SAP White Paper

SAP® RECORDS MANAGEMENT FOR THE PUBLIC SECTOR

Design: SAP Communications Media

CONTENTS

1. INNOVATION IN SAP RECORDS MANAGEMENT

Governments need records to operate and to survive, to administer the government and to deliver services to people. For the public, records provide the legal documentation of a government's actions, and they are evidence of its work. Therefore, records management is an essential field and task for governments and all public sector organizations.

SAP AG designed its SAP Records Management solution to manage records in the public sector. It is a new approach to records management. Based on cutting-edge information technology, the solution enables you to manage documents and records on paper and in electronic form. The outstanding innovative feature of SAP Records Management is that you can manage any kind of SAP business objects and non-SAP business objects with it. Together with SAP Business Workflow, SAP Records Management is a workflow management system that can map both predefined and ad hoc process flows.

Another outstanding feature of SAP Records Management is its integrated approach. It integrates all areas in public administration, ranging from simple business processes to specific technical procedures running on different application systems.

By deploying SAP Records Management, you use technology to simplify records management and explore its full potential. In particular, this means that you can:

- Provide a single point of access to all information , especially to records, for all authorized employees
- Enhance the efficiency and transparency of your business processes
- Integrate public and corporate services on the Internet directly into electronic records management
- Manage paper and electronic records in one system
- Integrate business objects with their scanned image (an application document with its scanned image)
- Cut costs for storing paper records.

With SAP Records Management, communication with public and private institutions, as well as citizens, is more efficient. It is not restricted to the institutional boundaries of the authority involved:

- Records can be viewed by or sent to other public agencies without complex transport procedures.
- Citizens and companies can send queries or requests via the e-government framework of mySAP Public Sector through the Internet. All documents created while processing the requests in the mySAP Public Sector are automatically stored in one record.
- Functions for processing requests and storing documents in a record are fully integrated.

Given these reasons, you can significantly cut costs and improve services to citizens and companies. SAP Records Management provides comprehensive support to help you handle your business processes smoothly and effectively.

This white paper presents the functional approaches of SAP Records Management and outlines its close integration in the processes that are common to public institutions.

2. FUNCTIONS OF SAP RECORDS MANAGEMENT

2.1 RECORD STRUCTURE

Every day, government agencies perform a variety of regulated and unregulated functions to provide public services. To ensure that these functions are carried out according to the rule of law, they must be structured accordingly and individual processing activities established. These activities, in turn, result in new content. In addition, certain context information is required and must be taken into account. This context information can vary in nature - from annotations and processing allocations to legal and organizational constraints or other specialized applications. A record can be regarded as the total volume of recorded information and activities required to document a task in full - from the point at which the task is started until its completion. The storage medium used to record the information is irrelevant.

A record can contain different types of information. In addition to conventional paper documents, technical descriptions, and drawings, applications must cater to the entire range of information in multimedia formats. In SAP Records Management the various components of a record are depicted as business objects, which also include electronic documents. A business object can be regarded as a representation of a tangible or intangible object (such as a concept, business process, or triggering event) that is used in conjunction with a business application.

Business objects in SAP Records Management come from a vast range of sources, including:

- Office applications
  (like Microsoft Word, e-mail, fax, calendar, and contacts)
- Accounting systems
  (like funds management or time recording for controlling)
- Human resources
  (like HR qualifications)
- Procurement
  (like service descriptions)
- Real estate management
  (such as rental contracts)
- Production or plant maintenance applications
  (like bills of material)
- Electronic forms
- Electronic requests from the Internet
- Links to Internet or intranet pages for incorporating external information sources, applications, and so on

Integrating SAP business objects in records has distinct advantages. Interfaces for communication between the application systems are standard, as are the procedures for building component-based applications, the description of the data exchange format for Internet-based business processes, and the structure of electronic business documents. The prerequisites for communication between business processes are fulfilled so different agencies can collaborate and process and manage records.

Records management is intrinsically linked to workflow management. For this reason, SAP Business Workflow is fully integrated into SAP Records Management. One of the functions of SAP Business Workflow is to control the recording and processing of information. The elements of SAP Business Workflow can be incorporated directly in the record for this purpose (see Figure 2.1-1). Workflow management is discussed in greater detail later on in the white paper.

Records must be structured to meet their application requirements. Modeling of this type is carried out using attributes, which are usually referred to as metadata. Examples of metadata include:

- Storage location
- Record creator
- File number
- Keywords

In SAP Records Management this metadata is divided into general metadata, which applies to an entire record, and specific metadata, which only refers to a certain part of a record. The storage location of a record is an example of general metadata, whereas the creator of a document is an example of specific metadata. The metadata can be freely selected so that you can add additional attributes to the records management system at any time. Every business object carries its own metadata.

