearly evident within its solution, as every aspect of RM is addressed in a clear and unambiguous way. Workflow features within TRIM enable busy Records managers and Compliance officers (along with users and business managers if required) to review records prior to disposal. TRIM audits all actions that take place within the system, recording action and user name in a separate audit log. In terms of access control TRIM supports the following: View Document, View Metadata, Update Document, Update Record Metadata, Modify Record Access, Destroy Record, and Contribute Contents.

TRIM provides full control of records and documents at the archive stage – the ability to move an item back into the classification system for example.

Out-of-the-box TRIM fully meets the requirements set out by ISO Standard 15489 (Records management). According to TOWER Software, there are over 70 standard metadata fields provided for Folders, Parts, Documents, and Records. Many of these fields are compound fields. For example a Contact field attached to a record consists of over 20 fields itself. In total there are over 200 predefined fields, which can be used on various aggregation levels.

TRIM provides five pre-defined user access levels and also allows for custom groups to be defined. Any user that is authorised to register records can add metadata to the fields presented to them on the record catalogue/profile form. However, once a record has been registered it then depends on the user's role as to which fields they can amend. Many metadata fields are captured automatically by TRIM from the application, the host computer, and network operating system. TRIM enables organisations to impose restricted vocabularies in order to increase data quality at the time of record (or document) creation.

In line with RM standards, TRIM permits metadata to be added or amended at a later stage after the initial declaration. However, which particular additional metadata can be added and by whom depends very much on user roles. Certain metadata cannot be further amended – such as e-mail transmission data or the metadata captured from the operating system and the creator. The record title can only be amended by users with 'Information Management' access.

The system administrator can make any or all of the fields on the record profile form mandatory. However, some fields are mandatory due to TRIM's strict business rules.

TOWER Software has been in the RM market for nearly 20 years, and so it should come as no surprise to learn that the company's product meets the requirements of all major RM standards – indeed the company has provided input to some of them.

Product Operation

TRIM is a single solution for the management of documents and records, and as such treats both in a similar fashion. This is a strong selling point for this solution, as it means users are presented with a highly consistent approach to the way in which they deal with both documents and records – TRIM is a truly integrated DRM system.

Checking a document out from the TRIM repository prevents other users from making changes to the document until it is returned. When returning the document the user can choose one of several options:

- Make a New Revision: This option means that a document being returned will be added to the record, the older revision being saved as a "previous revision".
- Replace Current Revision: This option means that the document being returned will completely replace the one that was in TRIM. Note: this option is set by the System Administrator.
- Discard any Modifications Made: This option means that a new revision is not being returned (usually because there were no modifications).
- Keep Item Checked Out: This option is chosen when someone returns a document, but still does not want others to edit it.

Increasingly important in today's business world is the control of information transported through mediums such as electronic mail and Instant Messaging. TRIM supports the automatic capture of e-mail for any program that supports the Messaging Application Programming Interface (MAPI) – typically Microsoft Outlook, Lotus Notes, or Novell GroupWise. From any user defined e-mail folder, TRIM allows the definition of links from e-mail folders to TRIM folders. Once a link has been defined in this way, messages entering the personal folder are automatically transferred into the TRIM folder. This procedure can be accomplished with or without user interaction (using TRIM rules). Alternatively, the user can be presented with a metadata catalogue/profiling screen for each item to be declared as a record in this manner.

If desired, buttons can be added to the Microsoft Outlook toolbar which then enable the user to 'Catalogue and Send' new message or simply 'Catalogue' received messages. If a message contains attachments TRIM will offer the user options to: register the message only; register the attachments only; register the attachments together with the message; or to save the attachments the 'TopDrawer' – TRIM's off-line working feature.

TRIM also provides a 'drag-and-drop' interface for e-mail users, whereby any message destined for the TRIM repository is automatically assigned metadata based on properties of the message and the linked folder itself.

All fields can be defined with a default value and string fields can be defined with a drop-down list of controlled values. Default values can be changed automatically under certain circumstances, according to in-built business rules. For example, if a paper document gets attached to a file, it will automatically inherit the files location and the file may get its security updated to that of the document.

According to TOWER Software, TRIM's searching capabilities are the equal of any other document and records management product available on the market. All information stored within TRIM is searchable with the exception of contact attributes (address, phone, fax, and e-mail address). This solution includes a Quick Find search option located on the user's Search Toolbar.

TRIM permits a search to be conducted across selected Record Types, using any number of search methods combined with Boolean operators and including, for electronic records, searching the text of the document itself. TRIM supports over 70 levels of sorting: for example by Record Type, Creation Date, and Record Title. The result of the search can be sorted in either ascending or descending order.

The TRIM user interface presents a split-screen for search results, thereby enabling users to 'view' documents and records before formally retrieving them. This UI is similar to other desktop applications, and is therefore unlikely to require a great deal of end-user training – an important factor to consider for large-scale enterprise roll-outs. Navigation through the TRIM repository is extremely straightforward using the product's rich client interface, beating any Web-based interface I have seen in terms of design and usability.

▶ DEPLOYMENT

An 'out-of-the-box' solution for DRM, TRIM is capable of being deployed very rapidly. The UK's National Maritime Museum recently deployed TRIM to 200 users within 90 days. In terms of costs, approximately 85% of the total cost was attributed to software licences, with 15% attributed to services. This will of course vary according to skill sets available within the organisation.

TRIM Context is a Microsoft Windows-based solution, and as such requires hardware compliant with this operating system. Although Microsoft Windows can run on so-called 'generic' hardware, Butler Group would always advise organisations to stick with equipment listed on Microsoft's Hardware Compatibility List (HCL).

TRIM stores document and record metadata in a Relational Database Management System, and is compatible with products from Microsoft, Oracle, IBM, and Sybase. Records and documents are stored within the native Windows NT File System (NTFS) and can be addressed either through the Universal Naming Convention (UNC) or File Transfer Protocol (FTP). An increasing number of network appliances support these file protocols, and therefore TRIM is able to utilise these.

TRIM's scalability is proven, with 5,000 seats deployed at the Department of Trade and Industry (DTI), and a 40,000 user system currently being deployed by the US Navy as part of a corporate 360,000 seat rollout.

Although TOWER Software is well equipped to provide both technical and professional services, the company is now starting to work more and more with SIs and technology management consultancy firms.

SOLUTION STRATEGY

TOWER Software believes that DRM should form the backbone of an ECM solution. At this juncture TOWER Software's offering includes: Document Management; Records Management; E-mail management; Workflow; Archival Management; Space Management; and barcode tracking. The company argues that the other elements of ECM (Web Content Management, Content Management, Knowledge Management, and Digital Asset Management) can easily be integrated with TRIM to deliver a 'best-of-breed' solution.

Target markets for TRIM continue to be Federal, State, and Local Government across North America, Europe, and Asia-Pacific. The company's DRM solution is well-suited to regulated industries, and so the Banking, Utilities, and Pharmaceutical sectors are becoming increasingly important to TOWER Software's business mix.

The company continues to occupy a very strong position within the public sector and has won a significant number of high-profile/very large deals with government agencies in recent months. TOWER Software's "ideal" customer would typically require in excess of 100 user licences. However, the company is more than amenable to doing business with firms smaller than this. Although TRIM runs on the Microsoft technology stack, no plans exist at present to produce a version of the product to align with Microsoft Small Business Server 2003.

TOWER Software maintains a two-pronged approach to sales and marketing: with both direct-sales and partner-led deals equally important. The company continues to work a growing partner network, and to-date has relationships with the likes of Bearingpoint, British Telecom, Capgemini, EDS, Getronics (The Netherlands), Microsoft, Unisys, and Software AG. A number of these relationships have come about as a result of big DRM roll-outs – a situation common to several DRM vendors, and one that Butler Group expects to continue for the foreseeable future.

Although TOWER Software is a well-established DRM vendor, winning new business continues to present its challenges as big ECM vendors are now 'muscling-in' on DRM opportunities with the hope of picking up WCM, KM, and Enterprise Portal business later on. Key competitors for TOWER Software are: Documentum (EMC Software Group), FileNet, Hummingbird, Open Text, IBM, and Valid Information Systems (now a Hummingbird company).

The cost of annual maintenance and support is 18%, which includes telephone and e-mail support. Maintenance includes all updates and upgrades of software of which there are typically three per year. Major releases of TRIM occur around every 12 to 18 months. The company has a number of product enhancements in development, most of which revolve around update to Microsoft .NET. Document assembly and comparison features are scheduled to appear in the next update, as is integration with SAP. Integrations with Microsoft's Live Communication Server and Biztalk Servers are under investigation as is the development of a Service Orientated Architecture through the development of Web Services and a Smart Client.

COMPANY PROFILE

TOWER Software is a privately held company founded in 1985 by a team of document and records management experts. Profitable from inception, TOWER Software currently employs 120 staff in Australia, North America, and EMEA. The company has over 1,000 customers across 32 countries worldwide, and its core business activity is the provision and implementation of Document and Record Management Software.

TRIM Context was the first product to be approved by the UK's The National Archive (formerly the Public Record Office – PRO) and the US Department of Defense (DoD). TOWER Software has contributed to the development of international standards and local standards in RM since 1986 from sitting on a working group to develop AS4390 (the Australian standard for RM), which has been used as an influence for the ISO 15489 standard. The company was also asked to review the MoREQ (model requirements), which have been developed for the European market as well as being involved in feedback sessions for the DoD 5015.2 standard.

SUMMARY

TRIM Context is a mature DRM product from a mature vendor and in some ways provides something of a benchmark for the rest of the industry. TOWER Software's multi-channel approach to DRM sales has enabled this Australian company to extend its business in to territories around the world, and as a result the firm has been able to maintain the high-ground with regards to RM in particular. TOWER Software's strong track-record of system delivery has brought its own rewards, as the company continues to win big deals with important public sector organisations. With over 1,000 clients and 500,000 seats deployed world-wide TRIM continues to punch well above its weight when competing against much bigger vendors.

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VIGNETTE: Vignette Records & Documents Release 4.4

Butler Group
Analysis without compromise

Vignette Vignette Records & Documents Release 4.4

Abstract

Vignette Records & Documents (VRD) is a central component in Vignette's V7 Enterprise Content Management (ECM) Suite, providing integrated Document, Records and Case Management (DM, RM, and CM), and has an architecture that is most suitable for high volume requirements. Like the rest of the V7 ECM suite, VRD, is built on open standards, and is API centric rather than product centric, offering transparent integration to existing systems, and minimal user disruption during deployment. The RM component is already US DOD 5015.2 approved, and is awaiting UK TNA 2002 accreditation. It is appropriate for medium-sized, to the largest of organisations which require both a standards-based platform, and the ability to extend to greater ECM functionality in the future. VRD offers extensive out-of-the-box features and integration, within a single secure repository for documents/objects and records.

KEY FINDINGS

- ✓ Single repository for documents/objects, records and associated metadata.
- ✓ API centric rather than product centric, integrating seamlessly with existing applications.
- ✓ Highly scalable J2EE architecture. Part of Vignette's comprehensive V7 ECM Suite.
- *i* DOD 5015.2 certified, and currently going through UK TNA 2002 approval.

Key: ✓ Product Strength ✗ Product Weakness *i* Point of Information

LOOK AHEAD

Once TNA 2002 approved, the development of specific public sector solutions, along with tailored compliance solutions for the UK market, will add further appeal to VRD and the V7 ECM Suite, as enterprise solutions.

▶ FUNCTIONALITY

Product Analysis and Operation

Vignette Records & Documents (VRD) is a highly scalable solution designed to support businesses in the storage, and retention of critical information. It provides Document Management (DM), Records Management (RM), and Case Management (CM) in a single package. VRD is fully Web services enabled, and all of its functions, including the VRD repository, can be utilised by the other parts of the Vignette V7 ECM Suite.

