GPO'S FUTURE DIGITAL SYSTEM:

SYSTEM RELEASES AND CAPABILITIES
VERSION 2.1

AN FDSYS REFERENCE DOCUMENT

JANUARY 19, 2006

Document Change/Configuration Control Sheet

Date	Filename/version #	Author	Revision Description
8/24/2005	*Releases and Capabilities, version 1.0*	FDsys team	First Draft for P&S review
8/30/2005	*Releases and Capabilities, version 1.1*	Gil Baldwin	Version with matrix corrections
9/9/2005	*Releases and Capabilities, version 2.0*	Mike Wash	Added Change / Configuration Chart
9/28/2005	*Releases and Capabilities, version 2.0*	Lisa LaPlant	Changed Version Control per Comments from the Team Review of the Draft Version Control Specification.
1/19/2006	*Releases and Capabilities, version 2.1*	Group Revision	Update Release 0 date, moved Style Tools to Content Submission

Contents

FDsys System Releases and Capabilities

Executive Overview

GPO is responsible for the preservation and dissemination of information products generated by the entire Federal government, including current, legacy and future products in all conceivable formats.

GPO's Future Digital System (FDsys) will provide a comprehensive, systematic and dynamic means for preserving electronic content free from dependence on specific hardware and/or software. The system should automate many of the electronic content lifecycle processes and make it easier to deliver electronic content in formats suited to customers' needs.

Standing up the FDsys is a complex system integration task, which will be rolled out in a series of releases. Each release includes improvements to both system capability and underlying infrastructure, and is built incrementally on those preceding it, until the full range of capabilities is implemented.
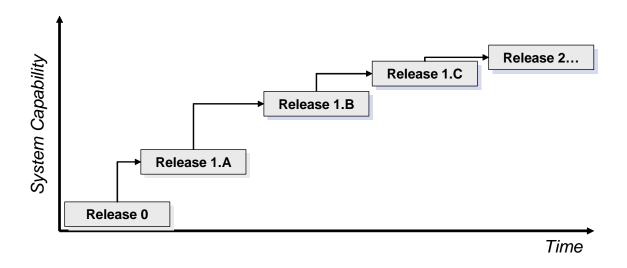
In this document, the FDsys releases are presented at a high level. The planned release schedule begins with Release 0 (zero) in early 2006, intended to support content submitted by Digital Conversion Services; Releases 1.A, 1.B and 1.C to deliver the basic functionality by late 2007, and Releases 2 and 3 to deliver enhancements continue through 2008

The document breaks down the functionality and infrastructure descriptions into six clusters. Each cluster is described and then detailed by release.

Additional supporting detail is available in:

- *GPO Concept of Operations for the Future Digital System (ConOps v2.0)*, Final, May 16, 2005.
- *Requirements Document for the Future Digital System (RD v1.0)*, Final, May 16, 2005.

FDsys Schedule of Releases

Release 0 - Target Date April 2006
> Supporting Digital Conversion Services for *GPO Access*

Release 1.A - Target Date July 2006
> Content Submission and Basic Infrastructure

Release 1.B – Target Date January 2007
> Access and Content Delivery Enabled

Release 1.C - Target Date July 2007
> Basic Functionality Completed

Release 2 - Target Date January 2008
> Enhanced Capabilities

Release 3 – Target Date July 2008
> Enhanced Access Tools

FDsys Clusters Overview

Features and Functionality

   I. Content Submission
- A. Deposited Content
- B. Harvested Content
- C. Converted Content
- D. Style Tools
- E. Content Originator Ordering

  II. Content Processing
- A. Unique ID
- B. Persistent Name (Handles)
- C. Authentication
- D. Version Control
- E. Data Mining

 III. Content Access
- A. Search
- B. Cataloging/Reference Tools
- C. Request
- D. Interface
- E. User Support

 IV. Content Delivery
- A. Hard Copy
- B. Digital Media
- C. Electronic Presentation

  V. Content Preservation

System Infrastructure

 VI. System Infrastructure
- A. Workflow
- B. Security
- C. Storage
- D. Enterprise Service Bus

Capabilities, Functions, & Features by Release (through Release 2)