Figure 2.1-1 illustrates the record structure used in SAP Records Management. Business objects are the central components of an electronic record. Documents that are only available in paper form are shown separately, because the content is not stored in SAP Records Management. The record entries from electronic workflow management systems (for example, workflows and work items, or tasks) are also listed separately because they are used to control and log the business process.

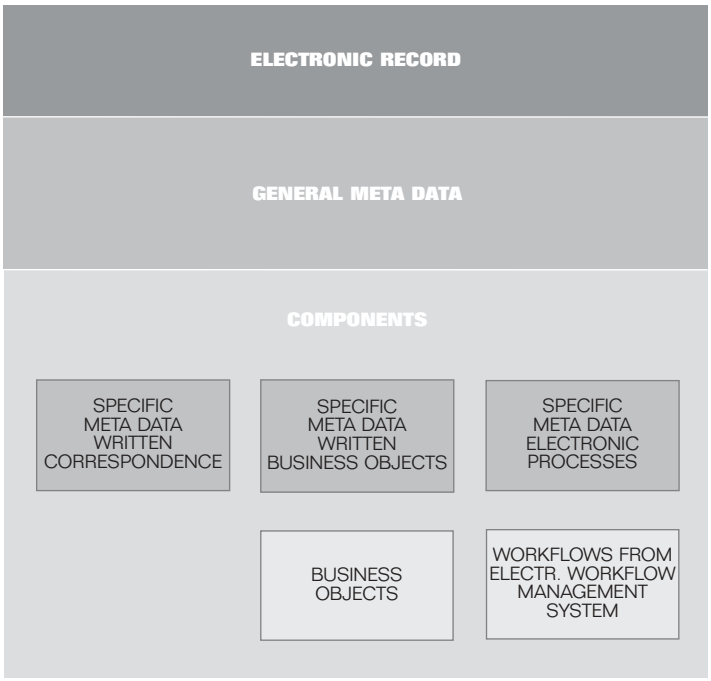

Figure 2.1-1: File Structure

The elements of the electronic record are described in greater detail in the sections below.

2.2 MANAGING CONVENTIONAL PAPER RECORDS

In the most basic case, SAP Records Management is used to register conventional records, which usually contain all the business processes and information required to manage the workflow as paper documents (see Figure 2.2-1). Depending on the extent of the information, the record can include several volumes.

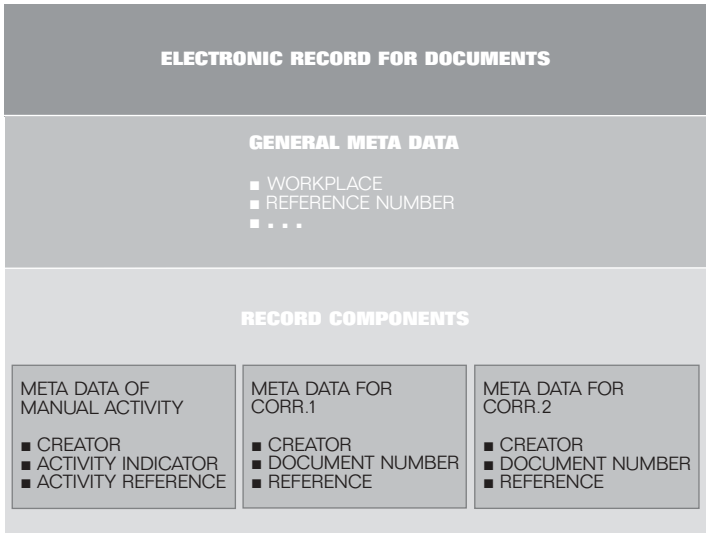

Figure: 2.2-1: Electronic Record for Correspondence

Freely definable metadata is assigned to these conventional records and documents. This metadata can include the enterprise portals, storage location, file number, or date of receipt. The metadata is entered in an electronic record and refers to the corresponding paper-based records. The registration and classification of the correspondence in accordance with the filing plan can also be stored in the metadata. In addition, verification of manual processing can be included in the record in the form of a paper or an electronic document. You can also

use SAP Records Management purely as a correspondence management system. In this case, you do not need to digitize the conventional documents.

Electronic correspondence management provides two advantages. First, the work process is optimized because the electronic records management system searches for metadata that relates to records and documents. Second, you can conduct searches locally.

2.3 MANAGING HYBRID RECORDS

Paper documents are an intrinsic part of records management, partly for historical reasons and partly because of the cost of scanning in documents. Because paper stubbornly refuses to disappear, current records management systems often use hybrid records that contain both paper-based and electronic documents. You can view the electronic components of these hybrid records (see Figure 2.3-1) directly in SAP Records Management without duplication.

