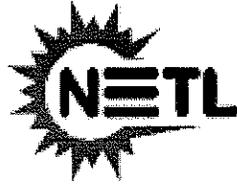

NETL Program and Project Information Module

Concept and Scope Document

Prepared For:



National Energy Technology Laboratory



U.S. Department of Energy

Revision History

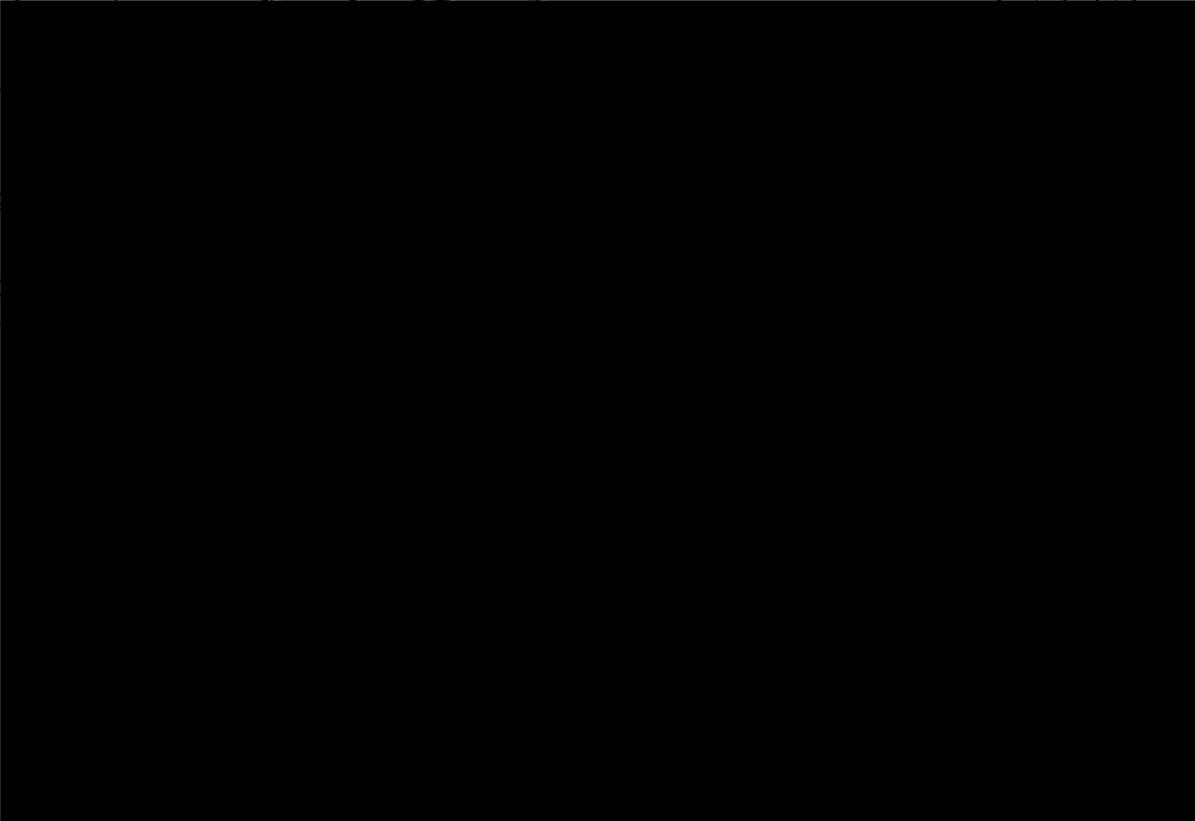
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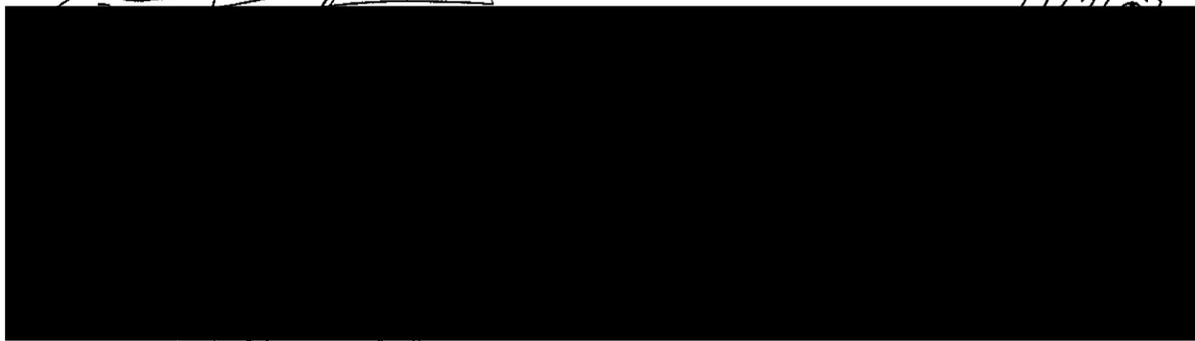
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Table of Contents

1. EXECUTIVE SUMMARY..... 1

2. INTRODUCTION..... 4

 2.1. PURPOSE 4

 2.2. APPROACH 4

3. PROGRAM AND PROJECT ANALYSIS RESULTS 7

 3.1. BACKGROUND (PROMIS APPLICATION) 7

 3.2. HIGH-LEVEL BUSINESS PROCESSES 7

 3.3. PROBLEM STATEMENT 12

4. CONCEPT OF SOLUTION 15

 4.1. VISION STATEMENT 15

 4.2. HIGH-LEVEL SYSTEM CONCEPT 17

 4.3. LIST OF FEATURES 18

 4.4. FUNCTIONAL REQUIREMENTS 21

 4.5. INFORMATION MANAGEMENT MODULES 21

 4.6. TECHNOLOGY COMPONENTS 30

 4.7. INFRASTRUCTURE COMPONENTS 35

 4.8. OUT-OF-SCOPE REQUIREMENTS 38

5. EXTERNAL SYSTEM DEPENDENCIES 40

6. ASSUMPTIONS AND RISKS 41

 6.1. RISKS 41

 6.2. ASSUMPTIONS 43

7. ESTIMATED DELIVERY..... 45

8. BUSINESS VALUE AND BENEFITS 52

9. APPENDIX A – SYSTEM ANALYSIS..... 53

10. APPENDIX B – DOCUMENT ANALYSIS..... 55

11. APPENDIX C – COMPONENT PRIORITIES..... 58

12. APPENDIX D– PROMIS REQUIRED FIELDS..... 59

13. APPENDIX E – GLOSSARY..... 61

14. APPENDIX F – NETL PROGRAM/PROJECT DEFINITION 64

15. APPENDIX G – BUSINESS PROCESS WORKFLOWS 67

List of Figures

FIGURE 2.2 – BUSINESS CASE APPROACH 4

FIGURE 3.2.1 – HIGH-LEVEL CURRENT FUNDING BUSINESS PROCESS 8

FIGURE 3.2.2 – HIGH-LEVEL CURRENT EXTRAMURAL PROJECT MANAGEMENT PROCESS 9

FIGURE 3.2.3 – HIGH-LEVEL CURRENT REPORTING PROCESS 10

FIGURE 3.2.4 – BUDGET MAPPING 11

FIGURE 3.3.3 – PROJECT TYPES 14

FIGURE 4.1 – HIGH-LEVEL FUNCTIONAL COMPONENTS 16

FIGURE 4.2 – HIGH-LEVEL SYSTEM CONCEPT 17

FIGURE A.1 – CURRENT PROMIS INTEGRATION 53

FIGURE A.2 – PROPOSED PPIM INTEGRATION 54

FIGURE G.1A – FE FINANCIAL MANAGEMENT WORKFLOW 67

FIGURE G.1B – FE RD&D PROJECT FUNDING WORKFLOW 68

FIGURE G.2 – CURRENT PROJECT MANAGEMENT WORKFLOW 69

FIGURE G.3 – CURRENT REPORTING PROCESS WORKFLOW 70

1. Executive Summary

The management and reporting of program and project information is of strategic importance to the daily operations of NETL. Programs, and the associated research and development projects, are the core function of the laboratory. As such, an information management system that can contribute to the efficiency and effectiveness of NETL project managers, functional managers, and executives is critical. The current project management information system (ProMIS) provides value to its users but has limitations. The limitations can generally be attributed to ProMIS being asked to support functionality and organizations beyond its original intent. ProMIS is based on older technologies and does not contain some functionality valued by its end-users, such as the ability to support program data, advanced reporting and system integration.

Realizing the limitations of ProMIS, NETL management authorized a Project Management Information Study to examine options for improving or replacing ProMIS. Based on the findings from the original study that concluded in February 2006, the executive sponsors tasked the Program and Project Information Module (PPIM) project team with developing a “Business Case” that would be able to be used to support a “go, no-go” decision to pursue the development of a new information system to support the project and program management activities at NETL. The business case contains system requirements, a draft project schedule, risk analysis, cost benefit analysis and ROI. In addition, a supplemental document addressing possible “build vs. buy vs. assembly” options as well as some possible COTS or GOTS alternatives will be a component of the PPIM business case. The document will be in support of the business case and used to show that alternative solutions were considered beyond the custom software approach that is described in this concept and scope document.