In many respects VRD is a hybrid application, not being a 100% Business process Management (BPM) tool, or a 100% RM tool. With VRD, Vignette is aiming to offer, through a Service Oriented Architecture (SOA), 'out-of-the-box', 80-90% of what most businesses require in terms of DM, RM, and CM functionality, without the costs, and risks that the integration of different solutions bring. This should reduce deployment time and costs, delivering a faster Return On Investment (ROI).

VRD like its complementary products, Vignette Integrated Document Management (IDM) and Vignette WebCapture, is based upon the technology offerings of the former Tower Technology Pty Ltd., which was acquired by Vignette in March 2004.

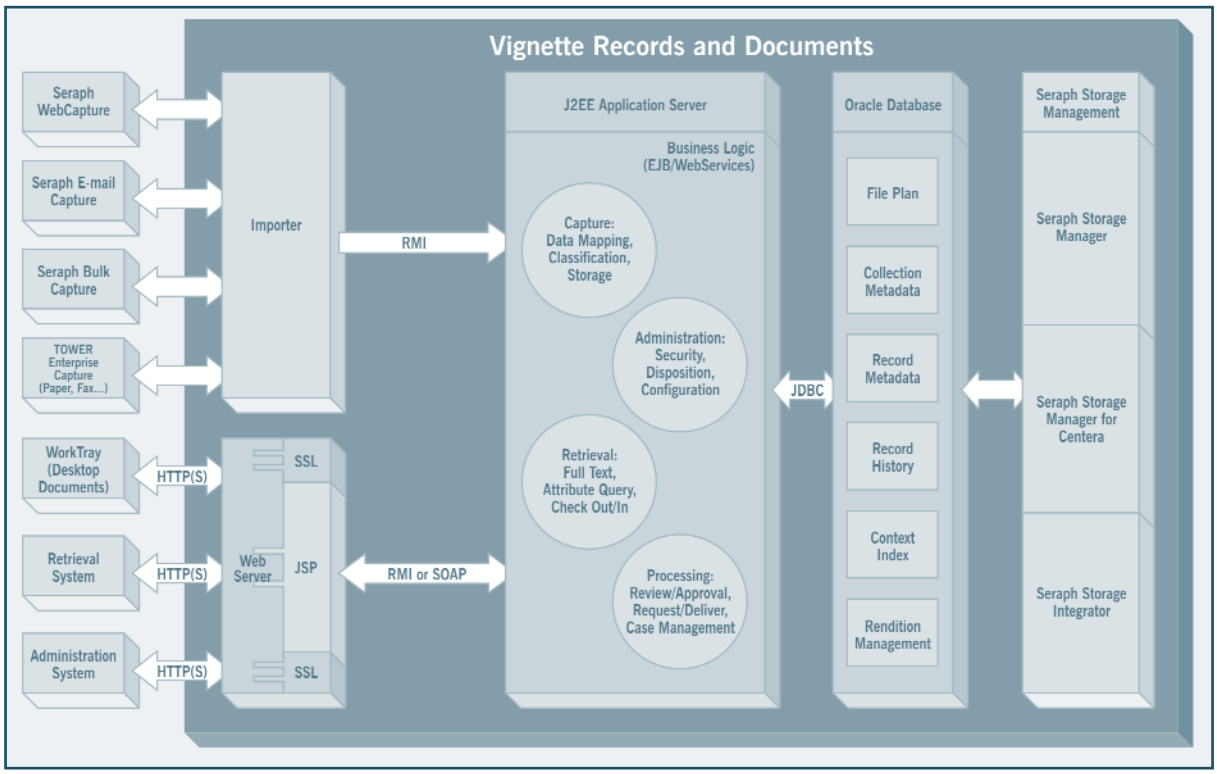

Figure 1: Vignette Records & Documents Architecture

As with all elements of the V7 ECM suite, VRD is designed as Application Programme Interface (API) centric, rather than product centric. This, Vignette states, offers much easier integration into customers existing line of business systems or desktop tools. All content, whether documents/objects, records, or associated metadata is stored in a single, secure repository, allowing records to be created through declaration rather than transferred to another system, and offering the complete discovery of records, and documents/objects from a single search. For roles-based management, and access to documents/objects and records held in the repository, VRD has its own Lightweight Directory Access Protocol (LDAP) compliant directory. VRD can also be configured to use the organisation's corporate, or other external LDAP, ensuring consistency with the corporate security model. Tools are provided to map LDAP groups onto the roles defined in VRD.

For integration to third-party business applications, VRD provides all its functionality through Web services. Additionally Vignette Business Integration Studio (VBIS) is available which can connect elements in the V7 ECM suite, including VRD, to 70+ technologies and applications, and this also includes a Web services interface.

The workflow element of VRD supports DM, RM, and CM, providing all the expected features, such as support for conditional processes and branching, and includes automatic escalation and prioritisation. The process configuration tools are Web accessed, and designed for business users rather than programmers. VRD will also integrate with external rules engines as required, and provides full audit trails, and reporting on, documents/objects, records, cases, and event logs.

Document Management

VRD integrates directly with Microsoft Office applications, with all functions such as check-in, check-out, version control, document review, approval workflows, and full audit trails, managed from within the user's normal desktop environment. Documents/objects are stored in their native format in the repository. Currently VRD can render in excess of 250 document formats into a format capable of being viewed natively within a browser.

The workflow functionality enables the automated management of a document/object from its creation/acquisition, through different versions, and approval, to publication, declaration as a record, or deletion. Because VRD is API centric, and works through exiting interfaces, the user may never need to know where, or how, the document/object is stored. Other systems, including VRD, can automatically deliver items for processing, whilst ensuring that all actions of the user are appropriate to the users' roles and the item.

There is no limit to the number of versions of any document that can be created in VRD. Versioning includes full rollback facilities to earlier revisions. VRD also includes automated features for version 'clean-up' after defined periods, deleting documents/objects that are no longer required in the repository. Every document/object can be associated with a configurable set of metadata, defined by the organisation.

VRD can also automatically capture, categorise, and store e-mail and instant messages, natively supporting MIME-encoded messages. The ability to handle large volumes, to filter, search, and retrieve, with a full audit trail and the ability to declare as a record, is particularly useful in addressing compliance requirements. Examples include the US Securities and Exchange Commission (SEC) 17a-3 and 17a-4 regulations, and the UK Freedom Of Information Act (FOI) 2000, and the Data protection Act (DPA) 1998 legislation.

Records Management

The RM function is certified to US DOD 5015.2 standard and has at the time of writing been submitted to UK National Archives 2002 approval. In VRD, a record is defined as a combination of the document or object and its associated metadata. VRD has two levels of metadata for each document:

1. The RM metadata, relating the record to the fileplan/Record Classification Scheme.
2. The document/object and case metadata, defined by the line of business application or process.

Metadata can be captured automatically as a document is imported/created through declaration, or populated manually, under the control of the workflow.

Records can be declared at any time within VRD or automatically as part of the workflow when a document is 'finalised'. Within VRD disposition schedules are defined and attached to folders within the fileplan/Record Classification Scheme, each record type and record container inheriting the retention period. Disposition schedules can also be attached to record types.

Vignette states that VRD already supports all the key requirements for RM:

- Record disposition schedules can be managed using the built-in workflow capability.
- There is the ability to define container "cut-off" conditions. Cut-off being defined as when the full disposition schedule will commence. Cut-off may also "close" the current Record Container and open a new one (for example correspondence files cut-off on 31 December annually).
- The ability to define lifecycle stages.
- The ability to define duration for lifecycle stages.
- The ability to define disposition action on completion of each lifecycle stage. Actions can be queued for approval.
- Support for the electronic transfer of records.
- The ability to "freeze" the lifecycle for a Record Container. For example when a record scheduled for disposition must be halted due to a request for disclosure.
- The final disposition action can record destruction, or the record can be put into a regular review cycle.

VRD will integrate with a number of storage devices including Optical Jukeboxes, EMC's Centera, Storage Area Networks, and others to provide secure and audited storage for archive purposes. If required integration with Network Appliance Snaplock is also available.

Case Management

VRD includes Case Management capabilities that exploit the functionality of the DM, RM and workflow elements. This facilitates the automation of document and records driven processes that support business applications.

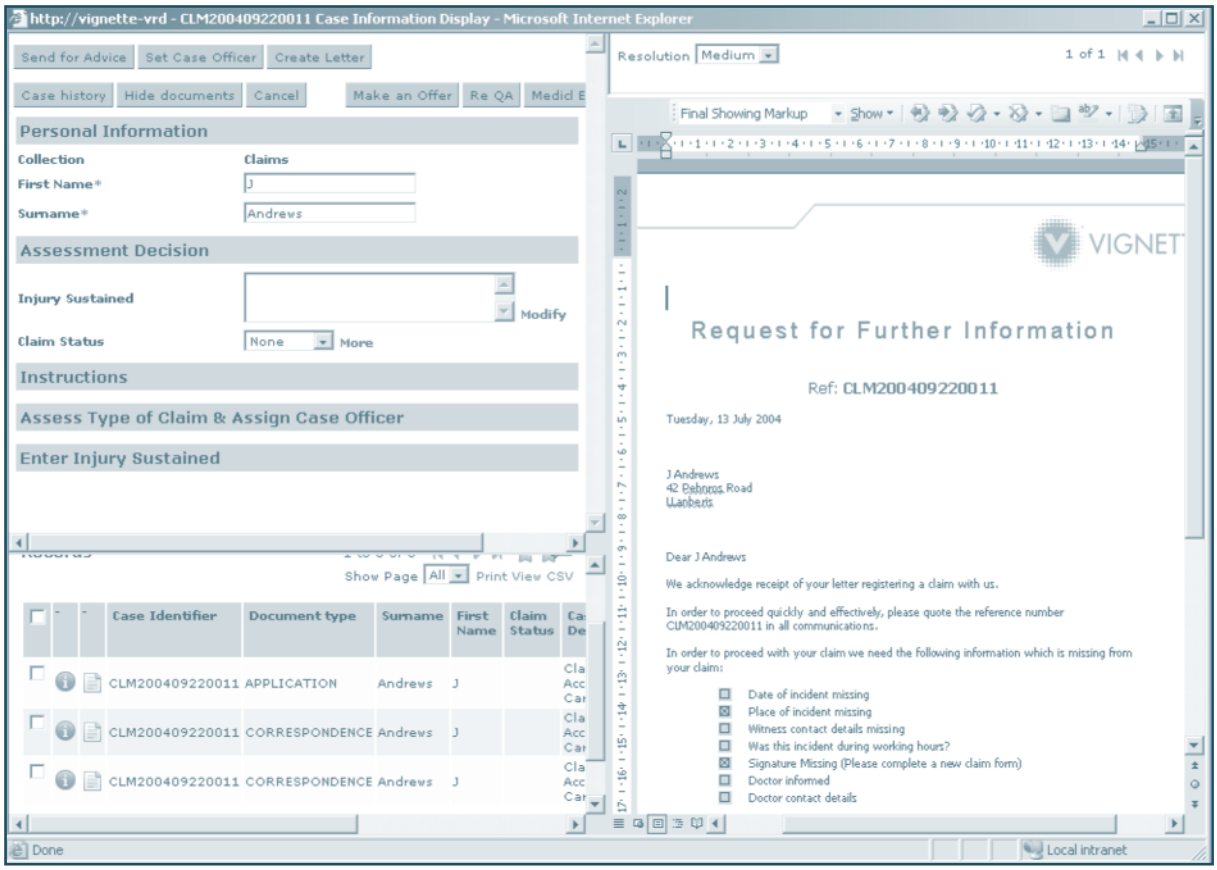

Figure 2: Case Management in VRD

Product Positioning

VRD is an integral part of Vignette's V7 ECM Suite. Other parts of the suite are:

- **Vignette IDM** – Providing the integrated management of documents, imaging, workflow, IDARS, and storage.
- **Vignette WebCapture** – To capture and store Web transactions and Web content as electronic records.
- **Vignette Email Capture** – Capturing and storing e-mail and Instant Messages as electronic records.
- **Vignette Collaboration** – An enterprise scalable package for management of collaborative business processes, collaborative content creation, and team collaboration/Knowledge Management.
- **Vignette Integration** – Vignette Business Integration Studio (VBIS). This facilitates the interaction with external content repositories and business applications. It includes more than 70 native application and technology adapters.
- **Vignette Content** – For the management of multiple Web sites through Web content production, publishing, and delivery.
- **Vignette Portal** – Facilitating the rapid assembly of multiple enterprise-scale Web sites and Web applications using J2EE infrastructure standards.
- **Vignette Builder** – A Wizard-driven package for the creation of Web Service- based forms, and report portlets for Vignette Portal.