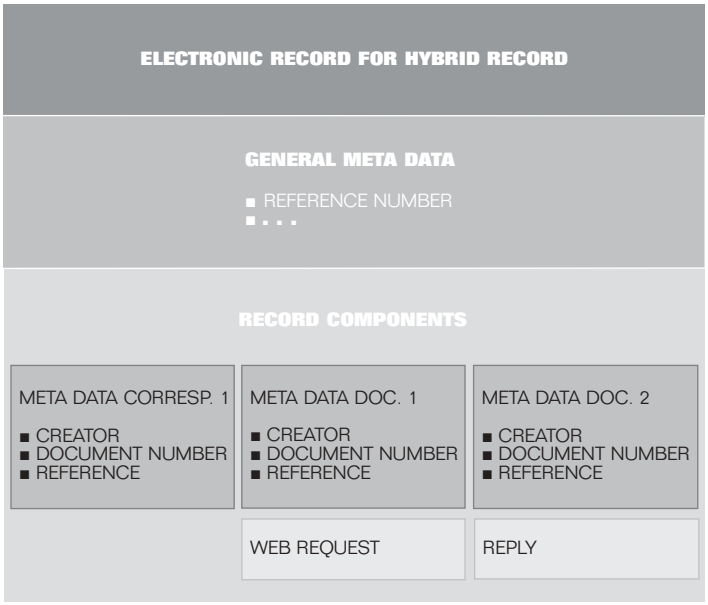

Figure 2.3-1: Examples of the Content of Hybrid Records

In the case of hybrid records, you should digitally incorporate the manual processing verifications into the record. This provides greater clarity and makes it easier to track the processing status.

Managing hybrid records provide two advantages. First, electronic documents can be processed directly from the record. Second, conventional records and documents can be included in electronic records without being digitized first, and they can be largely electronically integrated using metadata.

2.4 MANAGING PURELY ELECTRONIC RECORDS

In the best of all possible worlds, records in SAP Records Management only contain electronic documents. From a technical perspective, an electronic record is only a list of objects. The components of the record can be stored locally on different servers for storage or processing reasons. Essentially, the record only consists of a structure and metadata that contains the links to the actual documents and their content. As soon as a clerk attempts to process a document, the document is retrieved across the network and displayed on the screen. This minimizes the volume of data transported.

The advantages of purely electronic records include the following:

- All components of the record are instantly accessible.
- Documents can be processed instantly with office communication tools.
- There is no media fragmentation.
- All digital information is incorporated.
- Paper is eliminated from the office.

2.5 MANAGING RECORDS WITH ANY TYPE OF BUSINESS OBJECT

The solutions described up to now only map the functions of a conventional records management system. One of the outstanding differences between SAP Records Management and conventional records management solutions is that it provides context information for processing a record from a wide range of specialized applications and office communication systems.

Specialized applications are often featured in the context of records management. In SAP Records Management, all applications are integrated using business objects. These business objects are characterized by attributes and accessed and processed using certain methods. From a programming point of view, these methods are implemented by Business Application Programming Interfaces (BAPIs).

2.5.1 Integration of mySAP.com Components

All of the business objects defined in mySAP.com can be included in a record. The set of methods that can be applied to these business objects (business object methods) is defined in the record. An example of a method for the invoice document business object is one for displaying the document. The mySAP.com e-business platform includes a wide range of powerful components, including mySAP Financials, mySAP Human Resources, and mySAP Customer Relationship Management, as well as a variety of industry solutions like mySAP Public Sector. Incorporating the business objects from these mySAP.com components ensures that the context information required for a slew of important tasks can be seamlessly integrated in records management without system fragmentation. Figure 2.5-1 shows an example of how an acceptance request from a mySAP.com component can be integrated into a record.

2.5.2 Integration of Non-SAP Systems

SAP Records Management can also communicate with applications from other manufacturers. In principle, documents and context information from business objects in these non-SAP systems can be incorporated and managed in records. Communication between the records management system and specialized application takes place using standard function calls or BAPIs so computer-aided design (CAD) or geographical information systems (GIS), for example, can be integrated. Solutions from complementary software partners can also be integrated using certified interfaces. The solution also integrates other types of objects like URLs for Internet pages that refer to external information sources, applications, and so on (see Figure 2.5-1).

2.5.3 Integration of Office Communication Tools

In SAP Records Management, you can integrate information from office communication tools, such as e-mail, faxes, calendars, contacts, and Microsoft Word or Microsoft Excel. By doing so, you can access communication and organization tools to help you process your records.