The product description of PPIM is a web-based project and program management decision support system for senior and functional managers. The application will provide reporting capabilities, queries, alerts, performance dashboards, and be customizable to individual user needs. It will provide accurate and reliable project related financial data, program funding information, accessibility to procurement information. It will also integrate data across projects and programs and integrate project management processes and supporting tools across the organization.

If a “go-to-development” decision is received from the executive sponsors; PPIM will be developed by following the ProLogic Rapid Application Prototyping and Incremental Development (RAPID) methodology, whereby system functionality is developed incrementally. The development will be divided into phases. Each phase will be broken down into incremental releases. Each release will provide business value for NETL operations. This approach leads to the presentation of business value more quickly and also reduces risk. There will be concept and scope review cycles with the PPIM project team, the sponsors, and stakeholders following the completion of each release. The reviews provide a mechanism for any necessary reprioritization of requirements and the addition and subtraction of requirements based on the current system environmental needs.

This document sets in place a high level structure for all PPIM development that is to follow. It defines PPIM Phase 1 and the early releases in more detail and provides a framework to ensure developed solutions fit within the larger vision of PPIM.

The scope of the initial system includes basic program management and full project management process. The system will be delivered in four phases. The implementation strategy includes:

- Phase #1 – Building the program and project infrastructure while adding funding capability
- Phase #2 – Continue to build the program and project functionality while adding milestone, documents, decisions capability
- Phase #3 – Add remaining program and project capability; add collaboration and procurement status viewing functionality
- Phase #4 – Add enhanced marketing, presentation management and deliverable management capabilities

It is envisioned the PPIM solution provided in phases 1 and 2 will work in concert with the ProMIS application. The objective will be to present PPIM functionality in a fashion that will make current ProMIS users view the additional PPIM functionality as an extension of ProMIS.

The following is the target schedule for the delivering functionality.

(Note: See separate Work Estimate and schedule estimate worksheets, Estimated Delivery (Concept and Scope section 8), and In Scope Requirements (Concept and Scope section 4) for details.)

<i>Available Features (Components)</i>	<i>Target Strategy</i>
Phase 1	
<p>Phase one will focus on creating the basic project and program infrastructure while providing a basic funding capability.</p> <p>The following high-level features, broken out into releases, will be in scope for phase 1:</p> <ul style="list-style-type: none"> • Project and program infrastructure • Basic project and program data and funding capabilities • Basic Project and program queries • Structured reporting (data warehouse) capabilities • Dashboard capabilities • Basic context-based user interface • Workflow management functionality • Integration with primary NETL and DOE systems • Cyber Security system access and security • Basic External User Interface via internet 	<p>Phase 1 will be broken up into multiple releases that will incrementally build the project and program features.</p> <p>The estimated release durations are as follows:</p> <p>Release 1 – 13 months</p> <p>Release 2 – 8 months</p> <p>Release 3 – 16 months</p> <p>Release 4 – 5 months</p>

<i>Available Features (Components)</i>	<i>Target Strategy</i>
Phase 2	
<p>Phase two will focus on adding project and program functionality while providing milestone, documents, and decisions capabilities. The following high-level features will be in scope for phase 2:</p> <ul style="list-style-type: none"> • Program information management (milestones, decisions) • Cross-cutting program management (milestones, decisions) • Program and project milestone management • Procurement plan information • Contract management capabilities • Document lifecycle and revision control • Collaboration features (discussion groups, presentations) • Web/Portal Interface functionality • Enhanced User Interface • Fast Text Search • Document Management 	<p>At the conclusion of Phase 1, the feature set for Phase 2 will be re-prioritized and allocated into releases.</p>
Phase 3	
<p>Phase three will continue to build on program functionality and system integration while and providing enhanced information management and procurement capabilities. The following high-level features will be in scope for phase 3:</p> <ul style="list-style-type: none"> • Current program information (remaining) • Cross-cutting programs (remaining) • Enhanced project management (demonstration, requirements, publication) • Enhanced Collaboration (Procurement) • Procurement Data display • Continued system integration (FRED) 	<p>At the conclusion of Phase 2, the feature set for Phase 3 will be re-prioritized and allocated into releases.</p>
Phase 4	
<p>Phase four will provide enhanced marketing and presentation management capabilities, deliverable management, and advanced queries and reporting. The following high-level features will be in scope for phase 3:</p> <ul style="list-style-type: none"> • Marketing material management (extracts, formatting, Fact Sheets) • External audits and review functionality • Advanced Program and Project Queries • Historical reports • Advanced Queries • Event Reminders • System integration • Deliverable workflow functionality • Enhanced document and presentation management 	<p>At the conclusion of Phase 3, the feature set for Phase 4 will be re-prioritized and allocated into releases.</p>

2. Introduction

2.1. Purpose

This Concept and Scope document and the supporting business case documentation will provide a decision package for the PPIM decision-makers, the executive sponsors. The business case will include the Concept and Scope, an ROI/Benefits Analysis, a Risk Management Plan, and a Cost Estimate Worksheet. It will support the initial “go, no-go” funding decision for the development of the Program and Project Information Module (PPIM).

With the appropriate signatures the Concept and Scope serves as an agreement between the executive sponsors, the business process owner, the “Subject Matter Experts” (core stakeholders), and the project team that establishes the project purpose, objectives, and high-level scope of the requirements for the PPIM system. Components of the Concept and Scope are: background information (including ‘As is’ models), proposal of the conceptual model, estimated delivery schedules, assumptions and risks, and an outline of the high-level scope of the requirements for the system.

The Concept and Scope will serve as a baseline project artifact and will be used as a roadmap by developers, project managers, and business representatives throughout the project software development lifecycle.

2.2. Approach

The project team had a four pronged approach to the analysis phase of the PPIM business case development project. The project team conducted interviews of subject matter experts, performed analysis of the interfacing applications, documents, and an analysis of external requirements. The resultant information helped build a body of knowledge that is represented in this concept and scope document and supports the PPIM business case.

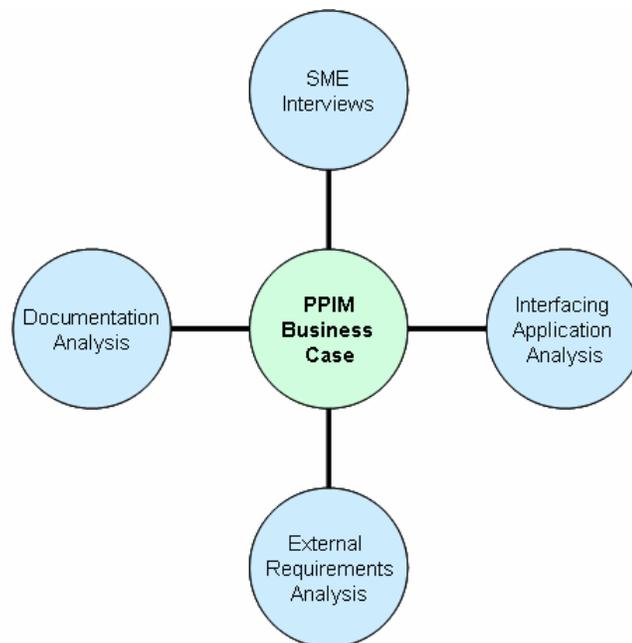


Figure 2.2 – Business Case Approach

The following sections will summarize the analysis of the business case development project and provide a picture into the NETL program and project management information needs that will be addressed via the PPIM development project and any resultant application.

2.2.1. Subject Matter Expert Interviews

Interviews were conducted over the course of several weeks with the goal of understanding the current project and program environment at NETL and determining the information needs and business requirements of the consumers and creators of program and project information. The interviews, 16 in all, involved approximately 40 participants representing a broad range of roles within NETL including Project Managers, Division Directors, Technology Managers, and analysts among others. The subject matter experts provided a wide cross-section of the NETL organization representing 15 different divisions and offices.

This information was combined with interview data collected in December 2006 and January 2007. In these sessions an organizational cross-cut of 50 people were interviewed through 24 sessions.

The information gathered in the interviews was used to create high-level business flows (Note: Refer to Appendix G – Business process Workflows), define business requirements, and determine business needs and priorities.

2.2.2. Interfacing Application Analysis

Due to the various information needs, data sources, and data consumers, any program and project information management system will be required to have multiple complex interfaces with other applications and databases. In order to best understand the relationships with the various interfacing applications, the project team conducted analysis of many of the interfacing applications.

The current project management application, the Project Management Information System (ProMIS), currently interfaces with multiple applications such as CPS (Corporate Planning System), PADS (Procurement Automated Data System), FITS (Federal Information Tracking System), and the ODS (Operational Data Store) to name a few. (Note: Reference Appendix A – System Analysis for current Application Data Flow).

The interfacing application analysis comprised a review of interfacing application documentation, consultation with the ITES Enterprise Architecture support team, and demonstrations of 8 interfacing applications. The analysis was used to better define the data requirements and the systematic interdependencies of any new program and project information management system.

2.2.3. External Requirements Analysis

An external requirements, or dependencies, analysis was performed to better understand the various external dependencies that will impact the development and deployment of a project and program information management system. External requirements are based on dependencies that are external to the business or project but needs to be considered and analyzed. Examples of external dependencies are policies like those defined by the Federal Project Management Center and the Strategic Management System.