DEPLOYMENT

VRD can be deployed on Microsoft Windows Server 2003, HP-UX, and Sun Microsystems Solaris. Red Hat Enterprise Linux will be supported in 2005. It also requires BEA WebLogic application sever, and an Oracle database. Legacy integration into VRD would normally be a services offering from Vignette Professional Services (VPS), or one of its partners. Implementation is reported to take from one to 18 months dependent upon the scale of the deployment, and the level of bespoke integration required.

Training in the deployment and use of VRD can be offered through a combination of classroom, on-site, and Web-based instruction that is tailored to individual customer requirements, although Vignette states that VRD training is typically on-site.

The level of support provided by Vignette can range from office hours Web and phone based, to 24x7 dependent upon the customer requirements. These are charged at varying percentages of software licence fees:

1. 18% of licence for 5x12 maintenance and support coverage.
2. 20% of licence for 7x24 "critical site down" maintenance and support.
3. 22% of licence for 7x24 "follow the sun" maintenance and support coverage.

Deployment Examples

WorkCover, Queensland (WCQ), in Australia provides a workers rehabilitation and compensation scheme and promotes workplace health and safety. It is currently implementing an EDMS and Correspondence Management System that will integrate with its corporate application Care+.

VRD provides the management of all documents in a central electronic document repository with full RM compliance. The complete Correspondence Management System based upon VRD will deliver a number of functions, which are being implemented over a two-year period.

Stages 1 and 2 of the project cover the creation, revision, printing, storage, and online referencing of all correspondence generated from Care+, which went live in June 2004. Stage 3 is to be the capture of all incoming correspondence using a high volume scanning facility. When completed this will enable the streamlining of WCQ business processes through the introduction of workflow processing in Stage 4, during 2005.

CentreLink (www.centrelink.gov.au) is the primary agency for the distribution of social security benefits to the Australian public. It employs more than 27,000 staff, and it distributes approximately AUS$55 billion in social security payments on behalf of 25 government agencies. It supports 6.3 million customers, or approximately one-third of the Australian population, and pays 9.6 million individual entitlements each year. It has 14 million electronic customer records, and undertakes 12 million electronic customer transactions on an average day.

Vignette WebCapture, supported by VRD server, and Websession monitor, is used by CentreLink to automatically capture, store, and index Web sessions created by users (public and internal) who make regular on-line updates to their details and circumstances, via CentreLink Web sites. This facility is used both as an audit trail, and also to resolve disputes quickly when a client has a problem with changes to payments, or payments are sent to the wrong address or beneficiary. When there is an issue relating to a customer, the transactions for that customer can be quickly retrieved from VRD and "played-back" to resolve what actually happened. This shortens resolution time, and provides both the customer and CentreLink with confidence in use of their Web applications. CentreLink has reportedly returned a total of AUS$1081.6 million in efficiency dividends to government since inception.

Capgemini has a ten-year outsourcing project to deliver and support a new IT Infrastructure for a **London Borough Council**. Part of the project involves looking at ways in which technology can be utilised to improve business processes within the council. The first phase of the project is the Contact Services Initiative (CSI), which is the implementation of a contact centre to act as a central point for all incoming calls and correspondence to the council. VRD is used as the core document and records repository for the CSI project. As part of the project, Capgemini will be integrating VRD with Oracle Workflow and Oracle CRM, as these applications are providing the front-end information to the users. By April 2005 the user base for the CSI project should be approximately 200 users, and ultimately the VRD infrastructure used for the CSI project will be extended to provide the Council with an enterprise wide EDRM solution covering around 3000 users.

▶ SOLUTION STRATEGY

Vignette targets Global 2000, and Fortune 1000 prospects with 5,000 – 250,000 employees. The scalability of VRD and associated parts of the V7 ECM Suite, make it most suitable for providing high volume solutions for large organisations. Vignette is seeing the key drivers for businesses implementing VRD as meeting compliance obligations, and the implementation of risk management. Vignette has its own global, direct sales force, and a strategic channel partner presence in the Americas, EMEA, and APAC.

Partners include Accenture, Bearing Point, and EDS with a reported 70% of sales being influenced by its integrator partners. The recently announced strategic alliance with Tata Consultancy Services (TCS) will allow both companies to jointly develop and market services and solutions, and TCS is now also the preferred partner for migrating companies using older Vignette products onto V7 ECM.

Vignette normally packages products from within the V7 ECM Suite according to customer requirements. The prices will usually include services, but will also attract discounts for larger scale deployments, and greater ranges of functionality acquired. Licences are on perpetual basis, with a fee for software plus CPU or User charges.

Vignette has a programme of asking customers twice a year about ROI. These report average reductions in costs of 31%, increases in customer satisfaction of 28%, increases in productivity of 23%, and a 7% increase in revenues.

Vignette has a target of two major, and two minor releases of its products each year. It also provides maintenance releases as necessary, to address minor problems, which are mostly platform related issues. The priorities for VRD development are TNA 2002 approval, and increased usability for CM. Vignette is also planning in 2005 to allow for the federation of multiple VRD repositories, and to offer greater multi-site capabilities. Longer term VRD will be integrated further with Vignette Content Management for Web Content Management functionality.

▶ COMPANY PROFILE

Vignette Corporation (NASDAQ:VIGN) was founded in 1995, and is based in Austin, Texas, in the US. There are 39 locations globally, including major offices in Waltham, Massachusetts, San Francisco, California, Sydney, Australia, and in Maidenhead in the UK. The company, with its first product StoryServer, grew rapidly on the back of the dot.com boom, and went public with a highly successful Initial Public Offering (IPO) in 1999. The company has made a number of acquisitions to strengthen and extend the functionality of its ECM Suite. These included OnDisplay for integration and aggregation capabilities, DataSage for analytics, Revenio for interaction management, Epicentric for portal services, Intraspect for collaboration and team tools, and the most recent acquisition of Tower Technology added document and records management to the portfolio.

Vignette has approximately 900 employees, approximately 280 of which are involved in Research and Development, 275 in Sales and Marketing, 300 in Professional Services and Customer Support, and 50 in Finance and Administration. Nearly 200 employees are located in EMEA, over 100 in Asia-Pacific, and 600 in the Americas.

Vignette offers its customer solutions, which span:

- Portal and content management.
- Document and Records Management.
- Solutions where collaboration and integration play a part.

These are made available as pre-built *Efficiency Solutions*, which include:

- Public Web site and Brand Management
- Customer Self-Service.
- Employee Portals.
- Supplier and Channel Interaction.
- Compliance and Governance.
- Case Management and Business Process Automation.
- Standardisation and Consolidation.

Around 60% of the company's revenue comes from the Americas. Published revenues and incomes for the past three fiscal years were as follows:

Annual data (31 December)	2003 (US$ million)	2002 (US$ million)	2001 (US$ million)
Total Revenue	158.3	155.1	296.8
Change on previous year	2%	(47.7%)	(19.1%)
Net income (loss)	(0.33)	(252.8)	(1,527.6)

Vignette's key technology partnerships include Sun Microsystems, IBM, Autonomy, and BEA. There are reportedly over 1,700 customers using Vignette's products.

SUMMARY

In Butler Group's opinion, the three key elements in VRD are:

1. Its API-centric design, offering seamless integration.
2. High-scalability through use of a J2EE architecture.
3. The use of a single repository for documents/objects and records. This makes it ideal for high-volume applications such as the management of e-mail, and instant messages, alongside documents/objects in more than 250 formats.

Tightly integrated with the V7 ECM Suite, VRD will support those organisations that already have Vignette tools, but it is a complete solution in its own right, and will satisfy the largest of organisational requirements. VRD is currently awaiting UK TNA 2002 approval; the RM functionality is already certified to US DOD 5015.2 standards.

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SECTION 9: Vendor Profiles

Butler Group
Analysis without compromise

80-20 Software

Founded in 1997, 80-20 Software is a vendor of Enterprise Content Management products headquartered in Victoria, Australia. The company employs 60 people and has offices in Melbourne, Australia; Sydney, Australia; Bellevue, Washington, US; and San Francisco, California, US.

80-20 Software combines information retrieval, foreign store security mapping, directory, and repository management technologies to create tools for the management of unstructured data. 80-20 Software's technologies enable organisations to establish a single point of access to all key unstructured business data and applications, and share information across file servers, databases, public folders, Internet sites, Intranet sites, and Lotus Notes applications.

80-20 Document Manager is one of the company's core offerings and is designed to manage electronic documents and records from creation, through archiving, and to disposal. 80-20 Document Manager utilises existing enterprise database systems, and offers a strong combination of application integration, ease-of-use, and low cost implementation and deployment.

As a well-featured DRM solution, 80-20 Document Manager supports standard features such as: document check-in/check-out; version control and revision management; content search and retrieval; meta tagging; roles-based access control; and logging and auditing. The solution integrates tightly with standard desktop applications such as Microsoft Office, and is capable of being integrated with line-of-business applications through a set of documented APIs.

The Records Management component of 80-20 Document Manager supports retention and disposition policies, classification management and administration, activity logging and audit control, roles-based access control at the record level, record disposal management, and record reporting.

The 80-20 Document Management server is supported on Microsoft Windows 2000 Server, and stores all information in either an Oracle, SQL Server, or DB2 database. Supported clients are: Windows NT 4 Workstation, Windows 2000 Professional, and Windows XP. Desktop application integration requires a minimum of Microsoft Office 97 (Microsoft Outlook 8.02 or later), and Web access requires Internet Explorer 5.0 or later.

Other product and solutions available from 80-20 Software include:

- 80-20 Leaders On-line – a Corporate Governance, Risk Management and Compliance, and Sarbanes-Oxley 404 and 302 Solution.
- 80-20 One Search – a search engine that covers desktop, enterprise, and legacy systems.
- 80-20 Retriever – a search designed to help users find information stored in Outlook e-mail folders and local/network file systems.

The company has more than 400 customers covering Financial Services, Manufacturing, Media/Advertising, Pharmaceutical, High-Tech, Government, Public Sector, Telecom, Utilities, and Professional Services. High-profile customers include: Hewlett Packard, Australia Post, U.S. Undersecretary of Defense, Environment Canada, ANZ Bank, ABN Amro, Bear Stearns, Telstra, KPMG, Labatt Breweries, Koch Industries, and AstraZenca.