		Release 0	Release 1A	Release 1B	Release 1C	Release 2
		April 2006	July 2006	January 2007	July 2007	January 2008
		Supporting Digital Content Services for *GPO Access*	**Content Submission & Basic Infrastructure**	**Access & Content Delivery Enabled**	**Complete Basic Functions**	**Enhanced Capabilities**
I. Content Subm.	**A. Deposited Content**		Ingest capability, package creation			Custom composition
	B. Harvested Content		Ingest capability, package creation	Harvester	Enhanced harvester	Collect integrity marks
	C. Converted Content	Accept CCPs - create *GPO Access* Packages	Ingest capability, package creation			Process encrypted files
	D. Style Tools		Initial functionality (Microcomp replacement)	Additional functionality	Additional functionality	Enhanced collaboration tools
	E. Content Originator Ordering	(Existing legacy systems)			Basic Functionality	Enhanced capabilities
II. Content Processing	**A. Unique Identifier**	Assign for CCP & jobs	Assign & manage for all content		Unique ID for content ordering	
	B. Persistent Name	Assign to *GPO Access* Packages	Assign & manage for all content			
	C. Authentication	Authenticate PDFs	Validate & manage			
	D. Version Control	Accept & transfer version information	Auto detection / trigger			Enable rejection of duplicate content
	E. Data Mining		Support security and admin functions		Basic functionality	Customized reports

Capabilities, Functions, & Features by Release (through Release 2) – cont.

		Release 0	Release 1A	Release 1B	Release 1C	Release 2
		April 2006	July 2006	January 2007	July 2007	January 2008
		Supporting Digital Content Services for *GPO Access*	**Content Submission & Basic Infrastructure**	**Access & Content Delivery Enabled**	**Complete Basic Functions**	**Enhanced Capabilities**
III. Content Access	**A. Search**	*GPO Access* search functionality		Basic functionality	Enhanced search features	Customizable access tools
	B. Cataloging & Reference Tools	Full cataloging (ILS) functionality	Determine and record relationships	Generate reference tools from metadata.	Customize reference tools	
	C. Request	*GPO Access* functionality		Basic functionality	End user ordering	
	D. Interface	*GPO Access* functionality	UI for all functions of this release	UI for all functions of this release	UI for all functions of this release	UI with customization
	E. User Support	ID contact center	US for all functions of this release	US for all functions of this release	US for all functions of this release	Interactive US
IV. Content Delivery	**A. Hard Copy**			Basic functionality	Enhanced functionality	
	B. Digital Media			Basic functionality	Enhanced functionality	
	C. Electronic Presentation	*GPO Access* Package / Sec. 508 compliant		Basic functionality	Enhanced functionality	
V. Content Preserv.			Preservation storage (repository environment)		Preservation processes	

Capabilities, Functions, & Features by Release (through Release 2) – cont.

		Release 0	Release 1A	Release 1B	Release 1C	Release 2
		April 2006	July 2006	January 2007	July 2007	January 2008
		Supporting Digital Content Services for *GPO Access*	**Content Submission & Basic Infrastructure**	**Access & Content Delivery Enabled**	**Complete Basic Functions**	**Enhanced Capabilities**
VI. Sys Infrastructure	**A. Workflow**		Workflow to support functionality in this release	Workflow to support functionality in this release	Workflow to support functionality in this release	TBD
	B. Security		Security to support functionality in this release; infrastructure security	Security for delivered content	Ordering, item into financial and inventory system (Oracle)	TBD
	C. Storage	Store CCPs; WIP storage for *GPO Access* Packages	Supporting WIP, ingest, ACP, AIP, logging	DIP storage; records management for temporary stores	Data mining	TBD
	D. Enterprise Service Bus	Metadata repository and transformation	Application integration; integration of ILS	Continued application integration	Integrate Oracle for financial and inventory management	TBD

Cluster 1: Content Submission

Digital content in the Future Digital System will come from three sources: legacy content converted to digital form (digitized), digital content harvested from the World Wide Web, and born digital content pushed to GPO (deposited) by its originator. While the last of these, deposited content, will eventually be the predominant source, the harvested and converted content will be significant in the early life of the system, and will continue to play a role into the near future.

Deposited content is defined as content intentionally submitted to GPO by Content Originators. The SIP for deposited content will include the digital object received from the Content Originator as well as corresponding customer processing requirements and additional metadata.

Harvested content is content within the scope of dissemination programs that is gathered from Federal agency Web sites. Discovery, assessment, and harvesting tools will be used to create a SIP.

Converted content is digital content created from a tangible product. GPO will continue to work with various user communities on digitizing a comprehensive collection of legacy materials. This digital collection will be made available in the public domain for permanent public access through GPO's dissemination programs.

Style Tools will be a tool or suite of tools that allows content creators to easily create and manage their content so that GPO can readily ingest the content into the FDsys. The purpose of a style tool is to allow GPO to move further upstream in the publishing process - closer to content creators and the content the FDsys needs. This will allow GPO to capture more content, thus minimizing fugitive documents.

