

UNITED STATES OFFICE OF PERSONNEL MANAGEMENT



Knowledge Management System Requirements

Version 1.0

April 2011

a New Day for Federal Service

Revision Sheet

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Roles

1. Role/Name/Address	2. Phone
Project Owner, Open Government Flagship Team	
Project Manager, TBD	
Project Team Member, TBD	
Project Team Member, TBD	
Project Team Member, TBD	

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1.0 Background

The Open Government Memorandum (M-10-06) of December 8, 2009, commonly known as the Open Government Directive, sets an unprecedented standard for a more transparent, participatory, and collaborative form of Government. In response to the Directive, OPM has established a governance structure comprising members of the Executive Board and their respective cross-agency representatives on the Core Team and Component Teams. The Component Teams are composed of members from OPM, academia, nonprofits, other agencies and the union with the purpose of providing information and ideas to the Core Team. The Core Team then synthesizes the information from the Component Teams and makes recommendations on implementing Open Government at OPM. All of the teams are developing and implementing actions to ensure accountability and a culture that supports the sustainability of transparency, participation and collaboration at OPM.

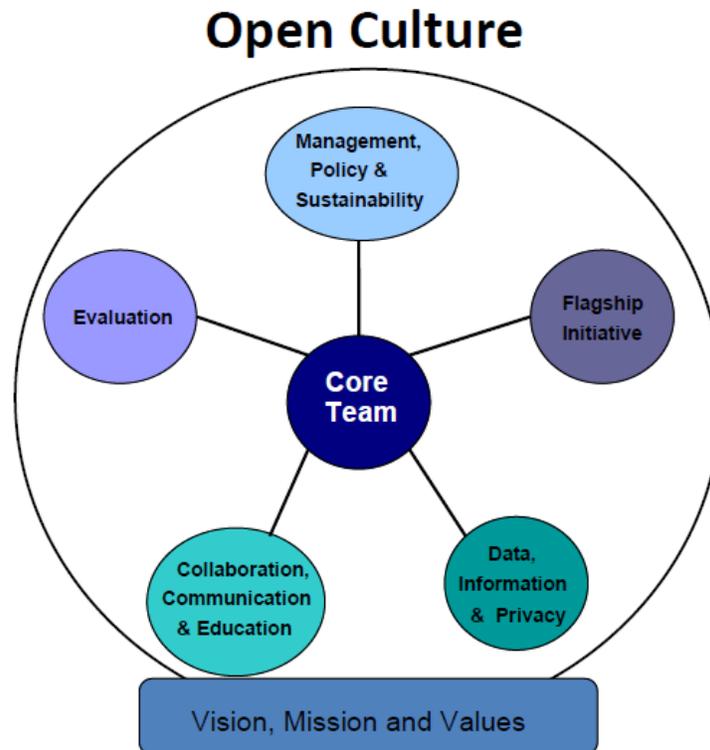


Figure 1: Governance Structure

Specifically, the Knowledge Management System (KMS) is a product from the Flagship Initiative Team that was charged with the following:

Flagship Initiative – Knowledge Management and Collaboration Tools – will provide easy access to and sharing of agency information (data, policies, procedures, processes, and training) for internal and external stakeholders alike, wherever they may be working. Thus, collaborative learning within and outside of OPM will be ongoing.

2.0 How the Requirements Were Developed

The Flagship Team started the process by requesting requirements documents for the existing systems in OPM such as the DMS, the Learning Connect program, Serena Business Mashup applications, and the SharePoint pilot project. The requirements documents were analyzed to determine what requirements were common to all systems and to develop requirements for the KMS to ensure that it integrates all of the existing systems if applicable.

3.0 Overview of the Knowledge Management System

This document sets out the requirements for the KMS. We propose redesigning Theo (OPM's intranet) to serve as a portal for the tools that will provide various knowledge management and collaboration tools. OPM has several existing knowledge management tools such as Drupal, Moodle, Serena Business Mashups. Currently these tools are limited to small groups within OPM. Each of these tools has useful features for some knowledge management activities but no single tool can fulfill all of the required knowledge management features. Thus, we suggest a federated approach in which a redesigned Theo will serve as a common entry point to various knowledge management solutions.