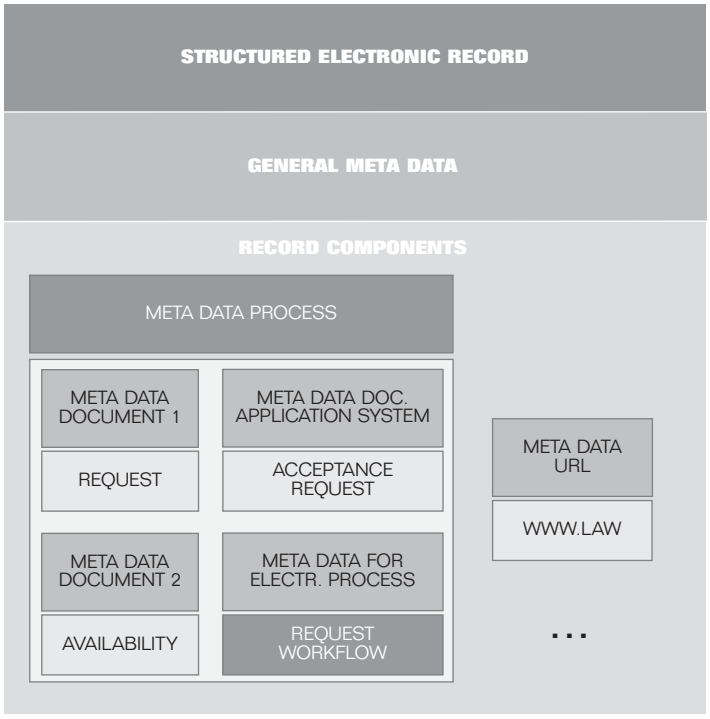

Figure 2.5-1: Structured Electronic Record

2.6 WORKFLOW AND ORGANIZATIONAL MANAGEMENT

SAP Records Management is linked to SAP Business Workflow - SAP's workflow management system - to help users process records. You can enter workflows into a record (see Figure 2.5-1), allowing all processing objects and steps within a process to be entered electronically so the time and effort required for processing can be determined. SAP Business Workflow leverages the organizational management capabilities of mySAP HR, which can be used to create the entire organizational plan of an institution or derive it from the organizational and business distribution plan. The organizational plan is a representation of the organizational units that share the tasks carried out by the institution. Together with SAP Business Workflow, determines the person responsible for carrying out a specific task in a workflow. Organizational management uses a variety of different positions, jobs, work centers, and so on, each of which can be assigned tasks from SAP Business Workflow. By doing so, you define the group of possible agents for a task within a process.

You can also define a set of rules that determine which of the possible agents is the actual agent responsible for the task. These rules can be defined in various ways:

- Function modules: You define rules with function modules if the selection criteria for locating the agent for a specific task are extremely complex. The system then locates the agent responsible by executing the function. The manner in which the data is received varies from function to function. You can use predefined functions or create your own. The rule resolution, which takes place at runtime to determine the agent for a workflow step, is thus an intelligent, efficient, and flexible tool.
- Organizational data: If you choose the organizational model to control your business processes, the organizational data is used to define rules. The agent responsible for a particular task is determined when the rules are resolved using links between the task, the objects in the organizational management, and SAP organizational objects.
- Responsibilities: If responsibilities are used to define rules, you need precise selection criteria to determine the relevant agents. You can also use the organizational model to determine the agents responsible via jobs, positions, and so on.

2.7 RECORD MODELING

Records are structured to facilitate processing, to represent their content more clearly, and to provide the necessary contextual information. From the outset, you can also specify which record components are allowed. SAP Records Management features a variety of tools to help you model your records. In practice, records are categorized using different characteristics (for example, application areas). HR or social security records are examples of different types of records. SAP Records Management allows you to define record types. When you define a record type, you specify:

- Which metadata is assigned to the record type
- Which business objects are permitted in the record
- The structure of one record hierarchy .

The record type provides users with a flexible way to structure records. For example, paper-based record types require the storage location and creator of the record (according to the requirements for managing correspondence) as metadata. In an aircraft procurement record type, bills of material for the individual assemblies are required as business objects. You can extend record types on an ad hoc basis while the record is being processed. You can also create record types that contain other record types. By doing so, you can divide a record into subrecords, group records hierarchically, or arrange subrecords within a record hierarchy.

Based on record types, views of records can be defined. Depending on the role of the user, different parts of the content of a record can be viewed.

2.8 DRILL-DOWN REPORTING IN A SET OF RECORDS

You can carry out drill-down reporting in existing records and their objects. Search paths extend, for example, across the filing plan or metadata of the records. You can also store keywords in the metadata and define an index to allow faster access to the required records. Intelligent search engines support any number of nested search terms so you can create complex drill-down procedures. Full-text searches are also allowed. You can use the hit list to display the record directly or navigate through its objects. This way, employees always have the information they need at their fingertips.