Content Originator (CO) Ordering provides a system interface for Content Originators to submit content, order and re-order content, and specify Content Delivery and other service options. CO Ordering should allow Content Originators and GPO Users to discover the cost of content delivery, choose delivery options, request delivery, and discover payment/billing status for delivery of content when applicable.

		Release 0	Release 1.A	Release 1.B	Release 1.C	Release 2
I. Content Submission	A. Deposited Content		●			●
	B. Harvested Content		●	●	●	●
	C. Converted Content	●	●			●
	D. Style Tools		●	●	●	●
	E. Content Originator Ordering				●	●

Deposited Content

Release 0

- None in this release

Release 1.A

- All deposited content will be accepted by the system
- All deposited content will be assigned a unique identifier
- Deposited content will be checked for integrity and completeness
- Excepted files (those with encryption/usage restrictions) will be identified by the system
- Deposited content files will have basic descriptive, structural, and administrative metadata upon submission
- Deposited files and metadata will be stored upon submission

Release 1.B
- None in this release

Release 1.C
- Deposited Content to be sent through style tools before ingest, allowing use of a template to assist content providers in pulling together information for a publication.

Release 2
- Encrypted files may be processed through an alternate workflow
- Deposited Content originators will be notified when content has been received for submission

Release 3
- None in this release

Harvested Content

Release 0

- None in this release

Release 1.A

- The ability to accept all content and metadata delivered by the harvesting function into WIP (Work-in-Process) Storage
- The ability to create a Submission Information Package from the harvested content and metadata
- The ability to discern whether harvested content or metadata needs to be ingested (e.g., is it already in the system?)

Release 1.B
- Capability to discover, assess, characterize, and collect content and available

metadata from Federal agency Web sites that fall within the scope of GPO dissemination programs.
- Capability to determine if the discovered content is within the scope of GPO dissemination programs.
- The ability to locate and collect all file types that may reside on Content Originator Web sites
- Capability to collect content in the exact form that the content was resident on the agency Web site.
- Capability to accept and apply rules and instructions that will be used to assess whether discovered content is within the scope of GPO dissemination programs
- Capability to provide quality control functions to test accuracy/precision of rule application and to incorporate results into rule creation/refinement.
- Capability to produce reports on harvesting activities

Release 1.C

- The ability to harvest deep Web information within, on, or behind query-based databases, agency content management systems, dynamically generated Web pages, FTP servers, proxy servers, firewalls.

Release 2

- The harvester shall have the ability to collect integrity marks associated with content as it is being harvested.

Release 3
- None in this release

Converted Content

Release 0
- The system must accept Converted Content Packages (CCPs) from all sources.
- The system must create *GPO Access* Packages following the *GPO Access* specification for direct accessibility on *GPO Access*.

Release 1.A
- The capability to accept digital content created by conversion processes (e.g., scanning, text encoding).
- The capability to check provided digital files (e.g., Virus Check, checksum) prior to ingest
- The capability to accept version information and integrity marks from converted content
- The capability to accept files that contain all agency processing information with the converted content, including billing information, jacket number, agency reference information, etc.

- The to record basic descriptive, structural, and administrative metadata
- The ability to convert tangible titles that have rights limitations, if they are in scope for GPO dissemination programs
- The ability to ingest content packages from Release 0 stores for use in subsequent releases of the Future Digital System

Release 1.B-C
- None in this release

Release 2
- The ability to process encrypted files through an alternate workflow to obtain key information to allow the file to be opened.
- The ability to provide notification to the submission agency/authority that the content has been received.

Release 3
- None in this release

Style Tools

Release 1.A
- Provide both the ability to accept content from alternate sources and create content in stand alone and collaborative processes.
- Incoming digital objects must be assigned unique IDs.
- Pre-defined templates or other aesthetic driven tools will compose content as desired by the content originator.
- The content will be presented visually for inspection (e.g., proofs) through hard and soft copy displays with approval rights granted as appropriate.
- Once the content is finalized and approved, Style tools will pass a valid content package to the system.

Releases 1.B – 1.C
- Subsequent releases will build on and enhance the core capabilities from release 1.A. These include adding enhanced graphic editing and creation capabilities, artificial intelligence based composition tools and other customer based tools for making content creation more efficient.

Content Originator Ordering

Major CO Ordering functionality will:
- Provide Content Originators with a direct interface to the system.
- Allow Content Originators to order and reorder content.