The analysis included the following items:

- Strategic Management System
- Federal Project Management Center
- Federal Budget Process
- IG Audit Project Review findings
- HQ/NETL Information Integration Task
- NETL organizational structure
- Data Warehouse Pilot project
- DOE I-Manage initiatives such as STRIPES and STARS

2.2.4. Documentation Analysis

By reviewing and analyzing the project documentation associated with selected projects, the project team hoped to identify the processes and data that are used to manage NETL projects. The goals of the analysis were:

- Identify the key process steps of the project management process
- Identify the source documents used
- Identify the applications fields populated
- Identify any reports or data extracts that are produced by the project

The analysis provided additional information into the basic project management processes, data needs, and in identifying the consumers of project information both internal and external to NETL. (Note: Refer to Appendix B – Document Analysis for the results of the document analysis.)

3. Program and Project Analysis Results

A body of knowledge on the program/project management information and functionality needs of NETL was built based on the analysis phase of the PPIM business case development project. The following section outlines some of the results of the analysis and will attempt to define the current NETL program and project management environment including a background on the current application, a high-level analysis of some of the key business processes, and an outline of business requirements for a program and project information management system for NETL.

3.1. Background (ProMIS application)

The principal application used at NETL to track project status has been the Project Management Information System (ProMIS) application. This application was developed by Energetics, SAIC and D.N. American as a tool for the Morgantown-based Environmental Management (EM) group. ProMIS has since been significantly modified to support a broad range of project types across all of the NETL groups that perform research related project management. There are currently over 288 active users that span most of the NETL organizations including: the Directors Office (DO), Office of the Chief Council (OCC), Office of Public Affairs Coordination (OPAC), the Strategic Center for Coal (SCC), the Strategic Center for Natural Gas and Oil (SCNGO), the Office of Systems Analyses and Planning (OSAP), the Project Management Center (PMC), the Office of Research and Development (ORD), the Office of Institutional and Business Operations (OIBO).

The ProMIS application is used to capture key project data. ProMIS is also used as a basis to generate operational reports and NETL Marketing / Promotional materials (e.g., Fact Sheets). It is a key tool to respond to queries from a broad range of sources such as the President's Office, DOE Headquarters, the US Congress and Research Organizations, as well as other local, State and Federal Agencies. It is therefore imperative that the program and project data be readily available and of high quality.

3.2. High-Level Business Processes

The NETL program/project lifecycle for extramural projects begins at the creation of a solicitation and ends at project close out. The process and workflows associated with the PPIM System can be categorized into three basic high-level workflows: 1.) Program and Project Funding, 2.) Project Management, and 3.) Reporting. The "Budget Mapping" diagram outlines the program / project hierarchical relationship with funding. This section will provide a high-level overview of those key high-level workflows.

3.2.1. Program and Project Funding Process

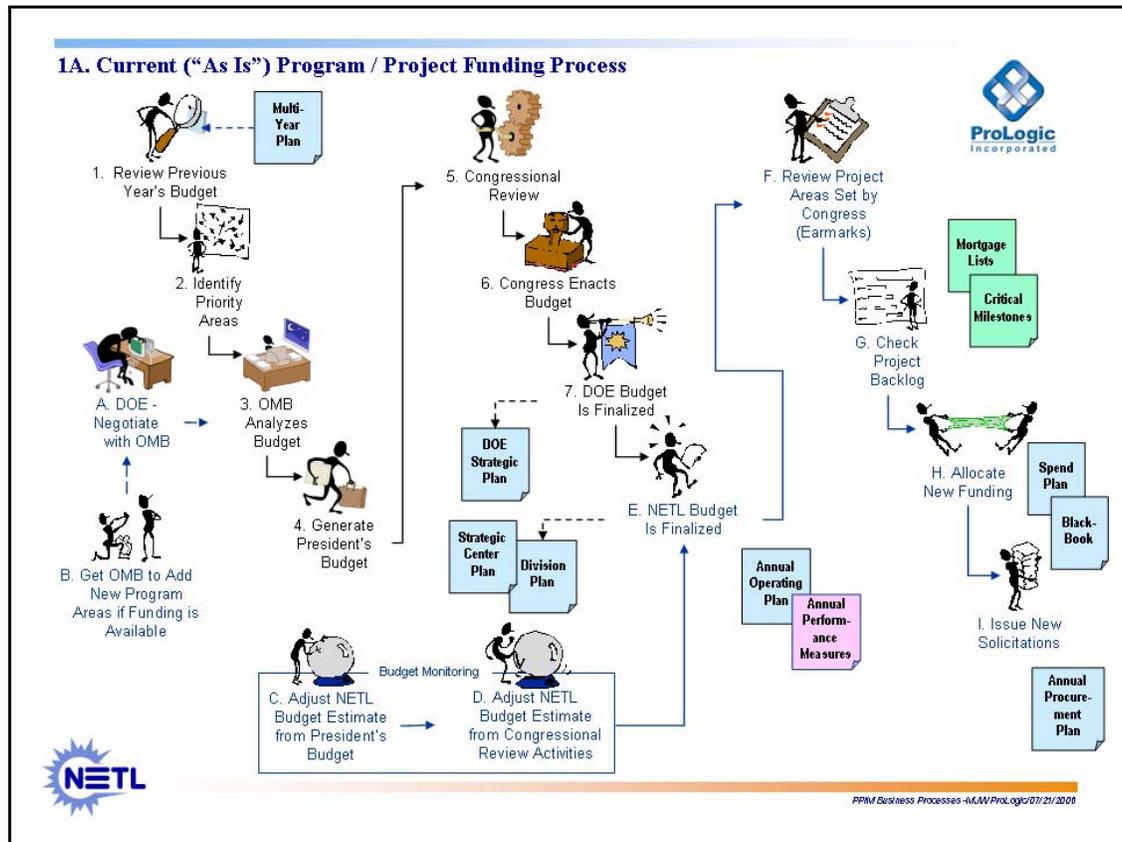


Figure 3.2.1 – High-Level Current Funding Business Process

It is important to note that multiple funding processes are used at NETL. The high-level funding process shown in Figure 3.2.1 describes the funding process used by the Fossil Energy (FE) group. The path designated by black labels and lines represents the portion performed by DOE headquarters; the path designated by blue labels and lines represents the portion performed by NETL. Additional funding processes are used by EERE and ORD. In addition, institutional projects also use a fourth funding process. More detailed business process analysis is included in Appendix G.

The Planning and Management Reporting System (PMRS) project allows managers to formulate budgets and to execute against their planned budget on a fiscal year basis. Close coordination of these two projects is required to ensure PPIM functionality is developed that produces data in a form useable by PMRS. The PMRS project development will be synchronized with PPIM development to ensure deliverables are developed on time. The PPIM and PMRS projects will be managed as coordinated and complementary projects.

The analysis of the funding business process indicated that there are similarities in the four funding processes analyzed; FE, EERE, ORD, and institutional project funding. The scope of the initial PPIM project will be determined by the project type, funding type, project size and external funding source. The selection of the initial target user group will determine which of the funding processes are supported first. The

remaining funding processes will be developed as the other NETL groups are targeted to use PPIM.