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Adobe

Adobe offers a range of digital imaging, design, and document technology platforms for enterprises, creative design professionals, and consumers. Founded in 1982, Adobe (NASDAQ: ADBE) is one of the world's largest software companies with revenues of over US$1.2 billion in 2003, and current market value of US$15 billion. Headquartered in San Jose, California, Adobe employs more than 3,700 staff across 26 offices worldwide.

Adobe's enterprise-level document services – underpinned by the Adobe Portable Document Format (PDF) – enable organisations to automate and improve document-centric business processes. Using the ubiquitous Adobe Reader which reportedly has over 500 million copies worldwide, PDF now represents the de facto standard for final-format document distribution, and also permits the sharing of documents, designs, drawings, and many other types of computer generated content between individuals and organisations alike. A decade on from its introduction, the Adobe Acrobat family of products continues to evolve and develop in order to address ever more document lifecycle scenarios.

Adobe's enterprise solutions have both industry and technology focus. Three key industries for Adobe are Government, Finance, and Manufacturing. In Government, Adobe's solutions help organisation to rationalise and transform burdensome paperwork into streamlined, self-service Web applications.

One of the company's latest offerings – the **Adobe Intelligent Document Platform** – enables organisations in the public sector to simplify the business of delivering services by allowing legacy systems to be securely integrated with new ways of delivering information relating to services. By integrating XML with PDF, the Adobe states that the Intelligent Document Platform enables public bodies to:

- Develop and provide self-service on-line applications for constituents and general members of the public.
- Streamline and optimise operations in order to reduce costs, complexity, and administrative overhead.
- Interoperate with other government authorities and agencies.
- Address the issues of information security management by protecting privacy and ensuring authenticity of communications.

Another offering, **Adobe Document Services**, comprises two major elements – Adobe Acrobat, and the Adobe LiveCycle line of J2EE-based enterprise servers and design tools – is targeted to enable organisations to better manage their business processes, and enable more secure communications. With unstructured data typically accounting for more than 80% of all data in an enterprise, Adobe LiveCycle provides document-centric services, universal clients, and intelligent documents enabling organisations to derive more value from their unstructured information assets, i.e. their documents.

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BT openaccess

BT openaccess is the business unit within BT, focused on information management and public governance. As well as providing consultancy and training in this area, BT openaccess also has service offerings based around case management and Electronic Document and Records Management (EDRM).

BT Case Manager, the company's case management solution, was designed to help public authorities comply with the UK Freedom of Information Act (FOI) and the Data Protection Act (DPA) – both of which are overseen and enforced by the Information Commissioner's Office. The BT openaccess solution is also able to help public authorities comply with the Environmental Information Regulations (1992), currently overseen by the Department for Environment, Food and Rural Affairs (DEFRA).

BT Case Manager is an off-the-shelf package designed to be quickly and easily configured to support the requirements of FOI and other access to information requirements. By encapsulating processes distilled from 18 months of detailed analysis and user trialling, this integrated case management solution targets the specific requirements currently being sought by many public authorities. BT Case Manager enables FOI requests and general workload to be spread amongst a number of FOI officers, which in turn enables this solution to scale up and down as the volume of requests for information rises and falls over time.

By integrating with standard desktop packages, such as Microsoft Word and Outlook, FOI officers can automatically generate standard documents and e-mail responses; thereby reducing administrative overhead while maintaining a consistent and comprehensive record of correspondence with the information requester.

BT openaccess has relationships with several EDRM vendors whose solutions have been formally approved by The National Archives (TNA). However, the company is not limited to a small number of EDRM vendors, as it also maintains a portfolio of suppliers offering bespoke sector specific solutions.

The company is able to provide IT implementation and training for users on all aspects of EDRMS (including people and process issues) including:

- Document and record management.
- Scanning and image management.
- Workflow design and relational datastore.
- Business process analysis and redesign.
- Change support.
- Culture and integration issues.

BT, the parent company of BT openaccess, is the number one supplier of ICT products and services to the public sector, with an 11% share of a UK£38billion UK market.

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Cimage NovaSoft

Cimage NovaSoft was founded in the US in 1989 through a merger between Datagraphic Systems Inc. and SysScan Inc. Following various acquisitions, mergers, and finally a management buy-out, the company was globally re-branded Cimage NovaSoft in January 2001. In 2003 Cimage NovaSoft launched its Fusion product suite, a Web-based Enterprise Content Management (ECM) solution targeted at highly regulated industries such as Oil and Gas, Nuclear, Pharmaceuticals, and Telecoms. A comprehensive Web Services toolkit was released at this time supporting both .NET and J2EE Web environments.

Apart from Fusion, Cimage NovaSoft also markets two additional products:

- Cimage e3 is a solution that focuses upon improved information exchange and collaborative working. This offering is itself comprised of the following solutions:
  - Cimage e3 Content Management (CM).
  - Cimage e3 Records Management (RM).
  - Cimage e3 Web Services.
  - Cimage e3 Workflow.
- NovaManage 8 is an integrated document management and workflow solution designed to meet the needs of highly regulated and quality controlled industries, such as the pharmaceutical and medical device sectors. Of particular interest to a growing number of companies in highly regulated industries, is that NovaManage's electronic signature and controlled print facilities can be incorporated into existing business processes so as to meet the highest standards for secure documents.

While Cimage NovaSoft's solutions are typically tailored to meet the specific requirements of a particular customer, the company has identified a number of business scenarios most relevant to its offerings. These include Information Distribution where instantaneous access to the latest approved versions of critical business documents and drawings is enabled. In Configuration Management the solution is used to ensure that the configuration of any plant or product is kept up to date and accurate. Where archiving and retention management is required, the solution makes sure that the company complies with regulatory, statutory, or corporate standards. In Project Information Control it is critical to have timely and cost-effective management of large and complicated projects, which may include many sub-contractors, and this is supported. Process Engineering and Management requires the use of workflow technology to control and monitor the engineering change process. Using Compliance Management permits, licenses, and certificates to be obtained in accordance with plant operational procedures.

Cimage NovaSoft has four industry specific solutions targeted at its primary markets:

- Cimage Nuclear – addresses the management of a nuclear plant's drawings, manuals, workpacks, and other documents.
- Cimage Oil and Gas – addresses the management of the myriad of information relating to a platform, pipeline, or refinery.
- Cimage Telecom – used for design and construction through to daily operations, maintenance, network expansions, and upgrades.
- Cimage NovaSoft GMP – Records and Information Management for Genetic, Pharmaceuticals, and Medical Device Manufacturers. This solution enables manufacturers to adhere to Good Manufacturing Processes (GMP) by helping them to establish, monitor, and document quality, and demonstrate responsible decision-making.

Cimage NovaSoft has strategic technology alliances with a number of companies including: Microsoft, HP, BEA Systems, Cimmetry Systems Partner, Staffware, SAP, Oracle, Stellent, Primavera, and Sun Microsystems.

In 2005 Cimage NovaSoft will further develop and evolve the Fusion Application Framework, including the addition of a Project Document Control solution and a Microsoft SharePoint connector.

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Convera

Convera (NASDAQ:CNVR), formerly known as Excalibur Technologies Consortium, is a leading provider of mission-critical enterprise search and categorisation solutions. Convera's headquarters are located near Washington, DC, in Vienna, VA. Additional offices are situated around the US, as well as in the UK, Germany, France, Argentina, Switzerland, and South Africa.

Convera's flagship product, originally released in 1996 by Excalibur, is RetrievalWare. The solution provides highly scalable, fast, accurate, and secure search across more than 200 forms of text, video, image, and audio information, in more than 45 languages. More than 800 customers in 33 countries make use of Convera's search solutions with a broad range of mission-critical applications, including enterprise portals, knowledge management, intelligence gathering, profiling, corporate policy compliance, regulatory compliance, and customer service, amongst others.

Customers using Convera solutions include ABN Amro, Audi, British Nuclear Fuels Limited, Cognos, the Federal Bureau of Investigation, Goldman Sachs, Hoffmann-LaRoche, The Labour Party (UK), T-Systems/ FootageBox, and Viacom.

Convera's RetrievalWare product is a knowledge retrieval system, designed to manage the above issues by providing intelligent search capabilities to end-users. A key element is Dynamic Classification – regardless of the format involved, employees can securely access information assets in a focused manner. Results to enquiries are automatically organised on a contextual basis, ensuring that responses are ranked in a way that presents the most relevant information first.

The intelligent and organised search capability of Dynamic Classification enables content to be rapidly organised and presented for consideration – the final choice will still be made by the knowledge worker, but the time taken to assess results for their appropriateness to the original enquiry can be drastically reduced. RetrievalWare searches are carried out based on concepts (the semantic meaning of terms being used), as well as the patterns behind an enquiry.

RetrievalWare is positioned behind an Intranet portal, Document Management System, a Web site, or a similar application, and supports the secure use of natural language searches made against enterprise systems. The use of natural language is an important strength of this type of system, as it avoids the need to use structured search languages with complex syntax – this simplifies the task of the end-user, and, equally importantly, makes it more likely that the search system will be universally utilised.

Once deployed, RetrievalWare creates a complete inventory of all enterprise assets, and then enables users to search over 200 document types on file servers, in groupware systems, relational databases, Document Management Systems, and Web servers, whilst still ensuring that the access rights of these users are not compromised. Access is managed by RetrievalWare's Synchronisers, which recognise any changes system-wide, and automatically update the RetrievalWare index. Users launch searches across these diverse areas from a common user interface, and the complexity of the product is entirely hidden from the end-user at all times.

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Dexmar

Dexmar provides e-business and collaborative computing products and services, specialising in EDRM. Dexmar understands the requirements for good document management and recordkeeping systems placed on the public and private sector, and can help organisations meet these requirements. Whether the business driver is the FOI Act 2000 in the public sector, or the Sarbanes-Oxley Act in the private sector, Dexmar's approach can help ensure that obligations are met whilst implementing a solution that provides improved business efficiency and knowledge sharing.

Dexmar's flagship product, KnowPro EDRM, provides organisations with the ability to meet legislative requirements and meets the functional requirements for electronic records management systems laid down by The National Archives (having received formal approval in November 2004). KnowPro EDRM provides the functions required to manage the many different types of documents produced and acquired by organisations. The product has a flexible, user-friendly interface, and provides a full search facility allowing an organisation to easily retrieve and share information.

The system interfaces with, rather than replaces, accounting, MRP, ERP, or industry specific application systems; thereby providing an enterprise-wide document management function and so reducing the proliferation of different department-based document management solutions. All documents are created from within the system, resulting in an accessible, single repository, rather than a reliance on users to retrospectively submit information. The system has full XML import and export facilities allowing easy data interchange and compliance with e-Gif standards.

KnowPro EDRM is built on the IBM Lotus Domino technology, and will operate in a wide range of computing environments including Microsoft Windows, UNIX, AS/400, and Linux – thereby enabling organisations to select the most appropriate computing platform for their business needs.

Dexmar operates across the public and private sectors, and has many notable clients including: The Office for National Statistics, RSM Robson Rhodes, McBride Plc, The Metropolitan Police, and Shropshire County Council.

Dexmar Limited was formed from and is managed by the IT department of RSM Robson Rhodes, a leading UK firm of chartered accountants. Dexmar has a formal contractual agreement with RSM Robson Rhodes, enabling both organisations to share each other's resources. Dexmar's managing director, Sandy Hynd, is also the IS director of RSM Robson Rhodes. RSM Robson Rhodes has over 950 partners and staff working in ten offices in the UK and Ireland. RSM International is the sixth largest accounting organisation in the world, with over 20,000 staff in 600 offices located in over 70 countries.