Parallel access to records is also possible, which means that several employees can read a record at the same time without having to copy it. This is a major advantage over conventional record processing systems because you can't transfer paper records to a different IT system for processing. However, not every employee can view all the records or components of a record. SAP, therefore, provides a range of sophisticated options for assigning authorizations. With these authorizations, you can determine which record types and which components of a record can be displayed by an employee. If a record contains a link to a business object in a mySAP.com component, such as an invoice, employees can only display this invoice if they have the appropriate authorization on the application system. Figure x shows a structured record.

2.9 CITIZEN SERVICES

mySAP Public Sector provides government-to-citizen (G2C), government-to-government (G2G), and government-to-business (G2B) services. For example, citizens can communicate directly with public institutions over the Internet. By doing so, they can send inquiries to the authority in question, submit requests, or view records. Government agencies, for their part, can provide citizens with information, such as development plans and decisions.

Another type of citizen service takes the form of communication between companies and authorities. This allows government agencies to handle invitations to tender and bids via the Internet, which is a government-to-business scenario. In many cases, SAP provides forms for this type of request and plans to provide appropriate forms for different situations. This technology can be used for internal business processes within a government agency. These services are supported by the e-government solution of mySAP Public Sector. SAP Records Management provides interfaces for these services.

2.10 DISTRIBUTED RECORDS PROCESSING

In some cases, other authorities may have to be included in the workflow, a government-to-government scenario. SAP WebFlow is an extension of SAP Business Workflow on the Internet and supports workflow management between government agencies, simplifying collaboration. It also facilitates the structured transfer of records from one government agency to another. For this purpose, SAP Records Management supports a general data exchange format that contains both the content and the structure of a record. This means that records no longer have to be physically sent. In many cases, records don’t even need to be copied. This also accelerates business processes that span several government agencies.

A problem arises when several persons have to process a document at the same time. In this case, a separate version of the document is created for each recipient. Once processing is complete, these different versions have to be merged to form a new version. This procedure - called versioning - can be used to ensure that processing is completely verified.

3. THE BUSINESS PROCESS WITH SAP RECORDS MANAGEMENT

Administration activities in a government agency can be divided into three steps: inbound processing, workflow management, and outbound processing.

3.1 INBOUND PROCESSING

When a letter, fax, e-mail, or form is received, it is usually handled by a central mail center or by a clerk. The date of receipt is entered on the document and a reference number is assigned. If the correspondence is a reply to a request, the file number assigned previously is also written on the document. Afterward, the document is classified, scanned, and, if necessary, the bar code is decoded. The document can be assigned to a record at this point in the process or at a later stage. During inbound processing, the recipient is also determined according to the business distribution plan, and supported workflow management (the actual business process) is initiated. Inbound processing is supported by SAP Records Management.

3.2 WORKFLOW MANAGEMENT

Processing is generally controlled by rules. Business processes are subject to a variety of internal and external rules. External rules include laws or ordinances that directly or indirectly govern how business processes are processed. External rules can also contain specifications regarding decisions. Internal rules, on the other hand, can be used to further specify and regulate the process. An internal set of rules could be a set of rules of internal procedure, in which the basic distribution of tasks within the organization is set out.

SAP Business Workflow is linked in SAP Records Management for processing business processes. Predefined workflow templates are provided for recurring activities. When you define a process, you specify the individual processing steps according to the rules described above. You also define the responsibilities of individual clerks and appoint project or work groups to process a record jointly. The processes are then assigned resources. SAP Records Management comes with certain workflow templates for important, recurring business activities. You can use these workflows as templates and adapt them to specific situations. Figure 3.2-1 shows how rules and resources interact in a process.

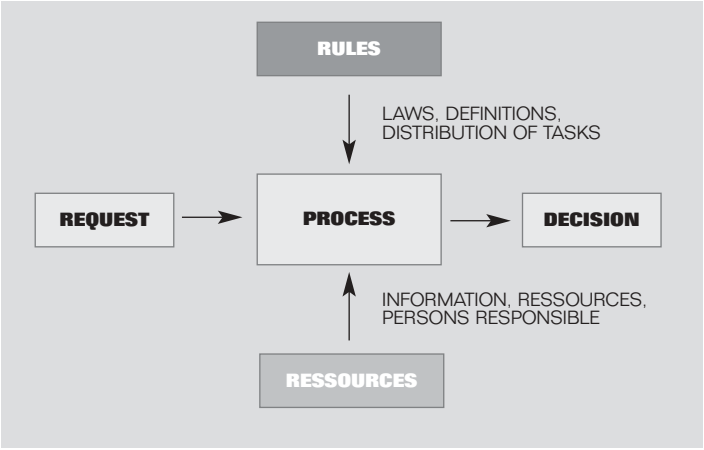

Figure 3.2-1: Elements of a Process

Memos and assignments are usually created during processing. If an assignment was already made in inbound processing, these documents are automatically assigned to this record.