- Capture all agency processing requirements (e.g., the system must capture all relevant metadata the Content Originator supplies).
- Provide the cost of content delivery based on Content Originator order information.
- Allow GPO Service Specialists to augment Content Originator orders and job specifications (e.g., riders).
- Allow Content Originators to specify options (e.g., output media, quantities, specifications, other preferences) for delivery of content (hard copy, electronic presentation, and digital media).

Release 0
- CO orders for converted content are handled using existing systems.

Release 1.A-B
- None in this release

Release 1.C
- Most CO Ordering functions roll out in this release.

Release 2
- The system shall provide the capability for Content Originators to select from GPO's approved external Service Providers.
- The system shall provide response back to an order request within a timeframe established by GPO business units responsive to C.O. need.
- The system shall provide C.O. specific static and dynamic summary reports for various components of the system including Service Provider performance, Content Originator activity, response times, product types, dollar values/totals, number of jobs awarded to individual Service Providers.

Release 3
- None in this release

Cluster 2: Content Processing

The Content Processing cluster includes five functions: Unique Identifiers, Persistent Name, Authentication, Version Control, and Data Mining.

Unique Identifiers are character strings that uniquely identify all content within FDsys throughout the content lifecycle. The Unique ID will be assigned once and will be indefinitely linked to the corresponding content.

Persistent Name provides for the identification of each digital object independent of its location. It will provide permanence of identification, resolution of location, and be globally registered, valid, and unique.

Authentication will assure customers that the information made available by GPO through the Future Digital System is authentic and/or official. There is a need for information that is reliable because it is from a trusted source, and a need to ensure the protection of data against unauthorized modification or substitution of information.

Version Control will evaluate and establish the version of a piece of content and subsequently track it through its entire life cycle. Version control will be called upon to analyze Content Packages and assign the appropriate version, consistent with requirements for version triggers and chain of custody. The chain of custody will be reflected in the metadata.

Data Mining is associated with finding, aggregating, and associating business process information through the analysis of collections of data.

		Release 0	Release 1A	Release 1B	Release 1C	Release 2
II. Content Processing	A. Unique Identifier	●	●		●	
	B. Persistent Name		●			
	C. Authentication	●	●			
	D. Version Control	●	●	●		
	E. Data Mining		●		●	●

Unique Identifiers

Release 0
- Assign unique ID for converted content

Release 1.A

- Unique ID functions will assign an alphanumeric identifier for each unique digital object.
- Unique ID's are truly "unique" and will only be used once per digital object.
- Unique ID information will be recorded in metadata.

Release 1.B
- None in this release

Release 1.C
- Unique ID functions will assign an alphanumeric identifier for each unique job.
- Unique ID for unique jobs will be used only once and recorded in metadata.

Persistent Name

Release 0
- None in this release

Release 1.A
- All versions of content packages will be assigned persistent names when ingested into the system
- Persistent Names will be human readable and interoperable with legacy schemes and other systems
- Persistent Names will be location independent, and a resolution system will locate and provide access to the content.
- Persistent Name information will be recorded in metadata, and all Persistent Name transactions will be logged.

Authentication

Release 0
- Authenticate PDFs derived from converted content.

Release 1.A
- Authentication will certify content as authentic and/or official at both document and granular levels.
- Authentication will verify and validate content that is deposited, harvested and converted at ingest.
- Authentication will notify when changes were made to content, where the changes were made to content, by who the changes were made to content, and what changes were made to content.
- Authentication will use integrity marks that convey authentication information to users.

Version Control

Release 0
- Version identifiers for CCPs will be detected when they are present, and assigned when they are not present.

Release 1.A
- Version Control will provide for a record of the chain of custody of content and the system will manage multiple versions of works in progress.
- Version Control will express version information in metadata.
- Version Control will enable rules to be applied for version triggers.
- Version Control will support version detection for submission information packages.
- Version Control will support the detection of version triggers, such as modifications to content, changes in file format, changes in a publication's title.

Release 1.B
- Version Control will apply rules for version triggers to groups of related content.
- Version Control will support notification to GPO when version triggers are activated and when version information cannot be determined.

Release 1.C
- None in this release.

Release 2
- None in this release.

Release 3
- Version Control will support the detection of changes that were previously detected and excluded as a version trigger.

Data Mining

Release 0
- None in this release

Release 1.A
- Data Mining will support security and administration functions, such as the logging of transactions and the creation of metadata.
- Data Mining will support the storage of extracted data.