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Fujitsu Software Corporation

Fujitsu Limited is a global supplier of hardware, IT services, and systems software solutions. Fujitsu Software Corporation is a wholly owned subsidiary of Fujitsu, a US$38 billion technology conglomerate (NASDAQ: FJTSY), and is the world's third largest global IT company. Fujitsu Software Corporation has its headquarters in Sunnyvale, California, with European offices in Bracknell in the UK and Dublin, in Ireland.

The company has over 8,000 customers that use elements of its Interstage suite of systems. It employs more than 4,000 development engineers worldwide, and software sales account for approximately 5% of the parent company's total revenues.

Based on the J2EE platform, Fujitsu's **Interstage Content Integrator** is a key component of the **Fujitsu Interstage Suite**. This is a comprehensive family of modular, flexible, real-time software products that allow enterprises and their partners to design, develop, deploy, and manage scalable, customised, mission-critical applications securely and reliably. It comprises three categories: Integration, Development Tools, and Foundation. The Integration products represent the aggregation, routing, and presentation of disparate forms of content and processes. Development Tools provide a unified development environment, and the Foundation products represent application hosting, security, and infrastructure services.

XML is becoming more pervasive within organisations and this has led to the requirement for tools to access and process information held in XML and XML schemas. Both **Interstage XML Search** and **Interstage XBRL Processor** meet this growing need, providing significant benefits such as reduced deployment time of XML-based applications, facilitation of better compliance, and the simplification of the XML environment for developers.

Fujitsu is also an established supplier of workflow-driven Business Process Management (BPM) solutions. Historically, its i-Flow product set has earned a solid reputation for providing workflow-driven process automation services, either from direct product sales to the end-user community, or from its willingness to supply products on an OEM basis. Now re-branded, **Interstage BPM**, it has added to its strength by delivering fully-functional, end-to-end, BPM services.

Butler Group believes that the overall business benefits that will come from deploying the Interstage BPM solution include the provision of change management facilities, reduced time to market through the use of the products integration facilities, and increased productivity through the use of processes to deliver everyday and essential business activities.

Customers that have deployed the company's latest Interstage BPM solution include: I-Jet, Target Group, Ministerio de Administraciones Públicas, Lantmateriet, Belgium Railways, SSA Global, Bank of America, Standard Charted Bank, Globalsight, Mattel, The Spanish Traffic Authority, Blue Martini, and Zenith Insurance. The extent of these implementations vary from company to company, with a mix that ranges from departmental implementations to multi-company deployments.

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Hyland Software

Hyland Software, Inc., established in 1991, is a software development company based in Cleveland, Ohio, and has sales offices in the UK and Japan. A provider of Electronic Document Management (EDM) solutions, Hyland Software develops software that addresses departmental as well as enterprise document management issues. The company's OnBase software helps organisations to dynamically organise and control the delivery of documents by interactively managing the business processes in which these documents are used.

By integrating OnBase with line-of-business applications and by deploying the entire system in a Web environment, organisations can share the full spectrum of information with partners, joint ventures, suppliers, and customers – the idea being to streamline current business processes and improve operating efficiencies rather than to re-invent them. OnBase is a software application that electronically captures, stores, and manages every document generated or received by an organisation (such as traditional paper letters and documents, reports, application files, and e-mails). The software then handles everything business users need to do with these (for example, retrieve, revise, annotate, and distribute), and because it integrates with existing ERP, CRM, and other e-business applications, OnBase creates a single point of on-line access to all relevant information.

OnBase combines the technologies of document imaging, Computer Output to Laser Disk (COLD)/Electronic Records Management, Document Management, and workflow, into a single, enterprise-class application with the ability to manage any type of document and to support a wide-range of business applications. Once captured and indexed, documents can be stored on any file server accessible by a driver letter, Universal Naming Convention (UNC) path, or FTP address. OnBase Platter Management is used to maintain a set of redundant copies of data and manages the migration of data into long-term storage devices. Platter Management can access most forms of data storage devices, including DVD, WORM, CD, RAID hard drive arrays, and Storage Area Networks.

In terms of security management, OnBase provides a flexible means of controlling access to documents stored in the system. The product's security model allows control over which OnBase product functions each user can utilise and access, and granular levels of security are achieved by creating a custom set of product rights and privileges for each OnBase User Group. By taking advantage of existing Windows or Novell directories, OnBase can ease system installation and ongoing system administration.

An *n*-tier application, the OnBase Web Server provides Web browser access to OnBase document repositories, and the OnBase Web Server API exposes both Microsoft COM and Java programming interfaces to the OnBase core document management and workflow services.

In November 2004, the company announced that it had filed an application with the Securities and Exchange Commission to withdraw the registration statement it filed in May 2004, in connection with its proposed initial public offering of common shares. The firm cited market conditions as the reason for its withdrawal.

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InTechnology

InTechnology plc, an AIM-listed company with an annual turnover of 500 million, employs 500 people, and specialises in the design and distribution of data storage, data management, and data security solutions. The origins of the company lie in the early 1980s when Peter Wilkinson and Andrew Kaberry formed a company that focused on providing storage systems. In the early 1990s the founders decided to be a niche operator concentrating on storage, forming partnerships with many of the major storage vendors. The company was renamed STORM, and it established the channel for Digital's Storage Works in the UK.

At this stage the company decided it wanted to diversify and establish itself as an Internet Service Provider (ISP), and so Planet Online was born, with its strapline of "connecting business to the Internet". Although Planet Online was sold in 1998, it was this experience that provided InTechnology with the infrastructure expertise, which has been deployed with VBAK, its managed back-up service.

When the idea of VBAK was developed, a new company VData was formed to market the product. However, it was decided that to progress, the two companies should be listed, and InTechnology was formed, which floated in March 2000. STORM and VData were then merged and acquired by InTechnology to form a single company.

InTechnology has offices in France, Germany, Italy, The Netherlands, Portugal, Spain, Switzerland, and the UK.

InTechnology's Storage Solutions Division provides data storage and data management, delivering in excess of €1.5 billion of data storage solutions in the UK and continental Europe. InTechnology Managed Services manages over 1.1 petabytes of data across a wide range of IT infrastructure services, including Managed Data Recovery, Network, and Data Centres. Its network security division, Allasso, distributes IT security products including specialist software for firewalls, intrusion detection, virus scanning, and other security products. InTechnology Enterprise Software provides stand-alone solutions delivered by its own team trained in business-critical enterprise software.

VBAK, InTechnology's automated back-up and restore service, provides back-ups via a single point of connection to the LAN or WAN of all application servers, PCs, and laptops. The data is stored in a secure data centre facility on disk and is immediately available for restore. There is an option for organisations to transfer digital data off-site via a telecommunications link where it can be stored on near-line tape. Another option provides Long Term Storage, with the organisation setting the intervals at which a snapshot of the data is taken and stored to tape, which can be done at the end of each week or each month, twice per month, or once per quarter. Data can be restored in a format that is compatible with the current technology in use within the organisation at the time of the restore.

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Iron Mountain

Iron Mountain Incorporated (NYSE:IRM) provides outsourced records and information management services. Founded in 1951, the company has grown to service more than 200,000 customer accounts throughout the US, Canada, Europe, and Latin America. It has 82 US markets and 63 international markets, and operates over 800 facilities worldwide. Iron Mountain offers Records Management services for both physical and digital media, Disaster Recovery support services, and consulting to help organisations manage the risks associated with legal and regulatory compliance, the protection of vital information, and business continuity challenges. Iron Mountain's worldwide customers – ranging from start-ups to Global 2000 enterprises – span a broad range of industries including financial services, legal, healthcare, insurance, banking, engineering, and real estate.

Iron Mountain provides two major services: Records Management and Disaster Recovery. Records Management programme development and implementation are based on best practices and experience and are designed to help customers meet specific regulations such as SEC rules, HIPAA, Sarbanes-Oxley, Safe Harbor, and Gramm-Leach Bliley, and others where record retention is a requirement. The policy-based Records Management provides secure storage with flexible retrieval access and retention management. Digital archiving options are available for the secure long-term archival of electronic records, including SEC-compliant e-mail.

Secure shredding and record destruction services are provided in conjunction with records retention schedules. Shredding can be carried out on-site or off-site by screened personnel using modern shredding equipment and highly secure processes. Iron Mountain certifies that the records have been destroyed and provides a legal audit trail. There are also customised services for vital records, film and sound, and regulated industries such as healthcare and financial services.

Iron Mountain Connect helps organisations to transform their Records Management programme into an enterprise-wide compliance program by providing the tools that are required to implement the four pillars of responsible Records Management. These pillars are instant access, corporate-wide consistency, absolute accountability, and easy adoption. The key to a successful and compliant Records Management implementation is the ability to retrieve records speedily. The record Center of Iron Mountain Connect provides the ability to quickly and easily locate files, search for records, and manage inventory. It is powered by the SafeKeeperPLUS® system.

The Disaster Recovery Support services include planning, testing, impact analysis, and consulting. Secure off-site vaulting of data back-up tapes are maintained, which can be recovered from speedily in the event of a disaster, human error, or virus. PC and server data is also protected with managed on-line data back-up and recovery services. Intellectual Property Escrow services are offered to secure source code and other proprietary information with a trusted, neutral third party.

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MDY Advanced Technologies

Founded in 1988 by CEO and company owner Galina Datskovsky, US-based MDY Advanced Technologies, Inc. is a provider of both Records Management and systems integrations solutions to both business and government. MDY's combination of software plus services aims to give organisations a single point of accountability in gaining complete control over their information management needs. In turn it is anticipated that MDY's customers can be helped to reduce risk, comply with government and industry regulations, and effectively implement knowledge management policies, best practices, and procedures.

To help organisations achieve these strategic goals, MDY developed the FileSurf® records management software. FileSurf integrates all physical and electronic files – including e-mail messages – regardless of media type, source of origin, or storage location, into a single, scalable, and extensible enterprise-wide system. MDY also offers a wide variety of value-added services, such as Records Management consulting, implementation, and training. FileSurf is currently used by many national and international law firms, corporations, and government agencies, including: BellSouth, Colgate – Palmolive, General Electric, GlaxoSmithKline, US Army Board of Review, and the US Justice Department.

MDY FileSurf has been certified under both the original and the new US Department of Defense (DoD) 5015.2 Standard, and in June 2004 the company announced that FileSurf v7.5 had been awarded multiple Department of Defense certifications for integration with the following technologies e-mail solutions:

- Microsoft Exchange/Microsoft Outlook.
- Domino Server/Lotus Notes.
- Novell GroupWise Server/Novell GroupWise.

As MDY is a Document Management vendor-independent and platform-agnostic Records Management vendor, it is listed in the DoD 5015.2-STD Compliant Products Register.

FileSurf is built on an *n*-tier extensible architecture optimised for deployment in geographically dispersed organisations via a WAN or the Web. The data tier consists of an Oracle or Microsoft SQL Database and one or more Electronic Records Servers. The business logic tier includes one or more FileSurf Web Servers and one or more FileSurf Servers. The presentation tier includes the FileSurf Web Client (no desktop installation required), the FileSurf Windows 32-bit desktop administrator client, and e-mail clients such as Lotus Notes, Microsoft Outlook, and Novel GroupWise.

In addition, FileSurf offers a toolkit to integrate FileSurf with a wide range of applications. FileSurf is a modular solution and can be used to provide Records Management functionality to a variety of line-of-business applications and IT infrastructure solutions.

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Microsoft

Microsoft (NASDAQ:MSFT) was formed in 1975 and has since grown to be one of the largest global IT organisations in the world. Microsoft employs over 54,000 staff, 36,000 of whom are based in the US. The company has over 23,000 employees engaged in R&D, and has one of the biggest budgets in the industry. In 1991, Microsoft became one of the first software companies to create its own computer science research organisation. The company now employs over 700 people in this part of the organisation, based at five locations around the world.