3.2.2. Project Management Process (Extramural)

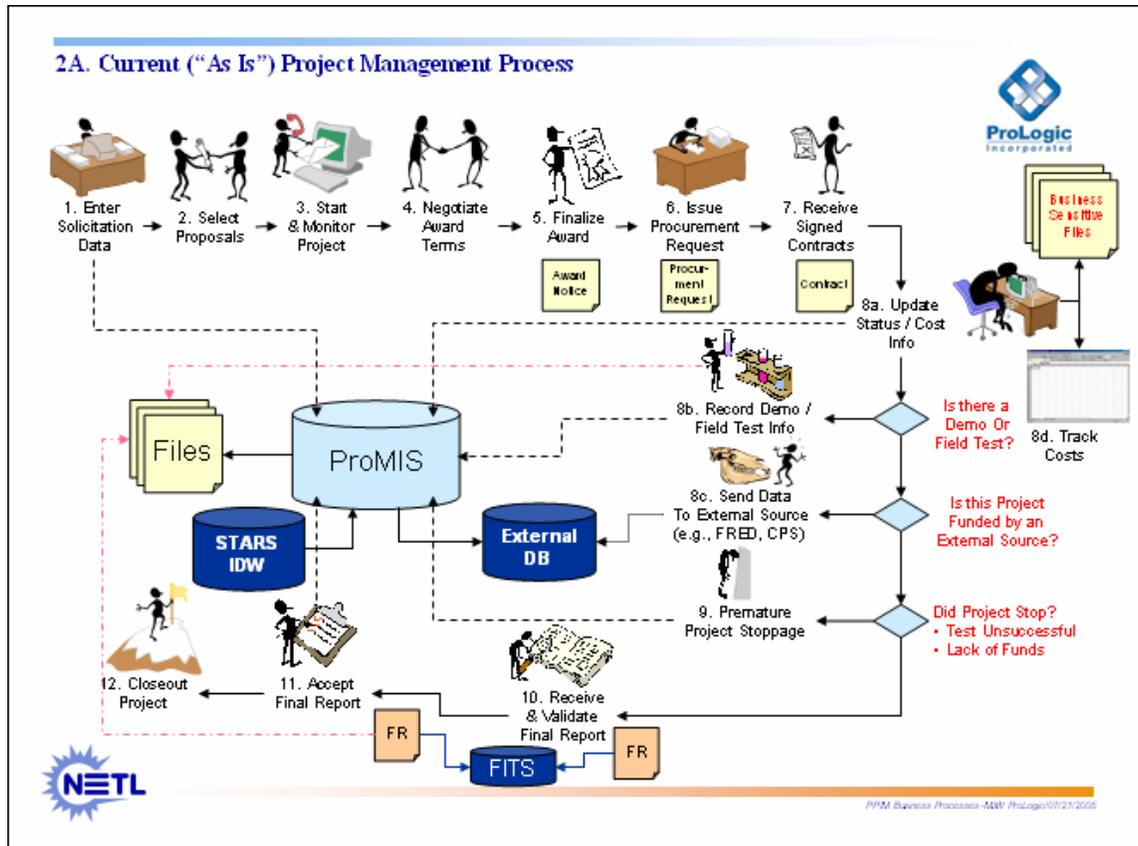


Figure 3.2.2 – High-Level Current Extramural Project Management Process

The research related project management functions at NETL take two basic forms: intramural and extramural. A general business process workflow for extramural processes is shown in Figure 3.2.2. The process shown is primarily used by the Fossil Energy and the Energy Efficiency and Renewable Energy organizations. A very high-level process is shown and it is important to note that some of the tasks depicted require significant effort or extended periods of time. There are also quite a few variations of this process that result from differing requirements in project and funding types.

The intramural projects are primarily conducted by the ORD organization. Additional analysis is required to define the intramural process. This additional analysis will be conducted during the implementation phase of the project management components.

3.2.3. Reporting Process

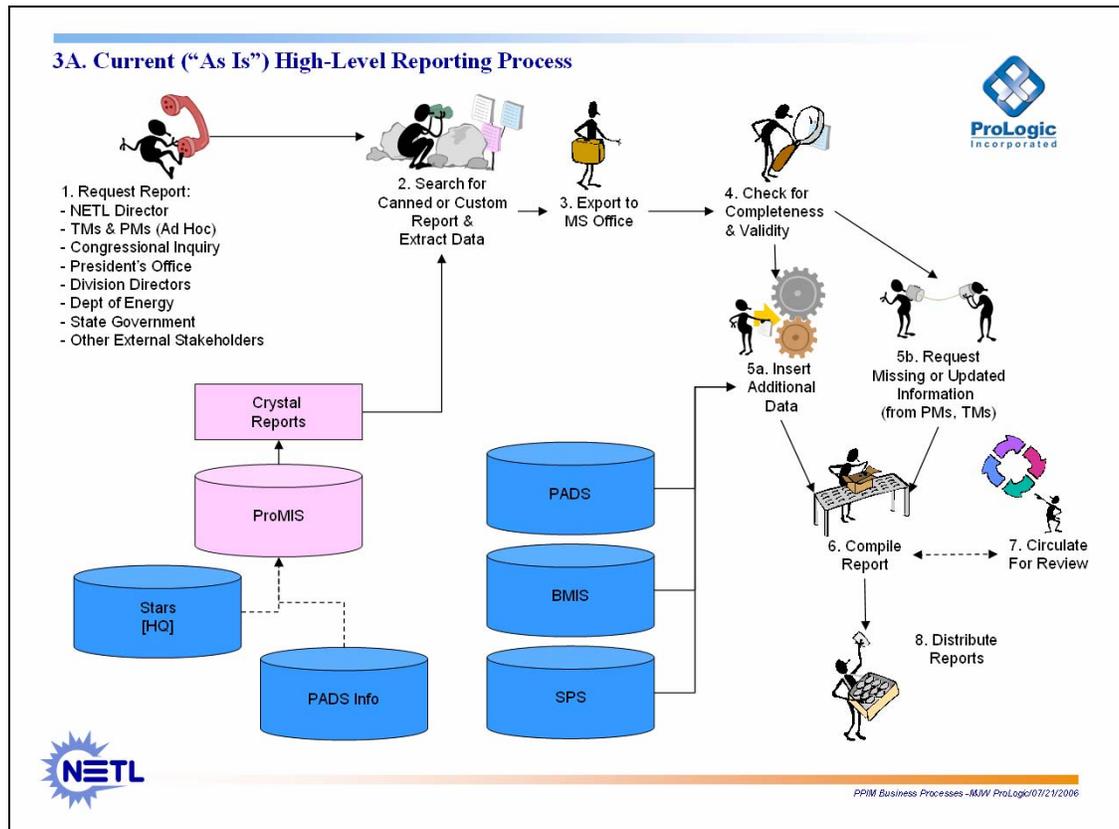


Figure 3.2.3 – High-Level Current Reporting Process

Reporting against project data occurs at multiple levels. While there are over one hundred “canned” reports in ProMIS, only a small number are actually used. This situation often occurs due to evolving reporting needs. It often appears easier to create a new report rather than enhance an existing report.

One of the more complex reporting needs is depicted in Figure 3.2.3 that describes how reports for the Office of the Director are created. PPIM will address the reporting limitations by:

- Developing designed report components that can be assembled into finished reports.
- Providing an advanced query capability that can be used to export data for manipulation in standard office tools (e.g., Excel).
- Utilizing Data Warehouse technology for providing multi-dimensional reports.
- Implementing improved data integration and data entry mechanisms that reduce data entry effort and improve data integrity.

NOTE: Appendix G contains additional detailed business process workflows.

3.2.4. Budget Mapping Process

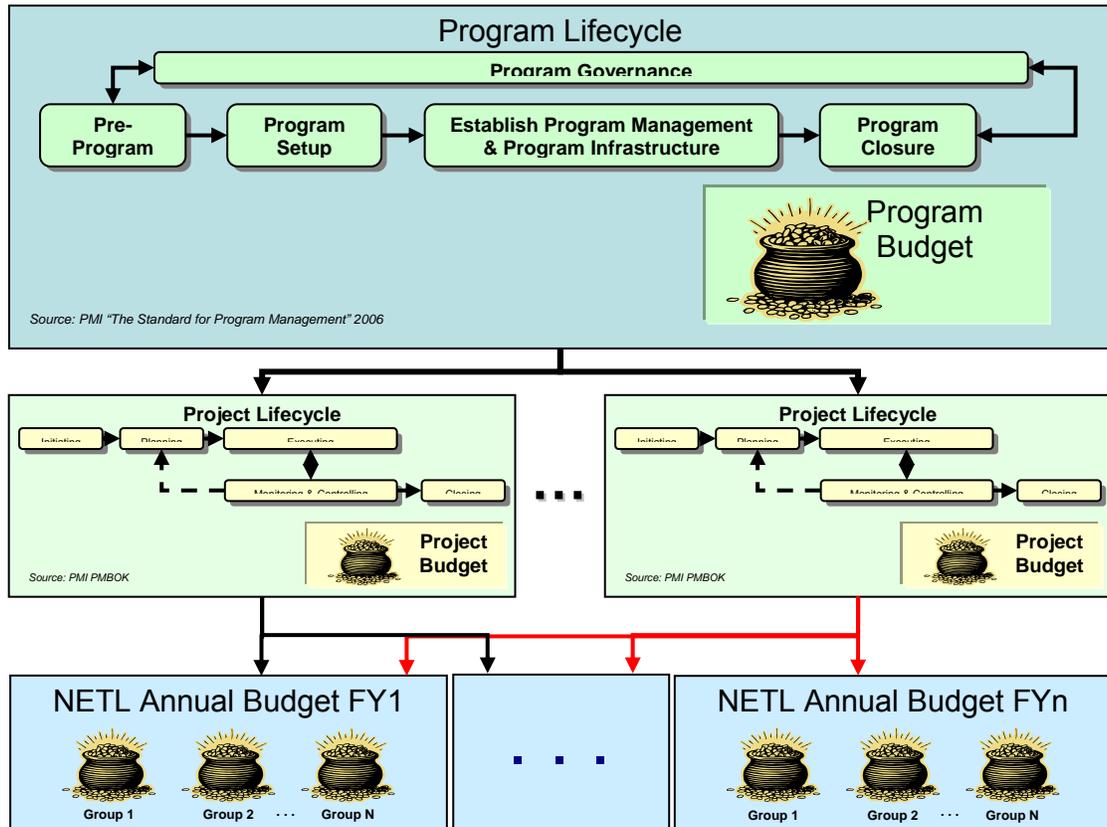


Figure 3.2.4 – Budget Mapping

The Program and Project budget planning process at NETL is quite complicated. Part of this process is described in the funding workflows in Appendix G. With respect to Program and Project management, three budget planning processes were reviewed:

- Fossil Energy (FE) Budget Planning
- Energy Efficiency and Renewable Energy (EERE) Budget Planning
- Office of Research and Development (ORD) Budget Planning

The PPIM Team determined that there is a clean demarcation between Program / Project Budgets and NETL Annual Budgets.