Release 1.B
- None in this release

Release 1.C
- Data mining will support the extraction, analysis, and presentation of business process information.
- Data mining will provide for data extraction by format, random samples of data, and other parameters.
- Data mining will provide for data presentation and data interface through reports showing for instance, trend analysis and usage patterns and the export of results.
- Data mining will support data analysis and data modeling.

Release 2
- Data mining will support the creation of customized reports for analysis.
- Data mining will support more customization of views of data based on user preferences.
- Data mining will provide notification alerts to users based on defined criteria.

Release 3
- Data Mining will incorporate taxonomies and ontologies.

Cluster 3: Content Access

Access will be the primary interface between End Users and the FDsys. Access has been divided into five functional areas:

- Search – Performing queries on content and metadata so that content may be retrieved from storage and delivered to users.

- Cataloging and Reference Tools – Adding metadata to content in the form of standard bibliographic records and lists and resources that assist users in locating and accessing content.

- Request – Requesting delivery of content and metadata.

- Interface – Creating user and system interfaces for all functional areas, as needed.

- User Support – Supporting access to content and services.

0	1.A	1.B	1.C	2	3
Basic Cataloging via the ILS	Core Access capabilities Enhanced Cataloging including Metalib and SFX Default Interfaces Basic User Support for enabled features including Cataloging Determine and record relationships between digital objects	Basic Reference Tools Basic Search Basic Request Default Interfaces Basic User Support for enabled features including Search, Reference Tools, and Request	Enhanced Search Integration with legacy and external repositories Enhanced request with e-commerce features enabled and integration with financial and inventory systems Enhanced User Support Customized Reference Tools	Basic user customized Search Automatic creation of metadata and dynamically generated Reference Tools Enhanced Interfaces with basic user customization Interactive training and User Support Customized Request	Fully customized and personalized Search, Request, Interface, Reference Tools, User Support and training that is based on user preferences Integrate Search, Reference Tools, Request, and User Support seamlessly into a single interface

Core Access Capabilities

Release 1.A
- Provide open and interoperable access to Content Packages in the system.
- Provide access to in-scope content not resident within the system.
- Create and provide access to section 508 compliant Access Content Packages.
- Allow GPO users to designate levels of access based on user privileges and credentials.
- Perform records management functions for Access.

Search

Release 0 - 1.A None

Release 1.B
- Provide basic search capabilities.
- Search and retrieve all available metadata and content collections (internal and external) both simultaneously and separately based on access rights, privileges, and GPO business rules.
- Provide basic search functionality such as Boolean search language, fuzzy logic, natural language, proximity, and synonyms searching.
- Apply multiple search logic in a single search query (e.g., Boolean, truncation, wildcards, nesting).
- Perform a search for conceptually related terms (e.g., search for "World Series" returns articles on the Red Sox).
- Provide for different search complexity levels (e.g., simple search, advanced/fielded search) and multiple search interfaces based on search skill level and user class.
- Provide, at a minimum, search results and the ability to sort results lists by title, date, and relevancy.
- Display, at a minimum, title, file size, version, content collection (source), and an identifier (link).
- Provide the ability for users to refine search queries.
- Log search transactions (e.g., user access, administrative changes).

Release 1.C
- Provide enhanced search features.
- Deliver search results at the finest level of granularity supported by the target content package.
- Sort results by content collection, format, version, and defined metadata fields.
- Perform federated searches across multiple internal and external repositories, including legacy repositories (e.g., WAIS).

Release 2
- Provide basic user customized search features.

- Provide the ability for users to establish a user profile to store searches, preferences, and results sets.
- Automatically execute saved searches and deliver search results to users.

Release 3
- Provide fully customized and personalized search options, interfaces, and results lists that are based on user preferences.
- Analyze search results.
- Cluster search results.
- Display search results graphically.

Cataloging & Reference Tools

Release 0
- Virtually all of the capabilities listed for the cataloging function are a part of the ILS and are included in FDsys.

- GPO has acquired Oracle-based, COTS, cataloging software, the Aleph 500 system from Ex Libris, USA, also referred to as the Integrated Library System (ILS). The FDsys must interface with the ILS and the Online Computer Library Center, Inc. (OCLC) system for creating bibliographic metadata. Bibliographic metadata includes links to content maintained on various sites managed by or completely external to GPO, e.g. the OCLC Digital Archive, on various agency and library sites, etc.