The Microsoft organisation is currently structured around its software and services competencies. The company is divided into seven core business units:

1. **Windows Client:** focusing on the desktop and embedded versions of the Microsoft Windows operating system.
2. **Information Worker:** looking after the Office System, which includes server products such as SharePoint Portal Server and Project Server as well as Visio, One Note, InfoPath, and Microsoft Office.
3. **Microsoft Business Solutions:** encompassing Great Plains and Navision business process applications, and bCentral business services.

4. **Server and Tools:** Windows Server system including the Microsoft Windows Server, SQL Server, Exchange Server, Biztalk Server, Commerce Server, Content Management Server, as well as Management and Security software and developer tools, and the Microsoft Developer Network (MSDN).
5. **Mobile and Embedded Devices:** featuring Pocket PC, the Windows Powered Smartphone software platform, and the Mobile Explorer microbrowser.
6. **MSN:** the company's Web-based services.
7. **Home and Entertainment:** a division focusing on consumer hardware and software, on-line gaming, and Microsoft's TV platform.

Windows SharePoint Services provides advanced collaboration capabilities including enhanced document management within teams, individual document workspaces, meeting workspaces, and rich integration with Office 2003, enabling users to work with familiar tools, and integrate with presence tools like Live Communication Server. The user interface is implemented using the Web part framework, and provides a consistent portal appearance and easy personalisation.

SharePoint Portal Server 2003 offers a single point of access to multiple systems such as Microsoft Office applications, business intelligence, project management systems, and existing line-of-business applications (including third-party and industry-specific applications). It is built on a scalable, highly distributed architecture with flexible tools for deployment, development, and management, enabling it to grow with an organisation's needs.

The overall portal integration features allow users to harness information to make better use of existing corporate information. Users can extract and reuse timely and relevant information from systems and reports, and quickly locate and access documents, projects, and best practices from across the company. In addition to its industry-leading search technology, the portal lets users organise documents and information by topic so that they can browse for relevant content. Alerts will automatically notify users of new and changed information, helping increase customer satisfaction through better use of up-to-date data.

Microsoft manages a number of global relationships with leading services and technology partners, including Accenture, Avanade, BearingPoint, Capgemini, Computer Sciences Corp (CSC), Dell, EDS, EMC, Fujitsu, Getronics, HP, IBM Global Services, Infosys Technologies Inc., Satyam Computer Services Ltd., Tata Consultancy Services, Unisys Corp., and Wipro.

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Neurascript

Neurascript was founded in 1998, from the Character Recognition Group of Neurodynamics, a world leader in the development of pattern recognition solutions, itself founded in 1991 by Mike Lynch (who is also the founder of Autonomy Corporation). Neurascript is headquartered in Cambridge, UK, where all employees are based. The company started by building bespoke data capture solutions predominantly for government clients, using advanced intelligent character recognition and keying technology developed in-house. The focus was to develop systems for processing high volumes of difficult to read documents such as high security payment vouchers, and legacy forms that could not be processed using off-the-shelf packages.

INDICIUS is a suite of modules for transforming documents into useful electronic information – an important element for all document management solutions, as all organisations still receive copious amounts of paper documents. INDICIUS can be applied to virtually any document, whether structured or unstructured, and works with Western and other character sets such as Arabic. INDICIUS is a modular product, allowing the customer the option to buy and deploy its component parts over a period of time. The modules are:

- **Recognition** – This provides an automated process, taking batches of scanned document images and transforming them into text data. Its advanced features include the ability to recognise colour as an integral part of a document, something that is becoming increasingly important as documents contain more complex colour schemes and marks to protect against fraud. It also includes recognition of multiple languages, including Western and Arabic character sets.
- **Correction** – This module provides single-key correction of documents that have been rejected by the Recognition process. Low-confidence characters are highlighted so that the operator just has to use a single keystroke to enter the character, without having to re-key whole fields or documents. If a number of characters have been rejected in a sequence, there is an option for an operator to re-type the entire sequence.
- **Completion and Verification** – The Completion module provides a key-from-image interface for data that could not be captured automatically, or failed some form of validation. The Verification module allows some or all of the data to be fully keyed and compared against the previously captured values. This re-keying process fulfils the requirement in some industries for ultra-high accuracy levels. In both modules the user is presented with data fields in the full document context.
- **Scripted Export** – Regardless of whether the source document is structured or not, the information that is extracted is always structured, and the majority will need to be exported to back-end databases, or passed to workflow processes. The Scripted Export module allows data and images to be exported to ODBC, text, or via e-mail.
- **Stats Reporter** – This module enables the collation of statistics on the entire document and data capture process, including recognition, and individual productivity measures such as keying rates, from which reports can be generated.

Many organisations still struggle to effectively deal with the paper-based documents they receive, in the form of invoices, correspondence, application forms, remittances, customer surveys, and faxes. Much of the information within these documents remains difficult for automated processes to organise and access, and yet increasingly the pressures of compliance and economics are drivers to increase such automation. Neurascript's technology gives organisations the opportunity to address these requirements in a solution that can scale to any volume.

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Objective

Founded in 1987, Objective Corporation (ASX:OCL) offers a range of business solutions designed to help organisations re-use corporate information assets, minimise business processing costs, make effective decisions based on complete information, and ensure regulatory compliance. The Objective Product Suite has been designed to meet the complex and stringent requirements of government organisations and large enterprises with copious amounts of unstructured information, complex business requirements, and diverse deployment scenarios.

As an ECM vendor Objective's products and solutions have been designed to address a wide-range of business requirements and some very specific, yet common, business problems such as: recordkeeping compliance, process improvement, ISO and FDA quality management, case file management, virtual project office, and correspondence management.

The company's comprehensive suite of products includes Knowledge and Process Management modules that have been designed to address the broadest requirements of Document Life Cycle Management, Electronic and Physical Record Management, Process Automation / Workflow, Web Content Lifecycle Management, Team Collaboration, Enterprise Knowledge Discovery, and Reporting.

Objective Electronic Document Management (EDM) supports and manages any kind of information object including word processing and spreadsheet files, presentation software, drawing packages, images, workflows, databases, e-mails, audio, video, and CAD applications, amongst others. Documents can be captured 'as-is', or may be subject to further processing such as imaging and/or Optical Character Recognition (OCR), or the creation of PDF renditions. Working in conjunction with the Objective Records Management module and Objective Foundation (the core solution), Objective EDM allows organisations to track and control corporate electronic and physical assets.

Like all modern ECM solutions, the Objective Product Suite has been designed with an *n*-tier architecture. The Objective solution is scalable, with server application services able to operate on a single server or split over multiple servers. Multiple servers can themselves contain all the server application services or single application services. By adding additional CPUs the solution can be scaled up as well as out.

Objective is listed on the Australian Stock Exchange, and in August 2004 the company announced revenues of AUD$27.2 million – a 77% increase on the previous year. Objective's after-tax profit was also up on the previous year to AUD$5.4 million. In terms of European business, the company's most significant win was at Scottish Executive, where Objective is now the standard for integrated Document and Records Management for the Scottish government. Objective has been evaluated by The National Archives (TNA) and has demonstrated a capability of meeting the functional requirements for electronic records management systems in UK government. However, Objective is not yet listed as being an 'approved' solution against TNA 2002 (also known as PRO II) even though TNA has been using Objective to manage its own business records since 2003.

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SAPERION

SAPERION group was founded in 1985, and since 1999 has been focusing on Document Management Systems (DMS) for large organisations. It currently offers the SAPERION Enterprise Content Management System (ECMS), which provides organisations with integrated archiving, Document Management (DM), and workflow.

SAPERION ECMS is marketed as a knowledge platform for linking standard and customer-specific applications, and providing an organisation with secure and scalable Document/Business Document management for all of its information.

It is built upon a multi-tier architecture, using a range of components that have all been developed by SAPERION, to build solutions that meet individual customers business needs. Components include: DMS, Capturing, COLD Imaging, DocFlow, Electronic Signature, Web Integration, Document Storage, and Jukebox Management.

SAPERION ECMS can be deployed on Microsoft Windows, Linux, or Sun Solaris platforms, and has some pre-built solutions for respective businesses:

- **SAPERION Small Business Solution** – for a maximum of ten users, deployed on Windows Server 2000 or XP platforms.
- **SAPERION Business Solution** – for medium-sized enterprises, or departments within large organisations, deployed on Windows Server 2000 or XP platforms.
- **SAPERION Enterprise Solution** – for global and distributed enterprises, available in two versions. One for deployment on Windows Server 2000 or XP, or Linux platforms. The other for deployment on Sun Solaris.

SAPERION ECMS can be tightly integrated with a wide range of existing organisational systems including Lotus Notes, SAP, Microsoft's Office Suite, Navision, and SharePoint Portal server. It supports all SAP R/3 versions and is fully certified for the ArchiveLink Interface 4.5.

In addition to its headquarters in Berlin, Germany, SAPERION has offices in the US, UK, and Singapore. Strategic partners for SAPERION include Microsoft, Autonomy, Siemens, and KPMG.

It has a wide range of customers using its DMS solutions including: Dresdner Bank AG, P&O Trans European, Unilever, and Siemens Information and Communication Services in Greece. There are reportedly in excess of 6,000 deployments of SAPERION solutions worldwide, accounting for 150,000 seats. Typical Return On Investment is reported as taking between six and 18 months.

The SAPERION ECMS is horizontally applicable as demonstrated by its customer base, but recognising that particular sectors require domain expertise, the company has dedicated staff for Insurances and the public sector.

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Scientific Software

Scientific Software has two solutions for the Document and Records Management market:

1. Enterprise Content Manager.
2. Business Process Manager.

Enterprise Content Manager is an ECM software platform that provides a secure, central repository and rich content services for organisations to capture, manage, archive, and re-use any type of electronic record (including raw data streams from analytical instruments, office documents, images, legacy data, etc.). The system includes features such as a cell-by-cell audit trail and a visual comparison tool for remediating Microsoft Excel spreadsheets to improve compliance with corporate risk management, Sarbanes-Oxley, and 21 CFR Part 11 mandates. It also incorporates retention policies for automated purging and disposition of records for compliance purposes and native integration with Hierarchical Storage Management (HSM) devices. Further functionality includes ECM Print Services, a print stream manager for capturing and extracting files and key-value pair information from third-party and legacy systems via a standard print operation. Enterprise Content Manager also supports SAFE electronic signatures, which provide a legally-binding notarisation of records for the protection of Intellectual Property (IP), and records can be stored in an XML-based Technology-Neutral File format (TNF) for long-term archival.

Business Process Manager is a Web services, Business Process Execution Language (BPEL), and .NET-based workflow solution that supports complex workflows (serial, parallel, conditional, nested, and looping), and both short- and long-lived business processes. Workflow definition for Business Process Manager is based on Microsoft Visio 2003 and XML, and execution (runtime) and reporting interfaces are integrated into the Enterprise Content Manager Web client.

Scientific Software is a US-based organisation, headquartered in Pleasanton, CA, and operating in the US, Canada, Europe, Asia, and Latin/South America. The company was started in 1990 and has a long history in the life sciences market. It currently has customers in industry sectors including the government sector, petrochemicals, agriculture, healthcare, financial services, entertainment, and manufacturing.

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SealedMedia

SealedMedia was formed in 1996, and launched its first commercial products in 2000, both in the UK and US. The company is privately held, with headquarters in Beaconsfield, near London, UK. The company also has offices in Los Gatos (CA), Boston (MA), and Austin (TX). SealedMedia has received several rounds of venture capital funding from Pond Venture Partners, Crescendo Ventures, and 3i. The company is now adding major new corporations to its customer base and is experiencing consistent growth in quarterly revenues. In 2003 Pond and Crescendo invested US$4 million in the company to fund it through to anticipated profitability and positive cash flow in 2004.