The PPIM and PMRS applications are very closely related. Close consultation between both teams identified that close integration between both applications is essential to the success of the budget planning and funding business processes. PPIM will target funding from a program and project lifecycle perspective; whereas, PMRS will target budget planning from a NETL fiscal year perspective. PPIM will be designed to view the data from a program and project perspective. PMRS has been designed to view the data from a financial (accounting) perspective. A mapping function will be provided to relate program / project lifecycle funds to NETL annual budgets.

3.3. Problem Statement

In order to provide value to NETL, and specifically the creators and consumers of program and project management information at NETL, any program and project management information system must satisfy the needs of the end users. The following section outlines the business, functional, data, and physical needs, or requirements, that were identified during the subject matter expert interviews conducted during the analysis phase of the project.

3.3.1. Business Needs

In a preliminary systems requirements meeting (2/21/06) with the Executive board, a preliminary set of requirements that address the business need for an integrated program and project management and reporting system were identified. The high-level business requirements were defined as follows:

- Accurate and reliable project related financial data
- Timely program funding information
- Integrated processes and supporting tools across functional offices
- Integrated data across programs and projects
- Improved project records management, including decision rationale
- Accessibility to procurement information
- Accurate and timely reporting
- Decision support system including performance dashboard

3.3.2. Functional Needs

In order to fulfill the high-level business needs, the PPIM system will provide functionality that will support the program and project management functional needs of NETL at all levels of the organization.

At a high level, a program and project information management system for NETL should provide the following functionality:

- Ability to track program and project funds from the budgeting process to project close-out
- A structured reporting capability that allows users to assemble analyzed and defined data elements into a broad range of reports (simple to multi-dimensional).
- System integration with other NETL and DOE applications, including automatic transference of PPIM inputs to other applications to ensure consistent integration with DOE Headquarters (HQ) and NETL systems.
- A customizable context-sensitive user interface (UI) that focuses on the user's data needs (programs and projects)
- A role-based visibility model that provides authorized access to key data

- Performance dashboards to monitor business process progress
- Ability to track both the current and historical status of a program/project.
- A means to capture and note cost discrepancies between reports from awardees and data managed by DOE Financial Systems.
- Workflow capability that drives processes through defined steps.
- An external interface to provide data capture directly from the awardees (to the extent allowable by DOE procurement policies and regulations as well as OMB restrictions for financial assistance) through a secure web interface linked to a “consolidation” or “staging” database.
- Management of milestone and cost information throughout the project lifecycle
- Ability to efficiently collect and monitor project and program status and milestone information
- Support of standard project data and provide for project type specific data
- Support programs through a hierarchical relationship between programs and projects
- Provide advanced reporting capabilities through the data warehouse
- Advanced searching capability through program and project materials.
- Advanced information management functions such as fast-text search, collaboration, content management, presentation and marketing material management.
- Ability to search the project/program database for information by technology manager, project manager, division director, participating company, congressional district, a range of DOE costs, etc.

3.3.3. Data / Information Needs

Once the business processes were analyzed, a high-level data analysis was performed to identify which data was needed to support each business process. An initial data analysis indicated that there is a core set of data used by most, if not all, projects (more detailed information describing the analysis can be found in Appendix D – ProMIS Required Fields). Additional data is then used by different project types, project sizes and project complexities.

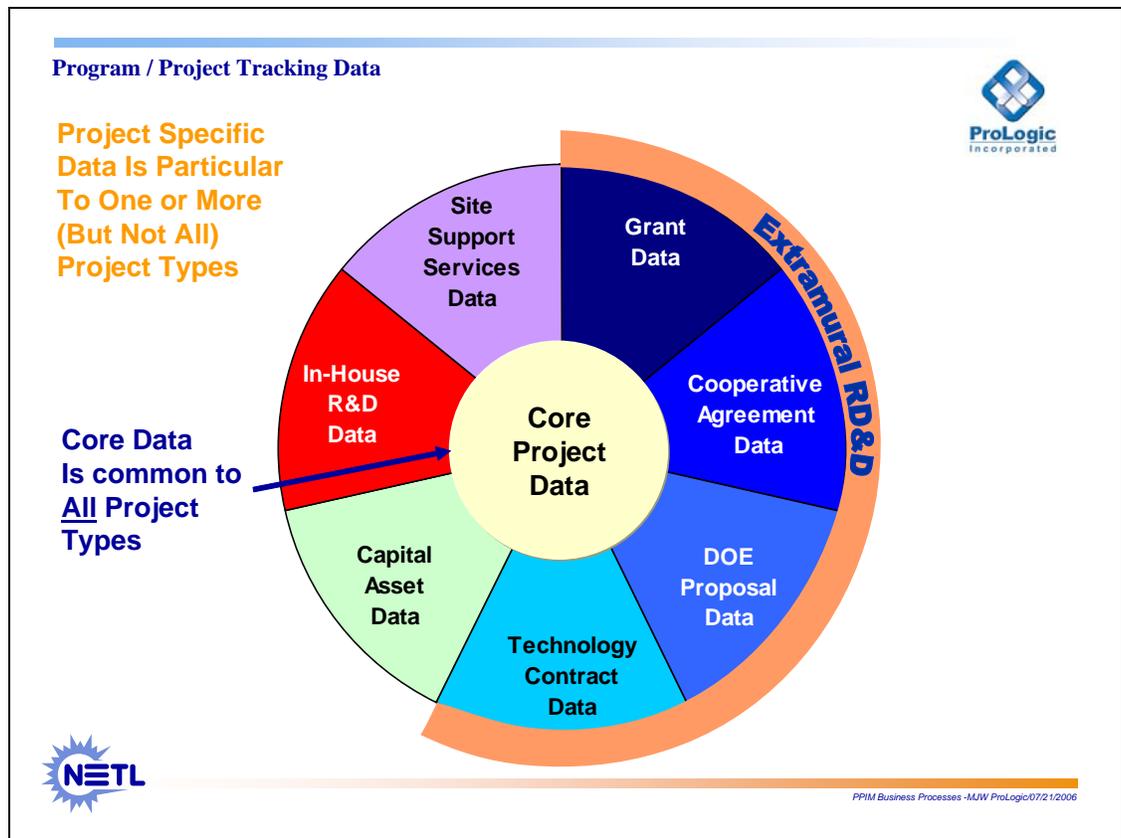


Figure 3.3.3 – Project Types

The PPIM system must be able to support multiple organization and programmatic structures supported by NETL such as FE, LM, and EERE. The system must also provide the flexibility to have multi-level hierarchical structures with the option to easily change this structure to activate new organizational units and deactivate existing units.

The data model must be able to support the aggregation of program / project data from the lowest node in a hierarchical structure. The software should be designed to ultimately support a high level of granularity (i.e., subtask level) but may initially be implemented at a low level of granularity (i.e., high-level tasks). Data must be able to be associated with a particular organization, business unit, role (e.g., Project Manager) or individual. In addition, the PPIM data model must have the capability to store and process program and project data for each milestone.

3.3.4. Physical / Infrastructural Needs

The PPIM system must be able to support multiple programmatic structures and organizations located in multiple facilities and sites across the nation including Fairbanks (Alaska), Morgantown (West Virginia), Pittsburgh (Pennsylvania), Tulsa (Oklahoma) and Albany (Oregon).

The system must conform to the latest technological web-based architecture, which would allow remote users external to NETL sites the ability to access and submit project information using a web-browser and an internet connection.

The infrastructure must consist of a centralized back-office with database servers, web servers and application servers.

In addition to the standard security features such as login ids and passwords to access the application, databases, and network, the system must provide data encryption to protect data that is transferred back-and-forth from the centralized back-office to the remote user using a public network.

4. Concept of Solution

The following section will attempt to outline the Program and Project Information Module (PPIM) solution to the NETL program and project needs. The concepts outlined in this section were the result of the analysis on the program and project management body of knowledge that was compiled in the discovery phase of the project. The concept will attempt to provide a technical solution to the program and project needs of NETL by defining features, or a software component that fulfills a specific need by providing a set of services or capabilities. These features, or components, are further decomposed into more specific functional requirements that will be managed, tested, and traced through the entire software development lifecycle.

4.1. Vision Statement

During interviews with the Subject Matter Experts, various features related to program and project management were identified. The primary business functions that can be supported in the PPIM application are shown in the High-Level Functional Components diagram (see Figure 4.1). This diagram attempts to present the full breadth of program and project functions at NETL, and is a broader view than provided in the February presentation to the NETL Executive Board. For many of the components added from the interviews, a Rough Order of Magnitude (ROM) estimate for effort and capability has been provided. The stakeholders have prioritized these components (see Appendix C). Discussions with stakeholders and executive sponsors will determine which components will be built and when.

A core system comprised of Program Management, Project Management, Program Queries, Project Queries, Structured Reports and Dashboards will provide the basic application infrastructure to support the development of the remaining components. The decision whether to build any remaining component is based on the estimated value it provides.