Release 1.A
- The system shall determine and record relationships between digital objects

Release 1.B
- Provide enhanced Cataloging features.
- Generate reference tools (lists) based on any indexed metadata field, and to link to external content and metadata. These lists may be static pages produced from report generation capabilities, or dynamic results lists from searches. These searches may be pre-configured ("canned") or individually created for one-time use.
- Create, acquire, and store metadata (e.g., MARC), references to metadata (e.g. Subject Bibliographies), and references to content (e.g., Federal Agency Internet Sites, Browse Topics, etc.). Reference Tools will include lists and resources that assist users in locating and accessing content.

Release 1.C
- Generate and manage customized reference tools including lists of content available for sale, for selection by depository libraries, content received by a specific library, related resources, etc.

Release 2

- Automatically create metadata.
- Link related resources in descriptive metadata.
- Provide interoperability with third party reference tools (e.g., search catalogs of other libraries).
- Dynamically generate Reference Tools.

Release 3
- Provide fully customized and personalized Reference Tools that are based on user preferences.
- Generate lists based on user preferences, and support interactive processes so users can create Reference Tools.
- Deliver customized Reference Tools in both electronic and tangible formats.

Request

Release 0 - 1A
- None in this release

Release 1.B
- Provide basic request and delivery options for internal and external content and metadata as defined by GPO business units.
- Select format and file types of requested content from available options.
- Select level of granularity for requested content from available options.

Release 1.C
- Provide enhanced request with e-commerce features enabled.
- Integrate with financial and inventory systems.
- Generate pricing information for the delivery of content.
- Accept payment for content.
- Enable shopping cart functionalities.
- Create unique order numbers for each request.
- Allow secure and encrypted ordering.
- Allow third party ordering.
- Generate confirmations and transaction receipts.
- Accommodate rider orders from GPO, Federal Agencies, and Congress.

Release 2
- Provide customized request and delivery options.
- Support custom composition and content formatting from available options.
- Store pending orders in a shopping cart feature.
- Store and access user preferences and request histories in a secure environment (e.g. request status, delivery preferences, preferred payment methods, request tracking, prior request history).
- Provide lists of new and popular titles, best sellers, and other lists as defined by GPO business rules.

Release 3
- Provide fully customized and personalized request options are based on user preferences.
- Deliver personalized offers based on user request history (e.g. "you may also be interested in….")

Interface

Release 0
- Use existing *GPO Access* interface

Release 1.A
- Provide Interfaces for Release 1.A functions.
- Provide a default workbench (set of available tools) for each user class.
- Provide a default workbench for public end users that does not require them to log-in.
- Display the appropriate default workbench based on a user's rights and privileges.
- Allow users or groups of users to login and create an account.
- Provide user interfaces capable of rendering supported types of electronic files.
- Provide system interfaces that promote interoperability among networked systems (e.g., APIs).
- Comply with best practices and guidelines regarding usability for interface (e.g., The Research-Based Web Design & Usability Guidelines function as best practices for Federal Agencies).
- Comply with accessibility laws and regulations (e.g., Section 508 of the Rehabilitation Act Amendments of 1998) as appropriate.
- Conform to current World Wide Web Consortium (W3C) guidelines for interoperable technologies.

Release 1.B
- Provide Interfaces for Release 1.B functions.

Release 1.C
- Provide Interfaces for Release 1-C functions.

Release 2

- Enhanced interfaces with basic user customization including:
  o Selecting available tools.
  o Customizing the appearance of an interface.
  o Creating interfaces for subsets of user classes.

Release 3
- Provide fully customized and personalized interfaces based on user preferences.

- Integrate search, reference tools, request, and user support seamlessly into a single customizable interface.

User Support

Release 1.A
- Provide basic support for enabled features including Cataloging.
- Provide multiple methods of contact for user assistance (e.g., web, phone, email, U.S. mail, chat)
- Allow users to query a knowledge base.
- Allow users to submit questions to a helpdesk.
- Automate routing of inquiries to the departments/individuals according to workflow guidelines
- Support priority processing (e.g., alerts, assignments to staff, nonstandard workflow, tracking, etc.)

Release 1.B
- Provide basic support for enabled features including search, reference tools, and request.
- Provide context specific help on all user interfaces (e.g. help functions related to what is being viewed.)
- Provide alert services which automatically deliver information about content based, and allow users to subscribe and unsubscribe to the alert services.
- Provide users with access to their questions and responses and related questions and responses.
- Provide automatic confirmation of receipt of questions/inquiries.
- Create reports on user support activities.

Release 1.C
- Provide enhanced support.
- Provide online tutorials.
- Provide customized services for user classes and sub-groups within user classes as defined by GPO.
- Manage an unlimited number of user records and queries.