Around 40 staff are currently employed, the majority of whom are based in the UK, where R&D is carried out. The SealedMedia customer-base continues to grow, and includes some impressive names such as Panasonic Mobile Communications Development of Europe, Xansa, Pearson Education, 3i, and the Financial Times. Customers are split evenly between the US and UK/EMEA. SealedMedia estimates that in excess of 100,000 end-users are currently accessing sealed content via the Unsealer.

SealedMedia integrates with existing information management systems to deliver complete protection of an organisation's valuable and confidential digital information. It supports corporate e-mail clients such as Microsoft Outlook and Lotus Notes, as well as standard file formats created by applications such as Microsoft Word, Microsoft Excel, Microsoft PowerPoint, Adobe PDF, and HTML, in addition to image, music, and video formats.

SealedMedia encrypts or seals files originated in a variety of formats including Word, Excel, PowerPoint, e-mail, PDF, JPEG, and MPEG; persistently protecting, controlling, and tracking sealed files throughout their entire lifecycle. SealedMedia separates the digital content from the rights to that content, and enables viewing, annotation, editing, copying, and printing only by specifically authorised users. This is achieved by the use of a 'Sealer' application, a License Server that controls access to sealed content, and a freely-downloadable 'Unsealer' program deployed by end-users to access authorised sealed files.

SealedMedia can enable organisations to comply with security standards such as ISO17799, which incorporate the classification of information within an organisation. For example, there may be a number of classifications of information, from 'top secret' all the way down to fully open and shared 'public domain' information. Different users within the organisation may have access to different classifications of information, depending on their role. SealedMedia makes it very easy to seal documents to a specific classification, with default roles and rights that determine what each individual can and cannot do with the classified information.

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Verity

Verity Inc. offers software solutions designed to help organisations maximise the return on their intellectual capital investment. Verity's three-tier foundation of search, content organisation, and social network technology can be used in a variety of corporate scenarios ranging from e-commerce and B2B market exchange portals, to compliance and Customer Relationship Management (CRM) solutions. The company has over a decade of experience in information retrieval and portal technology.

Headquartered in California in the US, Verity has 16 regional offices covering North America, Australia, Benelux, Brazil, Canada, France, Germany, Mexico, Singapore, South Africa, Japan, and the UK. The company has partnerships with system integrators and consultants, ISVs, OEM, and content providers.

Verity has more than 1,500 enterprises, e-commerce merchants, market exchanges, government agencies, on-line service providers, and Internet publishers worldwide among its customers. They include nine of the Fortune 10, 80% of the Fortune 50, and 66% of the Fortune 100. Verity technology also powers some of the most extensively implemented business applications in the world, including PeopleSoft, SAP, and Documentum. Other Verity customers include ABB, Alcatel, Adobe Systems, American Greetings, AT&T, CDNOW, CNET, Cisco, Compaq, Dow Jones, Edgar Online, Ernst & Young, FairMarket, The Financial Times, Home Depot, IBM, PricewaterhouseCoopers, Siemens, Sybase, Time New Media, and Timex.

Verity offers a range of solutions addressing content services, content capture and process automation, and OEM technology. Verity products and technologies pertinent to DRM include:

- K2 Enterprise is Verity's foremost offering, and is designed to help organisations: locate information they know exists; uncover unknown information assets; respond to questions and requests for information quickly and accurately; and evaluate content to make better decisions. Verity provides a number of technology gateways, which enable organisations to harvest information repositories such as server file systems, Lotus Notes, Microsoft Exchange, Web servers, and ODBC databases.
- Verity Collaborative Classifier is a product that helps users find information faster through use of taxonomies. Taxonomies can be created and deployed incrementally as categories and subcategory trees are available. Classification technology can be used to automate the process of document profiling, and as such will drive-down cost and accelerates time-to-value when used as part of a DRM solution.
- Verity KeyView is primarily targeted at software developers and the OEM market. Through the use of the Verity KeyView Software Development Kits (SDKs), developers can add document rendering and viewing capabilities to line-of-business applications and corporate portals. KeyView technology can also be used to convert proprietary file formats into browser-friendly HTML and/or XML.

Verity's technology can be found in a number of DRM solutions presented in this Report, and serves to highlight the importance of third-party vendors to this market.

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ZyLAB

ZyLAB is a provider of software and services for information storage, investigation, and retrieval. Describing itself as a 'one-stop-shop', ZyLAB aims to provide its customers with complete solutions, including everything from hardware and software, through to product installation, project management, and integration. From inception in 1983, ZyLAB has developed a wide-range of technologies that run the gamut of the traditional Document Management and digital archiving market.

ZyLAB positions its products under four distinct categories:

1. Capturing (i.e. input): ZySCAN, ZyINDEX, ZyCLIP (newspaper clippings), ZyIMAGE, ZyCOLD, and e-mail capture via the Records Management and Archival (RAM) plug-in and ZyIMAGE Exchange Connector.
2. Collaboration products: Department of Defense 5015.2 compliant Records Management, Case Management, Document Management, and Workflow.

3. Technology and productivity products: Advanced Security Modules, Legal Productivity Modules, Database Integration Modules, Application Integration, and Text-Mining Tools.
4. Finding and sharing (i.e. output): ZyFIND for Windows, ZyFIND for Outlook, ZySEARCH and ZyPUBLISH for DVD/CD-ROM, ZyIMAGE Web Server, and ZyALERT.

With a tag-line of: *Because we know the "paperless office" doesn't exist…*, ZyLAB has recently brought to market four new customised all-in-one solutions:

1. ZyIMAGE Investigate: a solution that is targeted at law-enforcement and security professionals.
2. ZyIMAGE Financial and Back-Office Management: a Sarbanes-Oxley compliance solution.
3. ZyIMAGE Legal: a solution designed for private and corporate legal departments.
4. ZyIMAGE Knowledge Management and R&D: a solution optimised to manage an organisation's most vital information assets.

ZyLAB has demonstrated a thorough understanding of the issues related to the UK's Freedom of Information Act, and has significant experience in working with public sector organisations.

ZyLAB has over 700,000 licensed users worldwide, and the company's client list includes law enforcement and government agencies, legal organisations, knowledge management and research laboratories, news paper clipping agencies, business intelligence, marketing, corporate strategy, and documentation departments. Some of its better known customers include: US Army, US Navy, New Scotland Yard, NATO, Dell Computers, Procter & Gamble, ING Group, Walt Disney Company, VNU Publishing, and the BBC.

ZyLAB products have been translated into German, French, Dutch, Spanish, Italian, Danish, Swedish, Norwegian, Finnish, Portuguese, Turkish, Greek, Cyrillic, and Arabic. In addition to these languages, over 80 more languages are supported by ZyLAB's recognition and full-text indexing technology, including all Western-European, Eastern-European, Baltic, African, Roman-Asian, and South-American languages.

ZyLAB partners extensively with a variety of technology companies including: IBM, Microsoft, Adobe, Oracle, Océ, IKON, Xerox, IRIS, ScanSoft, Kofax, Kodak, Fujitsu, and EMC Centera. ZyLAB also manages a comprehensive network of resellers, distributors, authorised consultants, and authorised integrators.

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SECTION 10: Glossary

Butler Group
Analysis without compromise

AIX
Advanced Interactive eXecutive. IBM's flavour of UNIX.

Application Programming Interface (API)
Available from most document and records management systems to enable other applications and programs to control and access functionality programmatically.

Archive data
Usually a copy of data held on a non-volatile storage medium, e.g. microfilm and WORM discs.

Application Service Provider (ASP)
A company that offers enterprises access over the Internet to applications that would otherwise be located in their own data centre.

Association for Information and Image Management (AIIM)
AIIM is primarily a trade organisation that represents Enterprise Content Management vendors. Represented in Europe by the UK-based AIIM Europe.

Anti-Virus (AV)
A solution designed to prevent the execution of unauthorised code.

Audit Trail
A trusted record or log showing who has accessed records or documents and what operations he or she has performed.

Backfile loading
The process of importing documents into the document management system.

Binary Large Object (BLOB)
Within a database, a special type of field used to store audio, image, and video, etc.

Business Process Management (BPM)
BPM concerns the software and tools required to model and execute an organisation's business processes, through the orchestration and integration of the necessary people, systems, applications, and application components.

CAD
Computer-Aided Design.

CEO
Chief Executive Officer.

CFO
Chief Financial Officer.

COLD
COLD (Computer Output to Laser Disk) is a system for archiving data such as business records and reports to one or more optical disks in a compressed but easily retrievable format.

Common Object Request Broker Architecture (CORBA)
A software architecture for creating and distributing program objects across a network. It allows programs at different locations and developed by different vendors to communicate in a network through an interface broker.

Compact Disc, Read-Only-Memory (CD-ROM)
CD-ROM is an adaptation of the CD that is designed to store computer data in the form of text and graphics.

Compliance
The active process of addressing the relevant legislation and regulation.

Content Addressed Storage (CAS)
An object-oriented system for storing data that is not intended to be changed once it has been stored; for example, medical images, sales invoices, and archived e-mail. CAS assigns a unique identifying logical address to the data record when it is stored, and that address is neither duplicated nor changed in order to ensure that the record always contains the exact same data as was originally stored. CAS relies on disk storage rather than removable media, such as tape.

Component Object Model (COM)
Microsoft's framework for developing and supporting program component objects. It provides the underlying services of interface negotiation, lifecycle management, licensing, and event services.

Corporate Portal
An internal Web site (Intranet) that provides proprietary, enterprise-wide information to company employees as well as access to selected public sites and vertical-market Web sites (suppliers, vendors, etc.). It typically includes a search engine for internal documents as well as the ability to customise the portal page for different user groups and individuals.

Customer Relationship Management (CRM)
This is an information industry term for the methodologies, software, and usually Internet capabilities that help an organisation manage customer relationships in an organised way.

DB2
IBM's DB2 is a relational database management system for large business computers that, according to IBM, is a leading product in terms of database market share and performance.

Digital Imaging Metadata Standard (DIG35)
DIG35 is deployed for the description and catalogue of images created by the Digital Imaging Group. The metadata is used for describing elements of an image. XML is the recommended encoding language, which makes it compatible with Web technologies, as well as ECM solutions, which support XML. The Digital Imaging Group (DIG) is a consortium of leading image companies, including Adobe, Microsoft, Fuji Film Eastman Kodak, and Canon, created the DIG35 standard.

Digital Rights Management (DRM)
Systems that help protect the copyright of materials by defining how the content can be used.

Document
Recorded information or object which can be treated as a unit (ISO 15489).

Document Object Model (DOM)
The DOM) is a major standard tree-based API for XML parsers. Most DOM programs start with a parser object reading a XML document from an input stream or other source. The entire document object is returned containing everything in the original XML document. Information is read from the document invoking methods on the document object or on the other objects it contains.

DoD
Department of Defense, US.

DOMEA
German Record Management Standard.

DPA
Data Protection Act 1998, UK.

DTI
Department of Trade and Industry, UK.

Dublin Core
The Dublin Core Metadata Element Set is a common semantic building block of Web Metadata. It has 15 elements that provide broad categories for describing most information resources. Often, additional semantics are required to fully describe resources, and other pieces of metadata can be combined with it to create richer descriptions. Dublin Core metadata can reside in XML, HTML, or RDF.