The federated approach works much like smartphones and apps. Each knowledge management application (current or future) will provide a user-friendly interface accessible through the common platform of Theo 2.0 (or, with some apps, integrated into current desktop applications such as Microsoft Word). The knowledge management apps (KMA) will also share their data with other applications so that existing data sources such as EHRI can be leveraged across several applications so as to prevent data redundancy and input errors. How a specific KMA works internally can be different from other KMAs but how the KMA shares data and provides the user experience will be similar to other KMAs. This streamlines the learning curve and allows for more effective integration with OPM's IT environment.

Another advantage of the KMAs is that users can customize their view of Theo 2.0 so that they can choose the KMAs that they use. This will increase their productivity as the user can better integrate what they need in their particular work processes. Each of the sections below briefly describes the various core components of Theo 2.0 that will be provided to all users:

FAQs - OPM established interactive FAQs in 2010 which have proven to be successful with the public. We want to expand the use of the FAQs so that they can better serve as an internal knowledge resource and provide better stakeholder engagement.

Enhanced Directory - Along with OPM's FAQs we currently have an organizational directory available on OPM's public web site. There are plans to enhance the directory of functional points of contact and connect it with the organizational directory. This will also be available internally.

Document Management / Records Management - The current document management system is the DMS which is a stand-alone system. The plan is to replace the existing DMS with a solution that will integrate into the document creation workflow. For example, a user will create a Word document and then use the new document management system to automatically tag and route the document through the appropriate workflow. At the same time, the document will be stored in an approved area with an organizationally-approved common naming convention and automatically managed in accordance with OPM's Records Schedule.

Learning Connection - Learning Connection was introduced in 2011 as an agency-wide training platform. It is currently available through Theo. In Theo 2.0 Learning Connection will be expanded to support the training necessary to support the **communities of practice (COPs)** in becoming collaborative and using Action Learning.

IdeaFactory - IdeaFactory was introduced in 2011 and will be available through Theo 2.0. Some COPs will be formed to collaborate around the more complex ideas introduced through IdeaFactory.

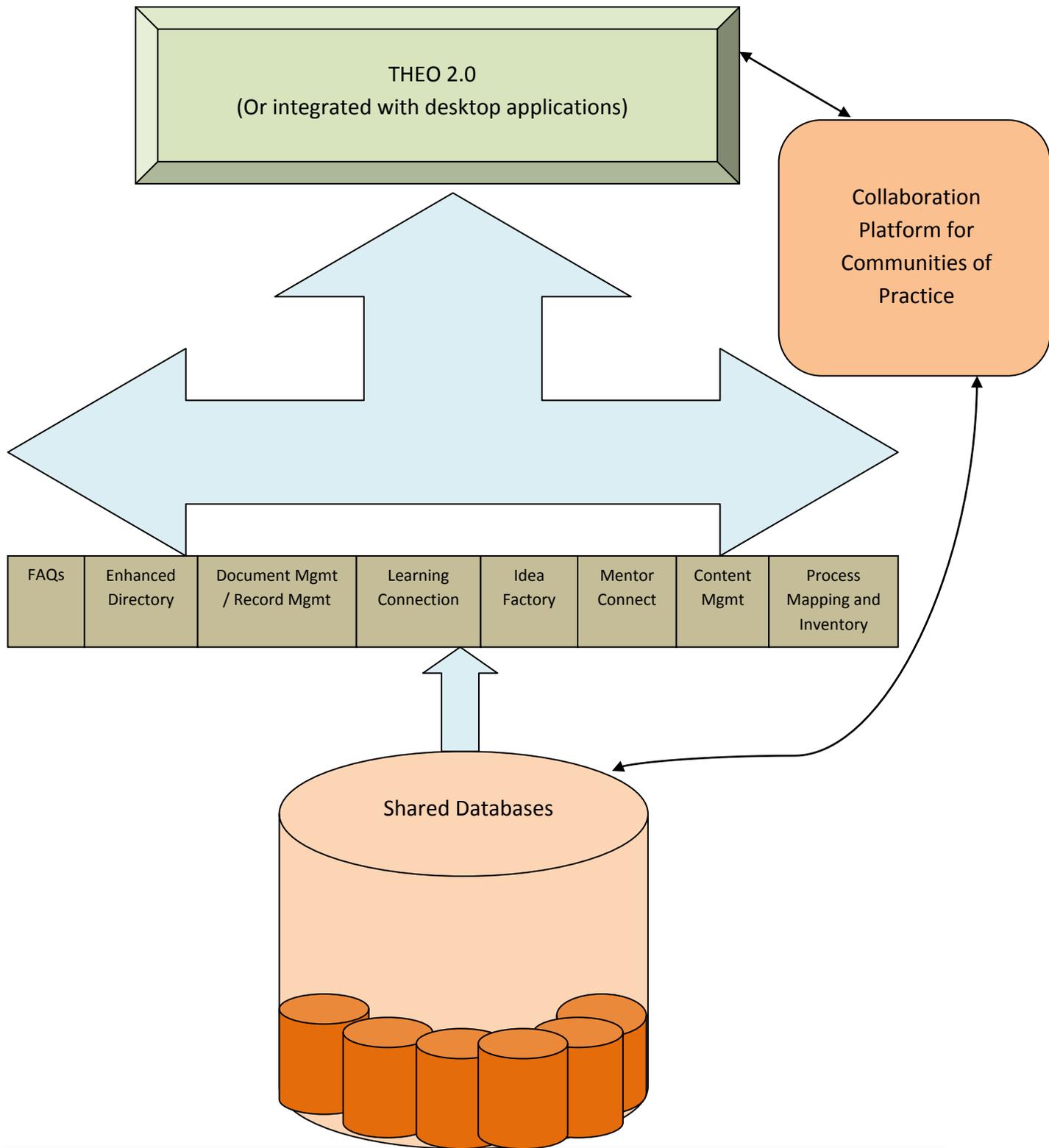
Mentor Connect - Mentor Connect is a planned tool to support OPM's mentoring program. The requirements have yet to be specified but preliminary discussions have called for a tool that allows for matching mentors and mentees based on career interests and managing the administrative details for mentoring interactions. There will also be features that will support online mentoring from mentors external to OPM.