Release 2
- Support real-time, interactive information exchange (e.g., chat, discussion groups, web conferencing).
- Provide interactive training applications.
- Allow users to enroll in training and other events and access training materials and training history.
- Allow GPO users to manage training and events.
- Perform records management functions on knowledge base data, user information, and exchange logs.

Release 3
- Provide fully customized and personalized support and training that is based on user preferences.
- Allow users to measure their progress and performance within online training applications.
- Allow users to provide feedback about online training.

Cluster 4: Content Delivery

Content Delivery refers to mechanisms for delivering content in a method or manner that fits the requirements of the Content Originator or End User. The delivery methods identified are hard copy, electronic presentation, and digital media. Content Delivery requirements reflect the expansion of electronic presentation as the primary dissemination method for authentic and/or official content of the Government.

		Release 0	Release 1.A	Release 1.B	Release 1.C	Release 2
IV. Content Delivery	A. Hard Copy			●	●	
	B. Digital Media			●	●	
	C. Electronic Presentation			●	●	

Release 0 and 1.A

- None in these releases. Delivery of electronic content continues via *GPO Access*.

Release 1.B

- The system will retrieve Access Content Packages (ACPs) from storage based on an End User request. The ACP is transformed into a Dissemination Information Package (DIP) for delivery to the end user. DIPs may include integrity marks certifying the content as official and/or authentic. DIPs are created for:
  - o Transfer to a Service Provider for Hard Copy output,
  - o Delivery to an End User in electronic format,
  - o Delivery to an End User via Digital Media (e.g., CDs, DVDs), and
  - o Delivery to Digital Media (devices external to the system such as PDAs, MP3 players, etc.).
- The system will be able to generate DIPs for the most cost effective method for Hard Copy output (e.g., offset press, digital printing). The system will support Print on Demand.

- The system will generate Electronic Presentation DIPs for multiple computer platforms (e.g., Windows, Macintosh, UNIX) and non-desktop electronic devices (e.g., PDAs, MP3 players, e-books). Multiple formats will be available for delivery to End Users.

- The system will generate DIPs for transfer via digital media (e.g., CDs, DVDs) and transfer to digital media (devices such as PDAs, etc.)

- Content may be pushed from the system to users (e.g., RSS feeds, e-mail, raw data feeds) and pulled from the system by users (e.g., FTP).

- Notification of content delivery can be provided electronically to the End User and to GPO. Options can be provided to End Users when content is not delivered (e.g., resubmit content, cancel delivery, etc.)

- A database of Service Providers will be managed by GPO. This database will allow Service Providers to electronically maintain their profiles (e.g., equipment, capabilities) and will allow authorized GPO users to manage Service Provider performance information (e.g., quality and performance data). Content Originators and users will be able to select Service Providers based on their needs. Tracking of orders and logging of Service Provider activities (e.g., job received, job complete) will also be possible.

- The system will comply with GPO Quality Assurance standards for content delivery, best practices and guidelines regarding usability for electronic content (e.g., The Research-Based Web Design & Usability Guidelines function as best practices for Federal Agencies), accessibility laws and regulations (e.g., Section 508 of the Rehabilitation Act Amendments of 1998), and W3C guidelines.

Release 1.C
- None in this release

Release 2
- The system shall have the capability to deliver DIPs to non-GPO storage devices (e.g., customer servers).

Release 3
- None in this release

Cluster 5: Content Preservation

Preservation enables comprehensive, timely, permanent public access to the final published, official version(s) of U.S. Government publications in digital formats, by the retention of faithful, fully functional master files of content, and the performance of processes which assure ongoing usability of those files.

	Release 0	Release 1.A	Release 1.B	Release 1.C	Release 2
V. Content Preservation		●		●	

Release 0
- None in this release

Release 1.A
- Preservation copies of digital publications, called Archival Information Packages (AIPs), with associated technical metadata, will be maintained in FDsys Archival Storage.
- Release 1.A establishes the basic system infrastructure to keep content alive, by preserving AIPs. In order of preference, the outcomes desired are:
  - Fully, faithfully duplicated files, rendered using the original application.
  - Files which faithfully reproduce content, behavior and appearance of the original, rendered using other software than the original application.
  - Files which exactly convey the content but may alter behavior and/or appearance, rendered using other software than the original application.
- The system shall preserve all essential behaviors of digital content, including content functionality and presentation, context, and structure.
- The FDsys digital archival repository environment will be based on open-standards architecture.

