Preliminary Requirements

FDsys
Executive Summary of Phase 3
Introduction

GPO is concluding the third phase of a planning process to develop a comprehensive, integrated system for information life-cycle management which will transform GPO's role and practices. The system is being developed to be rules based, policy driven, and highly responsive to the needs of all classes of users. It will enable content creation, verification and tracking of versions, tracking and certification of authenticity, preservation of content, and all aspects of public access to content. The earlier phases produced a Concept of Operations document http://www.gpo.gov/news/2004/ConOps_1004.pdf released in October, 2004, which provided an initial roadmap for system development activities. A cross-functional team from throughout the GPO has recently completed preliminary functional requirements (phase 3) for the design of the system. In coming weeks, those requirements will be refined, and will drive the development of specifications, concept selection, and implementation plans.

Phases and Gates

Phases and gates is a process of establishing project work elements (phases) and corresponding work milestones/reviews (gates). INT has implemented a phases and gates approach to the FDsys project. The figure below represents a high level view of the of the phases and gates of FDsys.

Phase/Gate Description

Target: October 2007

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<tr>
<th>Gate 1</th>
<th>Gate 2</th>
<th>Gate 3</th>
<th>Gate 4</th>
<th>Gate 5</th>
<th>Gate 6</th>
</tr>
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<tbody>
<tr>
<td>Basic Concept/Vision</td>
<td>Concept of Operations</td>
<td>Preliminary Requirements</td>
<td>Implementation Planning</td>
<td>Implementation/Design Certification</td>
<td>Roll out/Beta Testing</td>
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Phase 3: Preliminary Requirements

A requirement is a structured collection of information that embodies the needs and capabilities of a complex system. Requirements serve to reflect back to the customer and users by communicating what the system will do and, also serves to communicate to the developers regarding what needs to be created for the system. Because it is our intention to create requirements from a customer needs perspective, requirements will be more reflective of user functionality than technology.

A well-formed requirement consists of:
- **Capabilities**: features and functions of the system needed or desired by the customer
- **Conditions**: measurable qualitative or quantitative attributes and characteristics that are stipulated for a capability
- **Constraints**: requirements imposed on the solution by circumstance, force or compulsion
A requirements document (RD) is a compilation of the requirements into a standardized format. GPO has chosen IEEE 1233 as the guideline for our RD.

- RD provides a “black box” description of what the system should do in terms of system interactions or interfaces with the external environment
- RD should completely define inputs, outputs and required relationships between inputs and outputs
- RD organizes and communicates requirements to the customer and technical community
- RD is used to construct the system
- RD is used to write verification test plan

The preliminary requirements developed under phase 3 represent the core capabilities GPO intends to deploy in the FDsys. These requirements will serve as the benchmark for system development activity for the duration of the FDsys program. However, it is important to note that requirements will be updated as necessary to reflect customer needs and technology trends.

The outline below provides a glimpse into the requirements document from the vantage point of a high level reference model. Please note that the bulleted items below the reference model boxes denote FDsys functional areas.

<table>
<thead>
<tr>
<th>Submission</th>
<th>Content Processing</th>
<th>Dissemination</th>
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<tbody>
<tr>
<td>• Converted Content</td>
<td>• System Interaction</td>
<td>• Hard Copy</td>
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<td>• Harvested Content</td>
<td>• Content Originator Ordering</td>
<td>• Digital Media</td>
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<td>• Deposited Content</td>
<td>• Data Mining</td>
<td>• Electronic Presentation</td>
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<td>System Administration/Infrastructure</td>
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Phase 4: Implementation Planning

As GPO concludes the third phase of development for the FDsys, we are transitioning into the fourth phase of the process which is implementation planning.

Phase 3 resulted in the development of preliminary system requirements which will evolve into a publicly available requirements document. At this time we are anticipating completion of the requirements document by May 16, 2005. It is important to note that through Phase 3 the FDsys development has been synchronous with a single established milestone and deliverable at each gate review.

Beginning in Phase 4, phases and gates will begin to reflect an asynchronous implementation with multiple milestones and deliverables. GPO anticipates that the beginning of Phase 4 will be the last point in time when the 24 functional areas of the system are managed as a single project. The middle and end of Phase 4 activities will be unique to each of the 24 functional areas since processes, technologies and infrastructure for each vary. Therefore, these areas will need independent project management and oversight in order to meet the full capability target date of October 2007.

Specific Phase 4 activities will consist of:
- Detailed Implementation Plan
- Design Specifications
- Concept Selections
- Updated Project Plan
- Updated Cost Plan
- Risk Identification and Mitigation
- Design Validation Test (DVT) Plan

Phases 5: Implementation and Design Certification

Phase 5 proceeds from the planning in Phase 4, and will finalize the design of specific functions of the system. Designs will be reviewed and vetted against finalized requirements, and will ultimately be locked in as certified. Phase 5 work will proceed on multiple tracks, and will include numerous development projects to test specific designs and approaches. The phase will culminate at the target date of October 2007.