Content Management - The current practice of posting to OPM's public web site is a long and involved process that requires numerous interactions. In Theo 2.0 we will automate the process of publishing to the public web site so that program offices can be more responsive in engaging with external stakeholders. The content management system will be accessible through Theo 2.0.

Process Mapping and Inventory - Theo 2.0 will support performance management efforts by providing a centralized repository where program offices can document their various business processes. We will have COPs that will discover, inventory, and record the business processes for discovering best practices and providing transparency on OPM's business practices.

Collaboration Platform for COPs - A major component of Theo 2.0 will be as an online collaboration platform for OPM's COPs. The tool will allow the COPs to maintain their documents, rosters, and lessons learned. The collaboration platform will also offer online synchronous meetings, discussions boards, blogs, and a wiki to contain the body of knowledge created by the COP. Theo 2.0's COPs collaboration platform will support internal and external COPs.

4.0 System Diagram



5.0 Assumptions

Knowledge Management System Project Assumptions

- 1 This requirements document captures the requirements associated with the KMS Project.
- 2 The programming expertise and technological resources are readily available for this project.
- 3 A Learning and Knowledge Sharing Strategy for OPM is in effect.
- 4 Effective controls will be in place to prevent disclosure of PII and to safeguard the security of OPM personnel.
- 5 Ongoing process to evaluate suitable future technology for integration into KMS.
- 6 The KMS will pass approval by Security.
- 7 All or most of the KMS will be cloud-based.
- 8 OPM employees will be trained on effective collaboration and working with externals in communities of practice.

6.0 Requirements

6.1 Platform Requirements:

1. All or most of the KMS will be based in an approved cloud environment.
2. Software as a service hosted delivery model that is interoperable with other modules/applications.
3. System shall be web-based, conform to OPM's IT Enterprise Architecture Vision, use OPM's standards for the shared databases and web servers, support distributed processing, reside on an Intel platform, operate in a MS Windows environment, support OPM's approved applications, support VPN, server-based fax pool, data encryption/PKI, Assistive Technology, interface with MS Outlook/Exchange, and common file formats.
4. System shall integrate with different functional applications such as document management, correspondence tracking, reporting tools, documenting imaging, knowledge