Dynamic HTML (DHTML)
Dynamic HTML is a collective term for a combination of new Hypertext Markup Language tags and options that will let you create Web pages more animated and more responsive to user interaction than previous versions of HTML. Dynamic HTML can allow Web documents to look and act like desktop applications or multimedia productions.

e-Government Metadata Standard (e-GMS)
e-GMS, as its name suggests, is used by the public sector. It lists the elements and refinements required to create metadata for information resources. In addition it gives guidance on the purpose and use of each element. It has been designed to ensure that metadata is consistent across government departments and to aid the public in the search for specific information.

Electronic Document Management (EDM)
Systems used to capture, catalogue, organise, and control computer generated data files. EDM systems are often integrated with scanning solutions and workflow technology – Integrated Document Management (IDM).

Electronic Document and Records Management (EDRM)
EDM integrated with Records Management (RM) technology.

Electronic Records Management (ERM)
Systems used for the formal management of corporate records.

Enterprise Content Management (ECM)
The management of all forms of enterprise content ranging from e-mail messages to Web pages.

Enterprise Resource Planning (ERP)
A suite of software that aims to support all the core functions of an organisation, including areas such as inventory control, accounting, production, logistics, and human resources.

Extranet
A private network that uses the Internet protocol and the public telecommunication system to securely share part of a business's information or operations with suppliers, vendors, partners, customers, or other businesses.

Fileplan
A logical and systematic arrangement of files into subject groups or other categories. Record Management systems make use of fileplans.

File Transfer Protocol (FTP)
File Transfer Protocol (FTP), a standard Internet protocol, is the simplest way to exchange files between computers on the Internet.

Folder
A common unit used in Records Management systems.

Freedom Of Information (FOI)
The Freedom of Information Act 2000 gives a general right of public access to all types of information held by public authorities.

Full Text Search (FTS)
An indexing and search system in which documents are indexed based on the words contained within them.

GEVER
Swiss Record Management Standard.

Graphical User Interface (GUI)
A GUI is a graphical (rather than purely textual) user interface to a computer.

Groupware
Software that provides a platform for group collaboration. Basic document management functionality is often at the core of groupware solutions.

HyperText Markup Language (HTML)
A markup language designed to display material in a Web browser. Like XML, consists of a series of tags, but unlike XML these contain markup information only, and do not describe the data itself.

HyperText Transfer Protocol (HTTP)
A protocol used for exchanging files over the World Wide Web. Files are requested from a HTTP server using a Uniform Resource Locator, and are then sent to the HTTP client, which typically is a Web browser such as Internet Explorer.

Hypertext Transfer Protocol over Secure Socket Layer (HTTPS)
A Web protocol that encrypts and decrypts user page requests as well as the pages that are returned by a Web server.

ICE
Information and Content Exchange (ICE) defines the roles and responsibilities of subscribers and syndicators. The format and method of content exchange is also defined and the management and the control of syndicated relationships are supported.

Intelligent Capture Recognition
The computer translation of manually-entered text characters into machine-readable characters.

Internet Service Provider (ISP)
Provides businesses and consumers with access to the Internet.

Intranet
An Intranet is a private network that is contained within an organisation and can consist of many interlinked Local Area Networks (LANs) and also use leased lines in the Wide Area Network (WAN).

ISO 15489
Internationally recognised Records Management guidelines.

Java 2 Platform, Enterprise Edition (J2EE)
Defines the standard for developing multi-tier applications using Java. J2EE simplifies enterprise applications by basing them on standardised modular components, by providing a complete set of services to those components, and by handling many details of application behaviour automatically, without complex programming.

JavaBeans
An object-oriented programming interface from Sun Microsystems that enables users to build reusable applications, or program building blocks.

Java DataBase Connectivity (JDBC)
JDBC is a Java API that enables Java programs to execute SQL statements, enabling applications written using Java to access SQL-compliant databases. Users can write a single application that will span different platforms and databases.

Lightweight Directory Access Protocol (LDAP)
A software protocol for enabling anyone to locate organisations, individuals, and other resources such as files and devices in a network, whether on the Internet or on a corporate Intranet.

Metadata
Metadata is a definition or description of data. In the context of data and information, the prefix 'meta' means more comprehensive or fundamental.

Metadata Encoding and Transmitting Standard (METS)
METS is a standard for encoding descriptive, administrative, and structural metadata for objects within a digital library, expressed using XML. It is an initiative of the Digital Library Federation, and is maintained by the Network Development and MARC Standards Office of the Library of Congress. It has a very simple format with only four major components, which are: descriptive metadata, administrative metadata, file inventory, and structural map. Of these only the last two are mandatory.

Middleware
A general term for any programming that serves to 'glue together' or mediate between two separate and usually already existing programs. A common application of middleware is to allow programs written for access to a particular database to access other databases.

MoReq
The MoReq Specification is a model specification of requirements for Electronic Records Management Systems (ERMS) and is designed to be easily used, and to be applicable throughout Europe.

.NET
Microsoft's Web services initiative that includes development tools, a runtime platform, and Web-based services such as authentication, personalisation, and security.

Object Database
An object database is a database system that supports the creation of data as objects.

Open DataBase Connectivity (ODBC)
An open standard Application Programming Interface (API) for accessing a database.

Open Document Management API (ODMA)
ODMA makes it easier to integrate applications with document management systems. Using ODMA, desktop applications are able to seamlessly access and manipulate documents stored in document management repositories.

Optical Character Recognition (OCR)
OCR is the recognition of printed or written text characters by a computer. This involves photo scanning of the text character-by-character, analysis of the scanned-in image, and then translation of the character image into character codes, such as ASCII, commonly used in data processing.

PD0008
BSI Code of Practice for legal admissibility and evidential weight of information stored electronically.

PD0010
Principles of good practice for information management.

Personal Digital Assistant (PDA)
A term for any small, mobile, hand-held device that provides computing and information storage and retrieval capabilities for personal or business use, often for keeping schedule calendars and address book information handy.

Personalisation
The techniques of delivering Web-based content that are tailored to an individual user's preferences.

Portable Document Format (PDF)
PDF is a file format that has captured all the elements of a printed document as an electronic image that you can view, navigate, print, or forward to someone else. PDF files are created using Adobe Acrobat, Acrobat Capture, or similar products.

Portal
A Web 'supersite' that provides a variety of services, including Web searching, news, white and yellow pages directories, free e-mail, discussion groups, on-line shopping, and links to other sites. Web portals are the Web equivalent of the original on-line services such as CompuServe and AOL. Although the term was initially used to refer to general-purpose sites, it is increasingly being used to refer to vertical market sites that offer the same services, but only to a particular industry, such as banking, insurance, or computers.

Public Key Infrastructure (PKI)
Enables users of a basically insecure public network such as the Internet to securely and privately exchange data and money through the use of a public and a private cryptographic key pair that is obtained and stored through a trusted authority.

Public Records Office (PRO)
See The National Archives (TNA).

Pure-play
A term used to refer to the ownership in companies that focus on and specialise in a particular product or service area to the exclusion of other market opportunities in order to obtain a large market share and brand identity in one area.

Record
Information created, received, and maintained as evidence and pursuance of legal obligations or in the transaction of business (ISO 15485.1).

Relational Database
A relational database is a collection of data items organised as a set of formally-described tables from which data can be accessed or reassembled in many different ways without having to reorganise the database tables.

Repository
In information technology, a repository is a central place in which an aggregation of data is kept and maintained in an organised way, usually in computer storage.

Return On Investment (ROI)
A term to describe how much of a return, usually profit or cost-saving, results from a completed business task, in relation to the original investment made.

Rich Text Format (RTF)
RTF is a file format that lets you exchange a text file between different word processors in different operating systems. For example, you can create a file using Microsoft Word 97 in Windows 95, save it as an RTF file (it will have a ".rtf" file name suffix), and send it to someone who uses WordPerfect 6.0 on Windows 3.1 and they will be able to open the file and read it.

Secure Socket Layer (SSL)
A commonly-used protocol for managing the security of a message transmission on the Internet.

Simple Mail Transfer Protocol (SMTP)
A TCP/IP protocol used in sending and receiving e-mail. Most commonly, SMTP is used for sending, and either POP3 or IMAP is used for receiving.

Simple Object Access Protocol (SOAP)
A way for a program running in one operating system to communicate with a program in the same or another kind of operating system by using HTTP and XML as the mechanisms for information exchange.

Small to Medium-sized Enterprise (SME)
A company comprising of no more than 500 employees.

Standard Generalised Markup Language (SGML)
SGML is a standard for how to specify a document markup language or tag set. Such a specification is itself a Document Type Definition (DTD). SGML is not in itself a document language, but a description of how to specify one.

Structured Query Language (SQL)
A standard interactive and programming language for getting information from and updating a database.

Supply Chain Management (SCM)
SCM is the oversight of materials, information, and finances as they move in a process from supplier to manufacturer to wholesaler to retailer to consumer. SCM involves co-ordinating and integrating these flows both within and among companies.

Telco
Telecommunications infrastructure provider, either fixed line or mobile. Many are also ISPs.

The National Archives (TNA)
TNA looks after state and central court documents from the Doomsday Book to the present.

Total Cost of Ownership (TCO)
A type of calculation designed to help consumers and enterprise managers assess both direct and indirect costs and benefits related to the purchase of any IT component.

Transmission Control Protocol/Internet Protocol (TCP/IP)
Governs the routing and transport of data over the Internet.

UNICODE
UNICODE is officially called the UNICODE Worldwide Character Standard. It is a system for "the interchange, processing, and display of the written texts of the diverse languages of the modern world." The UNICODE standard contains nearly 35,000 distinct coded characters. It supports 24 of the most popular written languages in the world.

Uniform Resource Locator (URL)
A URL is the address of a file (resource) accessible on the Internet.

Universal Discovery, Description, and Integration (UDDI)
UDDI is a platform-agnostic initiative for describing and discovering the availability of Web services, along with details on how connections can be made.

VAR
Value Added Reseller.

VERS
Australian Record Management Standard.

Web Content Management (WCM)
WCM relates to the management of Web-centric content, such as that which is used to populate Web sites.

WebDAV
World Wide Web Distributed Authoring and Versioning or Web-based Distribution Authoring and Versioning (WebDAV) is a set of extensions to the HTTP protocol enabling users to collaboratively edit and manage files on remote Web servers. It includes locking properties, and namespace manipulation.

Web Services
An architecture where software is delivered as a set of components, which can be called from any application, without regards to the underlying platform or operating system.

Web Services Description Language (WSDL)
WSDL is an XML format for describing network services as a set of endpoints or ports operating on messages containing either document-oriented or procedure-oriented information.

Workflow
This is a term used to describe the tasks, procedural steps, organisations or people involved, required input and output information, and tools needed for each step in a business process.

World Wide Web Consortium (W3C)
The W3C exists to realise the full potential of the Web. It is an industry consortium that seeks to promote standards for the evolution of the Web and interoperability between WWW products by producing specifications and reference software. Although the W3C is funded by industrial members, it is vendor-neutral, and its products are freely available to all.

X.509
X.509 is the most widely used standard for defining digital certificates. As yet it is only an International Telecommunication Union (ITU) recommendation, which means that it has not been standardised and vendors have implemented it in different ways.

XML
XML (eXtensible Markup Language) is a flexible way to create common information formats and share both the format and the data on the Web, Intranets, and elsewhere.

Butler Group
Analysis without compromise

This Report reveals:

- How DRM reduces the cost of complying with information legislation.
- Why a standards-approved DRM solution may not be best for your organisation.
- Butler Group's roadmap for effective implementation of DRM solutions.
- How business culture needs to change to derive value from DRM.
- Best practice in common DRM scenarios.
- Why every organisation should appoint a Records Manager.
- How effective DRM helps exploit the knowledge capital of the organisation.
- The comparative strengths and weaknesses of the leading DRM solutions.

Butler Group
Analysis without compromise

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