The workflow management system also defines the signature procedure. That means you can specify who has signatory power and in what order, and you can also specify the final signatory. If necessary, you can change the signature procedure on an ad hoc basis. The system maintains a detailed log of the entire signature procedure and of any changes made.

3.3 OUTBOUND PROCESSING

The process finishes with the reply to the initial correspondence. This reply is also stored in the record assigned to the process.

Every record is registered using the filing plan. The filing plan is a systematic and practical means of structuring the entire collection of administration tasks. It forms the general frame-

work for storing all correspondence. Using a strict hierarchical structure, it enables documents and records to be stored systematically across all administrative offices in the public authority. The filing plan can be maintained as part of SAP Records Management. You can also import a filing plan via an interface. This way, electronic standard filing plans can be used for similar administration tasks in local authorities, federal authorities, hospitals, statutory health insurance funds, and so on. These plans set out the basic specifications of how the respective type of administration is stored and merely need to be adapted to the specific requirements of the individual administrative bodies. Using standard filing plans has the advantage that activities managed in the same way can be stored under the same file number, simplifying and rationalizing processing. Standard filing plans also save you the effort of creating your own plan.

4. ENTERPRISE PORTALS

4.1 mySAP ENTERPRISE PORTALS

One of the more notable features of SAP Records Management is that it is particularly easy to use thanks to its integration with mySAP Enterprise Portals, representing the central starting point for all employee activities. From mySAP Enterprise Portals, employees can access everything they need to carry out their daily work. mySAP Enterprise Portals provides quick, simple, and Web-based access to both SAP and non-SAP applications. It can also incorporate links to Internet sites and services so employees can access the information they need quickly and easily. mySAP Enterprise Portals is personalized and role based.

4.2 TRAINING AND ONLINE HELP

SAP Records Management ships with an extensive range of documentation and context-based online help. But to deploy a records management system, end-user training is essential. For this purpose, SAP provides a special range of tools and services. SAP Knowledge Warehouse constitutes a sophisticated knowledge infrastructure for the entire public authority. Using SAP Knowledge Warehouse, you can use SAP Records Management to develop specific training documentation for individual user roles and groups, such as administrators, clerks, filing departments, executives, and mail centers. You can also differentiate between the course documentation, depending on whether it will be used in the classroom or for self-study. Using the iTutor from SAP, you can record important screen activities and combine them with explanations, notes, and slides.

To ascertain your training requirements and to define the user roles you need, SAP training consultants will conduct a series of discussions and workshops with the individual project teams in your implementation project, as well as with representatives from the user departments involved to document the user roles, activities for each role, and the necessary courses. An action catalog for role-based employee training is then created on the basis of the courses collected. Then, SAP consultants develop an individual training plan for all employees, depending on their roles.

5. APPLICATION SCENARIOS

SAP Records Management can be flexibly adapted to users' needs, facilitating a step-by-step transition from a conventional records management system to an electronic correspondence management solution, right through to full digitization of all records. SAP Records Management also supports Internet services.

The following sections describe a series of application scenarios.

5.1 PURE CORRESPONDENCE MANAGEMENT

Suppose that a public agency has an extremely high volume of archived, paper records. Scanning all of the documents in each record would be too time-consuming so only the record management system is digitized. The electronic registry acts as a virtual table of contents for the records. When the authority receives a new item of correspondence, only the metadata is entered in the electronic records management system: the date of receipt, storage location, and other data that simplifies processing. All employees have access to the registry, which means they can view the set of records at any time from their portals and search for records using predefined search criteria.

5.2 APPLICATION PROCESSING

Here's another example. Suppose a citizen submits an application for a housing subsidy to a housing agency. In inbound processing, the document is scanned and assigned to a process that triggers a workflow. A record is created automatically in the background. The system determines the clerk responsible for the housing subsidy and sends it to his electronic inbox for processing. The clerk works in SAP Records Management and enters notes and annotations directly into the record, and all of the information required to process the application is made available online in the system. To reply to the application, the clerk uses a readymade form, which is supplied to the clerk through the record type. Only the inbound and outbound documents exist in paper form. The public agency itself uses only the electronic record.