- management, IVR systems, executive dashboard, OCPL's web publishing platform, and electronic forms.
5. System shall support e-authentication/e-signature technology according to Federal security regulations.
 6. System shall support automated notifications regarding unavailability and availability.
 7. System can be easily upgraded.
 8. System will follow OPM Business Continuity Policies.
 9. System can support expected increase in annual growth and a TBD number of users in different geographic locations.
 10. System shall have a correspondence tracking system including logging, tracking, time-stamping, notification, reporting, close-out, and routing based on business rules, workflow, and prioritizing.
 11. System shall have an answering request system that is secure, provides tracking, supports e-authorization/e-signature, and workflow management.
 12. Twenty-four hour help desk support such as a wiki.
 13. Feeds into HRIS/ERP systems.
 14. ADA Section 508 compliant.
 15. System is modular with ability to deploy and activate/deactivate functionality.
 16. Plug-In Installation Center.
 17. Fully integrated live web casting, live chat, and virtual meeting capabilities along with WebEx events.
 18. All system actions shall be date/time stamped and tracked.
 19. System actions are to be stored in a secured database, searchable, and can trigger alerts.
 20. Records of system actions cannot be deleted.
 21. Whenever appropriate, system will use look-up lists to streamline routine operations.
 22. Dashboard reporting and analytics.
 23. Automated reminder system by email.
 24. Integration with Outlook.
 25. System can prioritize requests, projects, documents, and electronic communications.
 26. System can deliver alerts and documents through email clients including OPM standard handhelds.
 27. System shall support inquiry management with integration to an OPM Customer Relationship Management tool.

6.2 User Requirements:

1. User-configurable home page.
2. Role-based login capabilities that provides encryption and lost password recovery.
3. Single sign-on to all parts of the KMS.
4. Authorized users can create, edit, and delete email or in-system alerts that are automatically triggered by an event or date.
5. Only authorized users can view system actions.

6. The system shall have a new user's tutorial.
7. System shall provide standard navigation aids with the ability for users to skip through repetitive or unnecessary navigation.
8. The system will have interactive on-line help that tells the user how to use the program and knowledge-management related information with access to constantly updated online user manuals.
9. On-demand ability to fax requested documents to an authorized user's workstation.
10. The system will allow for collaboration with external users.

6.3 Administrative Requirements:

1. Built-in Administrative Task wizards.
2. Ability to manage look-and-feel of entire site along with branding. Ability can be automated via business rules.
3. User administrator can create new user(s), configure permissions/roles, edit profiles, enroll users in courses, create user groups/domains, and search for users.
4. Real-time reporting on demand that appear in application and can be printed without having to be exported.
5. Standard reports and wizard-driven ability to create custom reports that can be exported to xls, csv, doc, rtf, pdf, etc.).
6. Report is filterable by domain and user groups with the ability to drill down.
7. New reports can be created, saved, and shared.
8. Administrator can mass-distribute notifications, edit content of notifications, notify specific users, manage notification events, and determine who receives what notifications.
9. Alerts can be customized by user or group level and can be sent to multiple users.
10. Variety of alert messages depending on urgency.
11. Alerts can be saved for re-use and can be stratified or sent as digests to avoid email box clutter.
12. Alerts can be protected from user modification.
13. Administrator can customize error messages.

6.4 Search Requirements:

1. Searches can be saved, modified, deleted, and shared.
2. Ability to search within a search.
3. Searches can be by full-text, keywords, and metatags.
4. The ability to search different file types (.doc, .xls, .mdb, etc.), scanned files (PDFs), and text within graphics.
5. Searches can be by index, Boolean (simple and multiple), wild card, near spell, proximity, synonyms, exact phrase, and exclusion of terms.
6. Search terms will be highlighted in the document or web page.
7. Search can be canceled at any time.

8. Search results can provide a list of hits along document object histories, progress through workflow routes, summaries of documents, or profile data of documents.
9. Searches can be limited by time frame.
10. List of most often requested results for a specified search term.
11. Searches can be exported into common document formats (.doc, .xls, .pdf, etc.).