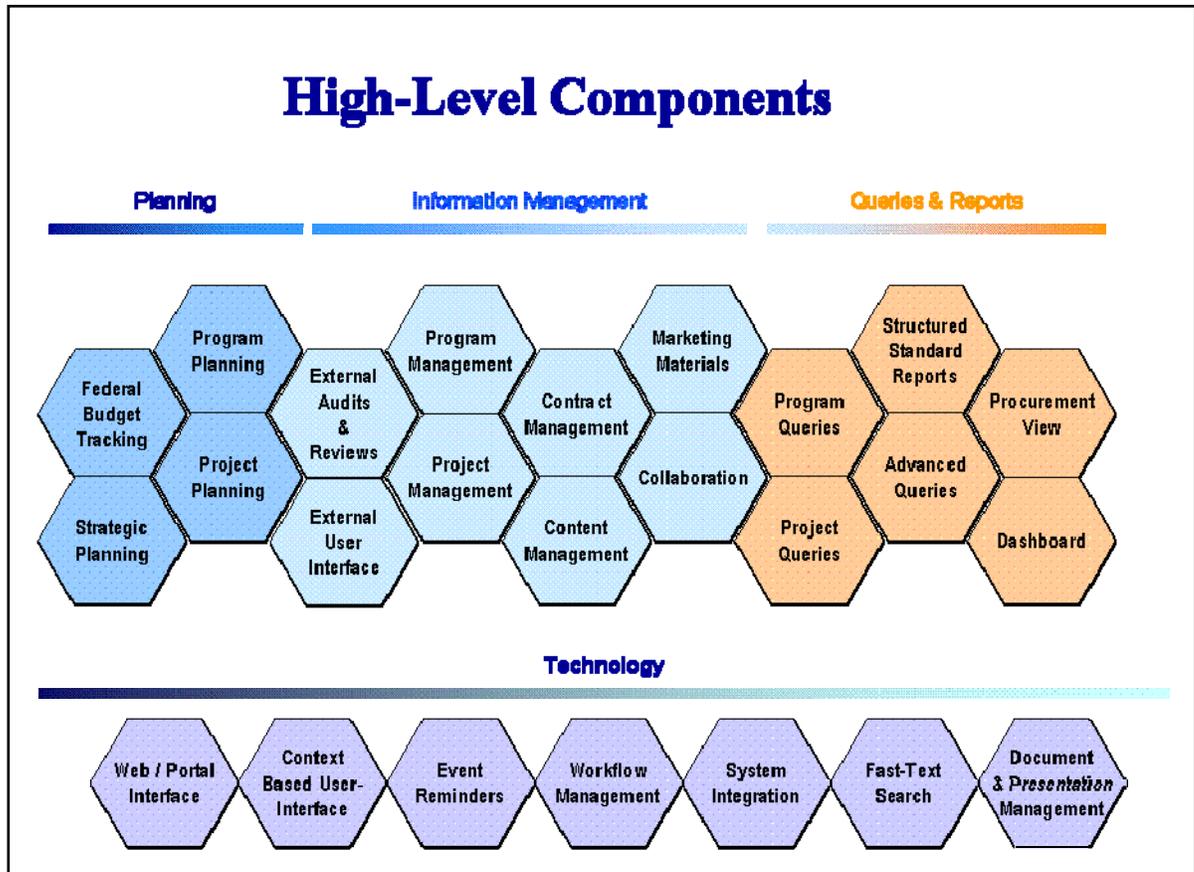


Figure 4.1 – High-Level Functional Components

Note: A prioritized list of components is included in Appendix C

4.2. High-Level System Concept

The following diagram provides a high-level vision of the proposed PPIM system configuration.

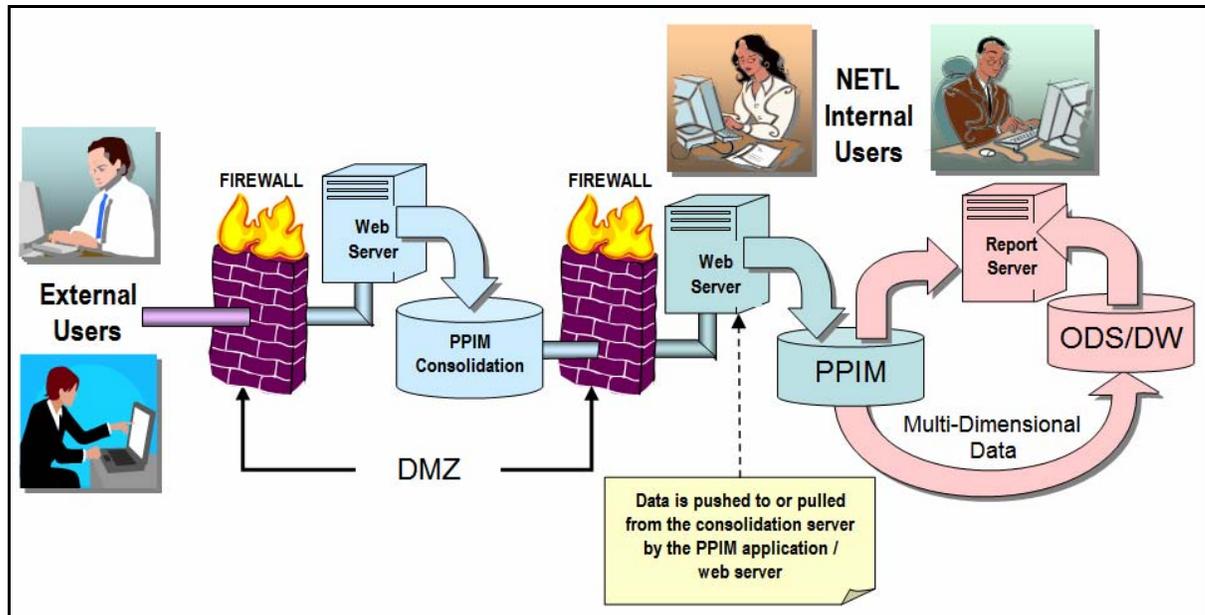


Figure 4.2 – High-Level System Concept

The key features of the proposed PPIM configuration include:

- External access by awardees for submitting periodic status information (to the extent allowable by DOE procurement policies and regulations as well as OMB restrictions for financial assistance) thereby reducing the effort to cut and paste the data into PPIM.
- Industry best practice security through the use of a “consolidation” or “import” server contained within a secure “De-Militarized Zone” (DMZ). The PPIM application / web server pulls data from or pushes data to the PPIM Consolidation server.
- Data in the consolidation database is short term in nature whereas data on the PPIM database contains all projects to date. This approach significantly reduces the security risks.
- The report server (running On-Line Analytical Processing (OLAP) software) may access the PPIM database as well as the Operational Data Store (ODS) and the Data Warehouse (DW).
- The proposed configuration is designed to be scalable and secure and will utilize existing components where necessary to reduce costs.

As a future enhancement of the project, the “consolidation” server can also be used to provide direct links to awardee systems through secure XML data transfers.

4.3. List of Features

The following list of features, identified on the component diagram (figure 4.1), are related to specific services or capabilities that will fulfill specific program and project management needs. Each of the following features are based on an understanding of the business needs as identified in the discovery phase, in most cases during the subject matter expert interviews.

It's important to note that the list of features is aligned with the component diagram and is not prioritized or weighted in any way. In some cases the feature presented below may never reach the level of importance required to be supported in full deployment in PPIM, for example OSI integration. In other cases the requirements may fully supported early in the deployment

This list attempts to provide an overall perspective of the entire Program / Project Management function at NETL and so may not necessarily represent the software development scope of the PPIM project.

Planning Components

4.3.1. Federal Budget Tracking:

This component provides a means to tracking budget information throughout the federal appropriations process.

4.3.2. Strategic Planning:

This component provides a means for managing the entire NETL Program and Project Portfolio. This includes associating Annual Operating Plans (AOPs) and Multi-Year Program Plans (MYPPs) to program budgets.

4.3.3. Program Planning:

This component provides a means for estimating and monitoring NETL program funding changes. This module allows managers to track the budget estimates and actual fund allocations to a program.

4.3.4. Project Planning:

This component provides a means for managing NETL Projects. This module allows managers to track the budget estimates and actual fund allocations to a project.

Information Management Components

4.3.5. External Audits and Reviews:

This component provides a means for capturing findings and action items information resulting from external audits. This module allows project data to be associated with an audit or review. Key decisions are captured and documented.

4.3.6. External User Interface:

This component provides for external users to submit project status, cost, and milestone information via the Internet that can be reviewed and approved by the project manager.

4.3.7. Program Management:

This component manages the parent-child relationship between programs and projects. Cross-functional programs (e.g., initiatives) are also supported.

4.3.8. Project Management:

This component implements project management functionality consistent with ProMIS but includes a significantly enhanced user interface and field values. Milestone data is also tracked throughout the project's lifecycle.

4.3.9. Contract / Agreement Management:

This component captures key information needed to execute and manage contracts and financial assistance agreements with awardees and sub-contractors. This function creates an association between contract information and project information.

4.3.10. Content Management:

This component manages the content (e.g., final reports, reference materials) produced by the program / project execution process. In addition to file storage, this component also provides advanced document management functions such as version management and fast-text search.

4.3.11. Marketing Material Management:

This component automates the development of standard marketing materials (e.g., fact sheets). It uses a template driven approach to transform content into finished marketing materials.

4.3.12. Collaboration:

This component allows users in a specific topic area to share information easily and securely with internal and external users. This component includes advanced collaboration functionality such as discussion groups and external information coordination.

Queries and Reports**4.3.13. Program Queries:**

Allows users interested in the "program" business process to quickly find key information.