Release 1.B
- None in this release

Release 1.C
- Release 1.C includes the preservation processes the FDsys will use to assess the condition of digital content and initiative the necessary actions to keep that content usable. The preservation process employed in any given situation should be the least intrusive; i.e. that which alters the original AIP the least.
- The specific preservation processes required by GPO are a policy determination. FDsys must be capable of supporting activities necessary to keep content accessible and usable, including
  - Migration
  - Refreshment
  - Emulation

- Management of preservation processes include:
  - File backup/redundant storage
  - Establishing the duration of preservation
  - Creating replacement content packages
- File disposition options include:
  - Transfer to NARA
  - Scheduled retirement of selected content

Release 2-3
- None in these releases

Cluster 6: System Infrastructure

The System Infrastructure Cluster includes the system elements of Workflow, Security, Storage, Enterprise Service Bus (ESB).

Workflow is the automation of a business process, in whole or part, during which documents, information or tasks are passed from one participant to another for action, according to a set of procedural rules. A workflow management system defines, creates and manages the execution of workflows through the use of software, running on one or more workflow engines, which is able to interpret the process definition, interact with workflow participants and, where required, invoke the use of IT tools and applications

Security includes the protection of systems (applications) against unauthorized access to or modification of information, whether in storage, processing or transit, and against the denial of service to authorized users or the provision of service to unauthorized users, including those measures necessary to detect, document, and counter threats. The measures and controls, including physical controls in conjunction with management, technical and procedural controls, that ensure the confidentiality, integrity and availability of information processed and stored by a system.

Storage includes the functions associated with saving digital publications on physical media, including magnetic, optical, or other alternative technologies. Akamai is currently being used.

ESB is a new approach to integration that can provide the underpinnings for a loosely coupled, highly distributed integration network that can scale beyond the limits of a hub-and-spoke enterprise application integration broker. ESB is a standards-based integration platform that combines messaging, web services, data transformation, and intelligent routing to reliably connect and coordinate the interaction of significant number of diverse applications across extended enterprises with transactional integrity.

		Release 0	Release 1A	Release 1B	Release 1C	Release 2
VI. System Infrastructure	A. Workflow		●	●	●	●
	B. Security		●	●	●	●
	C. Storage	●	●	●	●	●
	D. Enterprise Service Bus		●	●	●	●

Workflow

Release 1.A
Workflow software that supports enabled features such as:
- Ingest (converted, harvested and deposited content)
- Unique ID, Persistent Name, Authentication, Validation, Version Control, Cataloging, AIP, ACP generation, preservation storage, initial style tools (MCR), UI and User support.
- Automation of workflow processes that were previously manual.

Release 1.B
- The Harvester enabled, additional style tool capability, auto version trigger and detection, search request, content delivery, UI and user support for enabled features

Release 1.C
- Support of additional features--enhanced harvester, CO ordering, Unique ID for Job Orders, customizable access tools, reference tools, enhanced user support, data mining, enhanced style tools, request to support transactions (ordering), preservation processes

Release 2-3
- TBD

Security

Release 1.A
Oriented to Content Submission and FDSys system functions. It is assumed that the user base consists of GPO administrator personnel and content submitters.

- Access Control to FDSys objects by user ID
- Authentication
  - User authentication – each user unique identifier
- Audit Logs
  - Logs of system activities
- Security Administration
  - Administration tools and capabilities present to allow efficient administration of security capabilities
- Availability
- Integrity
  - Methods to ensure data is not accidentally or intentionally altered
- Confidentiality

- o Data is not readable by unauthorized parties as appropriate (example, user passwords)
- Privacy
- Standards Based

Release 1.B
Oriented to capabilities to support functions introduced for Content Delivery
Assumption: User base expands to include general users and content acquisition by 3rd parties.

Release 1.C
- Audit Logs for Data Mining
- Access Control limitations to data mine appropriate data
- Temporary storage and security to support data mining

Release 2-3
- TBD

Storage

Release 1.A
- Storage system to support content ingest
- WIP storage (high availability/high access)
- ACP storage (moderate availability/access, backup)
- AIP/Preservation storage (low access/availability, backup)
- Storage management.

Release 1.B
- Resizing of required storage
- ACP storage (high availability/access, backup)
- Temporary DIP
- Records management for temporary stores

Release 1.C
- Temporary storage and security to support data mining

Release 2-3
- TBD

Enterprise Service Bus (ESB)

Release 0
- Transformation of SIP to *GPO Access* packages

- Metadata repository

Release 1.A
- Integration of ESB platform to enable application integration
- Integration of the ILS

Release 1.B
- Continued application integration

Release 1.C
- Tie into Oracle for financial and inventory management

Release 2-3
- TBD