6.5 Document Management Requirements:

1. Document management is available for documents in different file formats and scanned documents.
2. The system shall have a library of standard documents and templates, version control, document storage, and ability to create customized documents or sort documents based on a FOIA request.
3. The system shall use agency naming conventions, can link documents, support meta-tagging/profiling of documents, annotation of documents, package documents of different file-types together, and previewing of files in HTML format.
4. System shall allow protection of documents as “permanent” and allow for auto-population of document/profile fields from correspondence system.
5. Documents will have their own audit trail system with alerts and notifications when actions are taken with the documents.
6. System shall be able to capture documents in various sizes and thicknesses and convert these captured documents to PDFs while also allowing for Optical Character Recognition (OCR).
7. System shall be able to modify and redact sections of scanned documents.
8. The system shall offer an ability to manage and respond to Freedom of Information Act requests.
9. The ability to freeze destruction automation for emails and documents relevant to an impending e-Discovery request.
10. The ability to forward documents to the National Archives and Records Administration electronically.
11. The ability to track retention periods for documents
12. Ability to route documents through workflow for approvals/electronic signatures

6.6 Learning Management System Requirements:

1. Able to assign learning activities to an entire domain and have LCMS functionality.
2. Integrated analytics tools, Product Library, performance/talent management tools, virtual meeting/classroom tools, and link to other training sites and resources.
3. Calendar for instructor led courses.
4. Integrate EHRI and provide support for Certifying Official Approver.
5. Develop a workflow that automates the approval process for the learner and provides ability for administrators to handle approval proposal.

6. Learners can create account without approval, change user name, access eHelp, toggle between role types, create/edit individual learning plan, modify calendar view, and view dashboard data.
7. Filter views based on learning plan.
8. SCORM and AICC compliant.
9. Ability to upload thousands of SCORM, AICC, or non-compliant courses without vendor assistance.
10. Administrator can mark course complete for learner, manage course properties, set course access by date, manage gradebook, assign instructors to courses/sessions, disable a course, assign resources, manage waitlist, set/waive course prerequisites, request/reserve rooms and equipment, edit/manage learning plans, certification/CEU tracking and test administration.
11. Learners can self-register and unregister for courses.
12. E-commerce support (with Verisign) for purchase of course(s).
13. Online access to supplemental materials.
14. Leadership and Development Program Tracking, Competency Management, Performance Management, and Informal Learning.
15. Individual portfolio storage in LMS
16. Reporting of mandatory courses attendance.

6.7 Content Management System Requirements:

1. The CMS shall allow user creation of online groups to support communities of practice.
2. The CMS will support asynchronous discussion boards, synchronous chat sessions, document repository, RSS feeds, Twitter feeds, and notification of new system activities.
3. Users can be a member of multiple CMS groups.
4. Groups can install and activate OPM-approved modules to extend their specific online groups.

6.8 Data Management Requirements:

1. Consistent data entry formats (including pop-up calendar for dates), data validation, ability to cut and paste into data fields.
2. System shall allow definition of custom fields including calculated fields with customizable error messages.
3. Validating messages for deletion.
4. Fields can be locked for read-only views.
5. All electronic data shall be kept under conditions to prevent degradation, periodically spot-checked for data integrity, comply with OPM's Record Management policies, and have a back-up in an off-site facility.
6. Personal retirement documentation must be available in hard copy up to 100 years after person is deceased.
7. Ability to exempt specific documents from regular scheduled destruction date.

8. All electronic documents shall be immediately available and metatags shall be updated at least yearly by document owners.
9. Data security shall comply with all OPM and Federal security regulations.
10. Data access will be by group or user-based roles and follow OPM guidance on passwords.
11. Security access can be customized by metadata, document, database column, and/or database row to allow read, edit, or delete functions.
12. Data can be accessed securely from off-site and will apply to any information exchanged between systems and based on workflow.
13. The KMS will provide an interface for data sharing with other government agencies.

6.9 Knowledge Management Requirements:

1. System shall store explicit knowledge and allow for self-service searches of a knowledge repository.
2. System shall support a cross-agency lessons learned repository.
3. System shall support a cross-agency process mapping tool and repository.
4. System shall have a searchable audio and video library devoted to capturing tacit knowledge.
5. System will record and display who posted what content and on what date/time.
6. Ability to track versions of content submissions.
7. Ability to roll-back to previous content submissions.

7.0 Additional Requirements for Electronic Document and Records Management System

Currently OPM is using a document management system (DMS) to vet and store electronic and/or images of paper documents to keep track of the different versions created by different users (history tracking) through creating a final version that is then approved by the necessary parties. It is not being used as an electronic recordkeeping system. The terms have some overlap with the concepts of content management systems but a DMS is often viewed only as a single component of enterprise content management within an electronic recordkeeping system.