4.3.14. Project Queries:

Allows users interested in the "project" business process to quickly find key information

4.3.15. Structured Reports:

This component provides a means for defining information into reporting components that can be assembled into a structured report. To ensure data integrity, information components are defined from a detailed data analysis and modeling activity.

4.3.16. Advanced Queries:

Allows “power users” to generate queries using advanced functions, logical operators and store the new queries as personal / group templates.

4.3.17. Procurement View:

This component provides users with a structured view of the procurement process and its associated data.

4.3.18. Dashboard:

This component uses internal metrics to allow users to assess the status of a particular business process very quickly. An example is a Technology Manager’s dashboard that displays metrics for programs and projects in the Manager’s particular technology area.

Technology**4.3.19. Web Portal Interface:**

This technology utilizes Internet technology to display functions in a standard web browser. Web portals assemble the user interface into functional blocks that are defined by an administrator with optional components selected by the user.

4.3.20. Context Based User Interface:

Technology that provides a user interface that can be tailored based on the user’s role. It can enhance productivity by allowing the user to focus on tasks or projects that are meaningful to them in their roles by hiding information that is less meaningful.

4.3.21. Event Reminders:

In-application and email alerts or reminders that are triggered by pre-defined events.

4.3.22. Workflow Management:

This component provides a means for defining a sequence of tasks and a set of conditions to be met. Allows for tracking of activities and for business processes to be centrally managed and monitored.

4.3.23. System Integration:

This component provides a means for moving data between systems in a structured manner. Provides for data to be entered once but used everywhere. Reduces data entry effort, improved data integrity, and reduces transcription or typographical errors.

4.3.24. Fast-Text Search:

This technology allows users to quickly find documents by searching on specific text / key words. Reduces search time and helps avoid redundancy in information.

4.3.25. Document & Presentation Management:

This component provides for the management of secured documents, slides, and presentations through a document lifecycle while providing version control.

Infrastructure Components (not displayed on components diagram)**4.3.26. System Access and Security**

This component provides security for system access, roles-based permissions, and system administration of security and access permissions.

4.3.27. Logical Security

This component provides logical security for the application including account management, password security, and security logging.

4.3.28. Security Controls

This component provides management controls, technical controls, and operational controls as defined in the NIST Special Publication 800-53 (Recommended Security Controls for Federal Information Systems).

4.4. Functional Requirements**4.4.1. Planning Modules**

The PPIM and PMRS (Planning & Management Reporting System) applications are designed to be components of an integrated application environment. The goal of this environment is to provide seamless connectivity using a common web-based user interface.

At NETL, planning occurs at two levels: a program / project level and an NETL annual budget level. The PMRS application focuses on the NETL annual budget perspective whereas PPIM focuses on the program / project perspective. The difference in these two perspectives is the scope or duration of the planning horizon. The NETL annual budget focuses on one year time horizon where the funding is acquired from the DOE programs. The program / project perspective can be very short (e.g., a few months for grants) or quite long (e.g., years for cooperative agreements).

While the following features were identified as components of the program and project management environment at NETL, it was determined that they are out of scope of the PPIM project. The components will either be covered by other future projects or will continue to be performed in the same manner that they current are.

The following components were identified but are out of scope of the PPIM project (refer to List of Features section 4.3 for description of components.)

- Federal Budget Tracking
- Strategic Planning
- Program Planning
- Project Planning

4.5. Information Management Modules

The following section outlines the functional requirements for the Information Management Module for program and project management. The following tables contain high-level requirements that are used to design the PPIM application. Mock-up screens, prototype software and more detailed requirements will be developed during the development phase of

the project to better define the item being developed. The requirements shown provide a general understanding of what will be developed. These requirements should be cross-referenced with the Estimated Delivery matrix (Section 7) to determine the estimated phase and release for each requirement to be implemented.

4.5.1. External Audits & Reviews

ID	Label	Description
EAR-01	Change Management	Ability to track changes to key project data fields. Includes the ability to track changes throughout the life of the project.
EAR-02	Audit Tagging	Ability to identify audit issues.
EAR-03	Audit Findings	Ability to attach an audit to a project.
EAR-04	Action Plan	The ability to create an action plan from the finding of an audit.
EAR-05	Audit Action Tracking	Ability to track and report on the completion of action items.

4.5.2. External User Interface (via Internet)

ID	Label	Description
EUI-01	Project Status Entry Screen	Ability for external users to enter project status information via the Internet.
EUI-02	Project Milestone Entry Screen	Ability for external users to enter project milestone information via the Internet. Performer milestones are not the same as NETL & DOE Milestones. For example, this data could include milestone dates in the performer's schedule.
EUI-03	Project Cost Entry Screen	Ability for external users to enter project cost information via the Internet.
EUI-04	Draft Data	Ability of external users to incrementally enter data and store / designate data as "Draft". Data is persistent and remains in EUI until removed by Project Manager, the performer is removed from the project, or when project close-out is complete.
EUI-05	Final Data	Ability of external users to designate data as "Final" and notify the appropriate project manager that data is ready for review.
EUI-06	Project Manager Review	Ability for project managers to review data submitted by external users and either accept or reject (with comments) the data. Information received is managed under revision control.
EUI-07	File Attachments	Ability to attach files for submittal such as project plans, technical reports, pictures, etc. Basic functionality supports only MS Office, common Picture files and PDF files. Enhanced functionality includes additional file types and advanced features (e.g., version control).
EUI-08	Information Publish	Ability to publish targeted PPIM information to an authorized area of the EUI to allow controlled access to data. This allows project managers to make PPIM information (e.g., project goals & objectives) visible to the authorized performer.

ID	Label	Description
EUI-09	Data Export	Ability for an external user to extract information in MS Office format (Word and Excel) for particular project (access to data is controlled by user access permissions).

4.5.3. Program Management (new feature not supported in ProMIS)

ID	Label	Description
PGM-01	Organization Setup	Flexibility to create any number of organizations and hierarchical levels within an organization
PGM-02	Current Program Information	Ability to track current program data (e.g., costs, schedules and milestones)
PGM-03	Historical Program Information	Ability to capture program changes (e.g. costs, schedules and milestones) and record who made the change, the rationale for the change and any approvals, if required.
PGM-04	Cost Accounting Basis	Ability to track program costs based on either a program perspective (program timeline) or a NETL Fiscal Year basis.
PGM-05	Data Visibility	Ability to limit access to select program data based on role, group or authorization level. Access control information is to be provided by NETL program management staff.
PGM-06	Program Scope	Associate program funding to the Program Segment of the Accounting Flex Field (AFF)
PGM-07	Cross-Cutting Programs	Ability to display cross-cutting (horizontal) program data for programs or initiatives that cross multiple NETL business unit (vertical) programs.
PGM-08	Program Funding	Ability to view program funding from a budget planning perspective for each type of supported program.
PGM-09	Funding Changes	Ability to record program funding changes.
PGM-10	Funding Analysis	Ability to perform what-if analysis on potential program funding changes.
PGM-11	Program Metrics	Ability to report on key program metrics defined for each NETL program area including reminders for missing metric data.
PGM-12	FE Black Book Data View	Ability to view a summary of Fossil Energy (FE) Technology Managers Black Book data to manage programs.
PGM-13	Funding Type	Ability to view the key funding program data that is produced by the following NETL groups, including but not limited to: <ul style="list-style-type: none"> • Fossil Energy (FE) • Energy Efficiency and Renewable Energy (EERE) • Office of Research & Development (ORD) • Office of Institutional & Business Operations (OIBO)
PGM-14	Program Milestones	Ability to define and track Program wide milestones. Need to be able to roll-up project milestone data into office, program, project manager, and/or division milestones.

4.5.4. Project Management

The project management functionality developed in PPIM will leverage the knowledge gained via the ProMIS application, correcting limitations and extending functionality. In addition ORD projects will be better supported.

Requirements marked with a red diamond (♦) indicate functionality based on the current ProMIS application. PPIM utilizes the strengths of the ProMIS application while removing the limitations through new features such as a significantly improved data visibility model, the addition of workflow capability and advanced query functions.