Specific Phase 5 activities will consist of:
- System Design
- Design Validation Test Results
- Final Requirements
- Risk Identification and Mitigation
- Updated Project Plan
- Updated Cost Plan
- Beta Test Plan

Phase 6: Roll Out and Beta Testing

When final designs have been certified and final requirements are locked in, GPO will make Beta tests of system functions available, according to parameters established in the implementation plan. The multiple development tracks and projects of Phase 5 will be brought into synchronous activity, and with revisions based on Beta results, a full public release will culminate this phase.

Specific Phase 6 activities will consist of:
- Beta Testing
- Final Costs
- Sustainment Plan
Detailed Outline of FDsys
The detailed outline below provides a more comprehensive glimpse into the requirements document from the vantage point of a document outline.

Submission

1. Content Submission
   A Style Tools
      i Capture
      ii Composition
      iii Collaboration
      iv Approval
   B Deposited Content
      i Standards
      ii Metadata
      iii Administration
      iv Rules and Instructions
      v Validation and Authentication
      vi System Administration
   C Harvested Content
      i System Requirements
      ii Harvester Tool Requirements
      iii Metadata
      iv Rules and Instructions
      v Validation and Authentication
      vi System Administration
   D Converted Content
      i Standards
      ii Verification and Validation
      iii Metadata
      iv Systems Administration
      v Preservation

Content Processing

1. System Interaction
   A Content Originator Ordering
   B Data Mining
      i Core Capabilities
      ii Data Extraction
      iii Data Presentation
      iv Analysis and Modeling
      v Presentation and Interface
      vi Security and Administration
      vi Storage
   C Request
      i Core Capabilities
      ii Content Delivery (Orders)
   D Access
      i Core Capabilities
   E Search
      i Core Capabilities
      ii Query
      iii Refine
      iv Results
      v Saved Searches
      vi Performance
      vii Federated
      viii Interface
     viii Administration
   F Cataloging and Reference Tools
      i Metadata Management
      ii Metadata Delivery
      iii Reference Tools
      iv Interoperability and Standards
      v Workflow

2. Content Ingest
   i Core Capabilities
   ii SIP validation
   iii Transformation
   iv Metadata
   A Authentication
      i Certification of Content
      ii Verification/Validation of Content
      iii Re-authentication of Content
      iv Credentials
      v Content Changes
      vi Standards/Best Practices
      vii Integrity Marks
      viii Records Management
     viii Metadata
   B Version Control
      i Core Capabilities
      ii Misc
      iii WIP Content Versions
   C Persistent Naming
      i Core Capabilities
      ii Resolution
      iii Metadata
   D Unique ID
      i Digital Objects
      ii Jobs Order Number
      iii Content Packages
   E Preservation
      i Core Functionality
      ii Preservation Processes
      iii Assessment
      iv Administration
      v Storage
      vi Metadata
      vii Security
Dissemination

1. Content Delivery
   i. Core Capabilities
   ii. Service Provider Information
   iii. Workflow
   iv. Standards
A. Hard Copy
B. Digital Media
   i. Overall
   ii. Data Storage Devices
   iii. Delivery Mechanisms
C. Electronic Presentation
   i. Core Capabilities

System Administration/Infrastructure

1. System Overarch
2. Metadata
   A. Types
   B. Core Functionality
   C. Interoperability
   D. Collection and Storage
   E. Editing, Manipulation, Sharing
3. Preservation Standards
   A. Submission Information Package
   B. Access Information Package
   C. Dissemination Information Package
   D. Archival Information Package
4. User/Customer Support
   A. General Features
   B. User Preferences
   C. Helpdesk and Knowledge base
   D. Information Exchange
   E. Training and Events
   F. Workflow
5. Storage
   A. Pre-Ingest WIP
   B. AIP Storage
   C. Access Content Storage
   D. Content Processing Storage
   E. Business Process Storage
   F. Storage System Standards
   G. Operational Stores
   H. Networked High-Performance Storage
   I. Networked Moderate Performance Storage
   J. Low Criticality Storage
   K. Failover Storage
   L. Back-up retrieval
   M. Mid-term Archival Storage
   N. Long-term Permanent Storage
   O. Monitoring
   P. Preventative Action
   Q. Data Integrity
   R. Allocation
6. Workflow
   A. Core Capability
   B. Messaging and Notification
   C. Resource Requirements
   D. Definition Tool
   E. Control of Execution
   F. Interoperability
   G. Monitoring
   H. History
   I. Notification
   J. Status
   K. Monitoring Tool
   L. Security
7. Security
   A. System User Authentication
   B. User Access Control
   C. Capture and Analysis of Audit Logs
   D. User Privacy
   E. Confidentiality
   F. Administration
   G. Availability
   H. Integrity
   I. Standards
8. Interface
   A. Core Capabilities
   B. Standards
   C. UI by Functional Elements