5.3 APPLICATION PROCESSING OVER THE INTERNET

Now, suppose a citizen submits an application for a housing subsidy to an authority via the Internet. The system checks the data to determine whether it is complete and consistent, thus avoiding any processing delays as a result of queries. The document received by the authority is in electronic form right from the start and does not have to be digitized. The application can then be processed in two ways. First, the application is processed in parallel with SAP Records Management. All of the documents that result from processing the application, including the process itself, are automatically entered into a record. The workflow management system automatically logs the process. Second, when the application is received, it is entered in a record. The application is then processed directly in SAP Records Management.

5.4 DISPLAYING RECORDS

A citizen displays a record documenting a process concerning him on the Internet. He discovers incorrect data (for example, an incorrect address) and reports it immediately.

Another example is an authority that would like to publish tender documentation for the construction of a new roadway. This documentation is available in electronic form, which means that the authority can make it available to the public over the Internet. Companies can view the documentation on the Internet and all citizens can view documentation on planned construction sites.

5.5 APPLICATION INTEGRATION

Incoming invoices are recorded in SAP Financial Accounting. When the invoices are posted, the scanned documents and associated documents are entered directly into a record. The invoices then have to be verified. This procedure can be carried out quickly and effectively because there is no need to search for and copy the documents in question. The invoice documents are also entered in chronological order into an electronic invoice document book (or predefined record type).

5.6 PERSONNEL FILES

Now suppose HR data is managed in the SAP Personnel Administration component. All of the HR data defined as a business object is automatically integrated into the personnel files in the records management system. Changes to HR master data, therefore, only have to be entered into the system once. In addition to the information from the personnel administration system, you can add documents to the personnel file, and these documents are then only available in the records management system. SAP Records Management allows you to structure your personnel files to suit your requirements.

6. DATA SECURITY AND PROTECTION

Data security and protection are essential prerequisites for deploying an electronic records management system. In essence, this means you must account for five crucial elements:

- Authentication: Access to a system must be restricted to only authorized users, and the system must ensure that other users cannot assume their identity to gain access to the system.
- Authorization: Users must be restricted to only those tasks for which they are authorized.
- Integrity: Data cannot be changed unnoticed.
- Confidentiality: Reliability and legal obligations must be ensured.
- Recording and logging: All activities and events must be recorded so that they can be accessed at a later stage.

SAP Records Management provides tight security using all five of these elements.

6.1 AUTHENTICATION

User authentication in SAP Records Management is guaranteed using passwords. Various standard rules are defined for generating and using passwords, but if necessary, you can extend these rules. In addition, the solution supports Secure Network Communications (SNC) because it enables cryptographic procedures and uses smart cards for user authentication.

You can also use SNC to set up a single sign-on environment. In a single sign-on environment, users only have to authenticate themselves once, even if they are working with more than one system. Single sign-on environments require an external security product that provides authentication, data integrity, and data confidentiality services.

Depending on the selected security product, smart cards can be used for authentication. These cards store the user's authentication information and are protected by a personal identification number (PIN). Because the user owns the card and knows the PIN, it is extremely unlikely that the information will be copied or will fall into the wrong hands. With smart card authentication, no password information needs to be transferred across the network. The network connections between distributed components of SAP systems can be protected with SNC.

6.2 AUTHORIZATION

It is important that users can only execute those tasks for which they have authorization. Corporate organizations are typically divided into various roles, and the employees assigned to these roles carry out certain tasks. Access to certain data and processes is only permitted for the relevant roles.

The SAP authorization concept protects against unauthorized access and is implemented in SAP Records Management. All activities involving records and objects in records (for example, documents, business objects, and processes) can only be carried out with access authorizations. Among other things, access authorizations control which records can be read and changed, which can only be read, and which cannot be accessed at all. If you are using mySAP Enterprise Portals, this data is accessed across a secure connection.

6.3 INTEGRITY AND CONFIDENTIALITY

Support for electronic authentication mechanisms and protection of electronic business processes is increasingly important for a variety of applications. This especially applies to transactions handled across public data communication networks.

SAP uses two basic mechanisms to ensure that data has not been modified, that the creator of the data can be uniquely identified, and that the data cannot be accessed by unauthorized parties: digital signatures and digital envelopes. These mechanisms are provided via the digital Secure Store and Forward (SSF) interface to external security products. SSF uses digital signatures and digital envelopes to secure digital data and documents. SAP supports the asymmetric digital signature method. Digital signatures verify the identity of a signatory, as well as the integrity of a signed data package. A digital signature cannot be falsified so it protects the integrity of the data involved. Any changes to the data after the signature has been provided render the digital signature invalid for the modified data. The SSF interface operates using public and private digital keys. The digital key ensures that the data content can only be read by the intended recipient. Digital signatures and envelopes are based on public key technology.