OPM is seeking to acquire an Electronic Document and Records Management System (EDRM) that will be used to manage all records regardless of format and location, over the entire record's lifecycle. The primary recordkeeping functions will include categorizing, locating, identifying and controlling record disposition requirements, including e-discovery and management of the storage, retrieval, and disposition of the records; regardless of the repository. This type of software includes the capabilities of both integrated document management and electronic

recordkeeping. ERM systems commonly provide specialized security and auditing functionality tailored to the needs of records managers. Controlling the lifecycle of all records requires knowledge of the retention assigned to the record or its components, a required element that the DMS does not recognize. In RM it is important to distinguish the difference between an “electronic document management system” and an “electronic recordkeeping system.” An example of an electronic document management system is the DMS and OPM's "Team Track" used by FOIA to store, share and track information processing ; whereas, an electronic recordkeeping system is designed to not only manage documents, it also manages e-mail reception, metadata and records creation, identification, storage, accessibility, and integrity of all records, but also the disposition of that information through an electronically integrated records retention schedule and electronic tagging mechanism. Many products claim to perform electronic records management or integrated document management, but they are not true electronic recordkeeping systems unless they meet DoD 5015.2 specifications for electronic records management software.

8.0 Additional Requirements for Business Analytics and Business Intelligence

A major function of the KMS will be the ability to analyze and visualize the data that OPM has in various databases, shared drives, and proprietary systems. We have many data systems throughout OPM that currently do not share information and thus we are not realizing the benefits of tying together disparate data sources to make better-informed decisions. The first step is to virtually tie databases together through XML feeds so that we can cut down on data redundancy.

The second step is to integrate business analytic tools into the KMS. We have several business analytic tools in the agency that we are not currently using to their full potential. For example, Microsoft Excel 2007 has a robust set of data analysis and dashboard creation tools that can be used for real-time reporting and decision support. Several program offices have SAS that can be extended for more effective data mining while other offices possess ArcGIS that can be effective geographic analysis of personnel policies.

Once the KMS is implemented and begins to grow, it will produce more data from the various applications and information from the COPs. The KMS needs to be scalable which is why we advocate a cloud-based platform. We also need to plan for future “Big Data” analysis tools and

support tools when the accumulated data reaches a certain size. We will also have to consider the impact of providing APIs and XML feeds on the KMS because these will also impact KMS performance.

9.0 Additional Requirements for Migrating Retirement Portal

Using RoboHelp, Retirement Services has created an HTML/Javascript portal for their shared drive. A separate migration plan should be developed so that all of the content and functionality of the Retirement Services portal is transferred to an application in Theo 2. In addition, an analysis should be performed to determine whether to keep Retirement Systems existing phpKB application or migrate it to another application in Theo 2.

10.0 Funding

The cost benefits of the federated approach is that we leverage the existing systems we have now while providing for an effective way of integrating current disparate systems and future knowledge management applications. We will also realize savings because sharing between databases means fewer database systems to manage and the prevention of data errors due to maintaining redundant data systems. The KMS will be funded from the Common Services budget.

11.0 Implementation Plan

The implementation of the KMS functionality is the responsibility of the Open Government Team and the OCIO (with assistance from OCPL). Each Associate Director and Office Head for the organizations listed below is responsible for providing a POC to monitor and coordinate the content provided to the various components of the KMS.

12.0 Points of Contact (POCs)

The setup and maintenance of the KMS functionality becomes the responsibility of all organizations within OPM under the guidelines established by the Open Government Team with the OCIO providing ongoing administrative supervision. The names of POCs for each organization responsible for monitoring, coordinating and updating the database will be provided by Associate Directors (ADs) and Office Heads for the organizations listed below:

- Healthcare and Insurance
- Communications and Public Liaison
- Congressional and Legislative Affairs
- Office of the General Counsel
- Executive Secretariat and Ombudsman
- Planning and Policy Analysis
- Chief Financial Officer
- Chief Information Officer
- Employee Services
- Equal Employment Opportunity
- Facilities, Security and Contracting
- Federal Investigative Services
- HR Solutions
- Internal Oversight and Compliance
- Merit System Audit and Compliance
- Office of the Inspector General
- Retirement Services

Appendix: Existing Systems That Should Be Integrated Into The KMS

- DMS
- Serena Business Mashups
- Learning Connection
- IdeaFactory
- CBIS Reports
- CPDF and EHRI
- FAQs



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