SSF also protects SAP data and documents stored on data carriers. SAP Records Management protects data transferred across unsecured communication channels like the Internet by packing the data and documents into secure formats before they are stored on a data carrier or transferred via unsecured communication channels.

Protecting data and documents with SSF fulfills the following basic security requirements:

- Data integrity (protection from falsification)
- Confidentiality of data (protection from unauthorized reading)
- Sender authentication (protection from impersonation)
- Verification (proof of order placement)

6.4 LOGGING

SAP Records Management logs all access to records, including read access, so you can track who viewed which records and when they viewed them. Records intended for citizens can also be physically stored on a separate server. A version management facility is available for records and other editable documents, which provides a complete history for records and documents. Using this versioning function, the current status of records can be stored and restored if necessary. Individual activities within a business process defined with SAP Business Workflow can be monitored using the associated workflow log.

7. TECHNOLOGY

7.1 ARCHITECTURE

SAP Records Management is based on SAP Web Application Server and features a three-tier, client/server architecture. The architecture consists of three layers: the presentation layer, application layer, and the database layer. All of the benefits and services of SAP Web Application Server are highly scalable. You can also run SAP Records Management on a separate system.

7.1 INTEGRATING EXTERNAL SYSTEMS

You can easily integrate external systems into SAP Records Management. For example, you can control SAP R/3 using cross-system workflows from SAP WebFlow (an extension of SAP Business Workflow for the Internet). And all of the objects that are not stored on the online transaction processing (OLTP) database can be integrated into records. In other words, the solution provides a link to external systems from both a business process and an object perspective. You also have significant flexibility in how you structure the system environment.

7.2 WEB TECHNOLOGY

SAP Records Management uses state-of-the-art Internet languages and protocols. Record types are modeled with eXtensible Markup Language (XML) and generated as an XML schema. Each record is saved as an XML document, which can be converted to an Hypertext Markup Language (HTML) document using an Extensible Stylesheet Language (XSL) style sheet, and then displayed with a conventional browser. XML and HTML are languages that are used to transfer data over the Internet. SAP Records Management uses the more flexible XML language to model and store records.

XML provides several advantages over HTML:

- XML is more extensive than HTML.
- XML supports user-defined data formats.
- XML is easy to use and extremely flexible.

A data exchange format based on XML for storing records provides a generic interface for transferring records. XML-compliant browsers can then display records directly.

In the SAP environment, the common Hypertext Transfer Protocol (HTTP) Internet protocol is used for communication with the Internet.

7.3 SECURITY FOR INTERNET APPLICATIONS

Internet data is usually transferred in plain text so this data must be encrypted to ensure confidentiality. For this purpose, SAP uses Secure Hypertext Transfer Protocol (HTTPS) as an encryption method to provide a secure connection. HTTPS is an extension of HTTP.

7.4 OBJECT ORIENTATION AND FRAMEWORK

SAP Records Management was developed with the object-oriented language ABAP Objects. The component is based on the records management framework, which manages access to the component and instance data of record types and other object classes, as well as access to the individual records and their objects.

7.5 SAP BUSINESS WORKFLOW

SAP Business Workflow is a component of SAP Web Application Server, not SAP Records Managements. SAP Business Workflow is designed to work with SAP Records Management and ships with workflow templates for records. You can also include workflows and their components (work items) as objects in records.

Principal features of SAP Business Workflow include:

- Workflow definition: A workflow can be defined and the task it contains assigned to clerks.
- Workflow templates: Workflow templates shipped by SAP that can be used by customers to create their own workflow definitions and tailor them to their specific requirements.
- Ad hoc functions: A task can be directly forwarded or delegated to a different employee on an ad hoc basis.
- Workflow log: Every step within a workflow is logged so it can be evaluated.
- Workflow Builder: You can modify and adapt the workflows that SAP provides, and you can also define new workflows.
- Workflow tools: These tools support standard scenarios.
- WebFlow: The workflow can run on the Internet.

7.6 EXTERNAL STORAGE SYSTEMS

Documents on external storage systems can be integrated in the records management concept using SAP ArchiveLink. SAP ArchiveLink features a certified interface for storing documents in optical archives so you can link external storage systems to SAP Records Management. These storage systems must be certified for the SAP ArchiveLink interface.

7.7 COMMUNICATION

SAP provides a wide range of communication channels as central components for processing records. SAP uses the Simple Mail Transport Protocol (SMTP) protocol to send e-mail. Groupware tools streamline processing in records management. In addition to central access to the records, options for forming teams, and the substitute function in SAP Business Workflow, a calendar function and address management facility area can also be used.

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