ID	Label	Description
PJM-01	Project Creation	Ability to create a project and associate the project (many-to-one) to a defined program or create a stand-alone project.
PJM-02	Project Visibility	The ability for the user to see a view of only his/her projects. Need to be able to sort the list by various sort criteria (e.g., project type, completion date, project phase).
PJM-03	Project Proxy	The ability to temporarily assign project responsibility to another person when on leave (e.g., vacations, temporary transfers).
PJM-04	Basic Project Queries	The ability to search for projects within the user’s authorized area. (More detailed requirements are contained in the “Project Queries” section)
PJM-05	Summary Information ♦	The ability to view Project Summary data (similar to the current ProMIS Summary Page).
PJM-06	Project Facts Information ♦	The ability to view Project Fact data (similar to the current ProMIS Facts Page but enhanced to include sorts based on technologies.)
PJM-07	People Information ♦	The ability to view Project People data (similar to the current ProMIS People Page but enhanced to include sorts by various roles.)
PJM-08	Performer Information ♦	The ability to view Project Performer data (similar to the current ProMIS Performer Page but enhanced to include sort based on performers).
PJM-09	Funding Information ♦	The ability to view Project Funding data (similar to the current ProMIS Funding Page but enhanced to include sorts based on organization (division, program, office)).
PJM-10	Demonstration Information ♦	The ability to view Project Demonstrations data (similar to the current ProMIS Demos Page). This screen is only visible for project types that support demonstrations.
PJM-11	Milestones Information ♦	The ability to view Project Milestone data (similar to the current ProMIS Milestones Page).
PJM-12	Requirements Information ♦	The ability to view Project Requirements data (similar to the current ProMIS Reqs Page).
PJM-13	Data/Publications	The ability to view Project Data / Publications data (similar to

ID	Label	Description
	Information ♦	the current ProMIS Data / Pubs Page).
PJM-14	Files (Attachments) Information ♦	The ability to view Project Files (extends the current ProMIS Files Page capability by providing direct hyperlinks to files). The ability to save e-Mail, Adobe PDF, Word and Excel files directly from the program to the PPIM.
PJM-15	Project Templates	Ability to use an existing project as the basis for another new but similar project. Key data items need to be copied without copying textual data (e.g., copy milestone names but not the descriptive information). Need to ensure that incorrect descriptive data is not displayed in reports.
PJM-16	Mandatory Field Configurator	Ability to designate certain fields as mandatory for a particular type of project. Need to be able to designate mandatory fields for one type of project that are not mandatory for another project type. (System Administrator function)
PJM-17	Mandatory Field Indicator	Ability to denote those fields that are mandatory for a particular type of project. For example, dynamically labeling mandatory field using bold / red font.
PJM-18	Project Milestones	Ability to track multiple types of milestones for a particular project. Need to be able to support NETL milestones (internal but not reported to DOE HQ) and DOE HQ milestones (e.g., GPRA, Joule).
PJM-19	Spend Plan Information	Ability to record and track changes to Spend Plan data.
PJM-20	Procurement Plan Information	Ability to manage Procurement Plan data.
PJM-21	Project Input Hits	Ability to track the number of times each field of project input is accessed. This will be used to improve the process over time, and ensure metrics are measuring the most used fields.
PJM-22	Project Type Maintenance	Ability to define project types. (System Administrator function)
PJM-23	Project Cost Estimates	Ability to track and add multiple project cost estimates to support program and division reporting and planning

4.5.5. Contract/Agreement Management

Requirements marked with a red diamond (♦) indicate functionality based on the current ProMIS application.

ID	Label	Description
CTM-01	Contract View	Ability to view the PRATS contract data associated with a select project
CTM-02	Contract Information ♦	The ability to view Project Contract data (similar to the current ProMIS Contract Page).

ID	Label	Description
CTM-03	Procurement Collaboration	Ability to quickly send contract queries to the appropriate contract specialist.

4.5.6. Content Management

ID	Label	Description
CNM-01	Document Lifecycle Support	Ability to manage attached files throughout the entire document lifecycle from creation to destruction.
CNM-02	Revision Control	Ability to manage versions of files. Includes the ability to check-out / check-in files, to enter a revision description, and the ability to lock files as read-only.
CNM-03	Publish Control	Ability to distribute files into a public area and track usage. Includes the ability to generate presentation formats (e.g., Postscript and PDF) from source documents (e.g., Excel, Word, and PowerPoint).
CNM-04	Content Security	Ability to prevent sensitive information from being published.
CNM-05	Fast Text Search	Ability to quickly search through a broad range of file types using key words and logical operators.
CNM-06	Archiving	Ability to remove files to different media types (e.g., move data from hard disk to CDROM to tape media). Also includes the ability to restore an archived file.

4.5.7. Marketing Materials

ID	Label	Description
MM-01	Marketing Identification	Ability to identify specific project data for automatic extraction and incorporation into marketing materials.
MM-02	Marketing Material Extract	Ability to manually extract targeted information into a content editor that supports spell and grammar checking.
MM-03	Marketing Material Formatting	Ability to use style sheets to format data extracted for Marketing Materials.
MM-04	Marketing Material Preview	Ability to preview marketing materials in a What-You-See-Is-What-You-Get (WYSIWYG) window.
MM-05	Consolidate Fact Sheets	Ability to consolidate and store project Fact Sheets for FE R&D projects.

4.5.8. Collaboration

ID	Label	Description
COL-01	Discussion Groups	Ability to post topics to a website for discussion and comment where participants can follow a line of discussion on a topic.
COL-02	Joint Projects	Ability to collaborate on projects between multiple resources at multiple locations and/or organizations.

ID	Label	Description
COL-03	Presentation Management	Ability to conduct Internet-based seminars including scheduling the event, managing the presentations, conducting the event, and managing follow-up materials (e.g., evaluation forms and comments).
COL-04	Bulletin Board	Ability to post notices and facilitate discussions on any topic.
COL-05	Whiteboard	Ability to display drawings, pictures or documents in real-time for group discussion and comment. Participants can annotate in real time as well.

4.5.9. Query and Reporting Modules

The following section outlines the functional requirements for the Query and Reporting Modules for project and program management. The requirements shown should be cross-referenced with the Estimated Delivery matrix (Section 7) to determine the estimated phase and release for each requirement to be implemented.

4.5.10. Program Queries

ID	Label	Description
PGQ-01	Program Status Search	Ability to query by program status.
PGQ-02	Organization Search	Ability to search for programs executed by one or more organization.
PGQ-03	Technology Area Search	Ability to search for programs for a particular technical area.
PGQ-04	Program ID Search	Ability to search for program with a particular program ID
PGQ-05	Performing Organization Search	Ability to search for programs executed by a particular organization.
PGQ-06	Multiple Requirement Search	Ability to search for programs based on the values of multiple requirements.
PGQ-07	Subset Search	Ability to conduct a second search using additional search criteria on an initial search results list.
PGQ-08	Personal Query Templates	Ability to name and store queries as templates for later searches for personal use only.
PGQ-09	Group Query Templates	Ability to name and store queries as templates for later searches for use by other members of a user's group.
PGQ-10	Global Query Templates	Ability to name and store queries as templates for later searches for use by other PPIM users.
PGQ-11	Synonyms	Ability to use a list of alternative words that have the equivalent meaning for a word. This functionality can be used to support a name change (e.g., a change in a group name).

4.5.11. Project Queries

ID	Label	Description
PJQ-01	Project Status Search ♦	Ability to query by project status (Procurement, Selected Not Yet Awarded, Active, Inactive, Retired).
PJQ-02	NETL Division Search ♦	Ability to search for projects managed by one or more divisions.
PJQ-03	Technology Area Search ♦	Ability to search for projects for a particular technology area.
PJQ-04	Project Number Search ♦	Ability to search for projects with a particular project number.
PJQ-05	Agreement Type Search ♦	Ability to search for projects for a particular agreement type.
PJQ-06	Project Manager Search ♦	Ability to search for projects managed by a particular project manager.
PJQ-07	Performing Organization Search ♦	Ability to search for projects managed by a particular organization.
PJQ-08	Multiple Requirement Search ♦	Ability to search for projects based on the values of multiple requirements.
PJQ-09	Subset Search ♦	Ability to conduct a second search using additional search criteria on an initial search results list.
PJQ-10	Personal Query Templates	Ability to name and store queries as templates for later searches for personal use only.
PJQ-11	Group Query Templates	Ability to name and store queries as templates for later searches for use by other members of a user's group.
PJQ-12	Global Query Templates	Ability to name and store queries as templates for later searches for use by other PPIM users.
PJQ-13	Synonyms	Ability to use a list of alternative words that have the equivalent meaning for a word. This functionality can be used to support a name change (e.g., a change in a group name).

Requirements marked with a red diamond (♦) indicate functionality based on the current ProMIS application. PPIM utilizes the strengths of the ProMIS application while removing the limitations through new features such as a significantly improved data visibility model, the addition of workflow capability and advanced query functions (i.e., logical operators).

4.5.12. Structured Standard Reporting

The PPIM reporting functionality extends the current reporting capabilities in ProMIS through the use of On-Line Analytical Processing (OLAP) functionality.

ID	Label	Description
RFX-01	Basic – Output Format	Ability to produce a report in tabular format that can be displayed online or in printed format. The reports can be constructed based on a set of data components selected by the user or predefined in a report template.
RFX-02	Enhanced – Output Format	Ability to produce graphical executive reports that utilize advanced graphics (i.e. bar charts, pie charts).
RFX-03	Report Export	Ability to download reports as an Excel (xls) file.
RFX-04	Report Filters	Ability to specify multiple attributes/value pairs (e.g. Priority = 1) as filters for generating reports.
RFX-05	Report Content	Ability to utilize attributes for inclusion in reports (e.g., from period X to period Y).
RFX-06	Report Sorting	Ability to specify sorting criteria for utilization in generating reports (1 st sort by project type then by ascending {alphabetical} performer, etc).
RFX-07	Historical Reports	View historical reports for previous periods (fiscal year, project lifecycle).
RFX-08	Report Distribution	Ability to be able to automatically send reports electronically as needed, both within and outside of NETL.

4.5.13. Advanced Queries

ID	Label	Description
AVQ-01	Logical Queries	Ability to construct complex queries by applying logical operators (e.g., AND, OR, XOR, NOT) to field values. For Example: Project Type = Cooperative Agreement AND Status = Active.
AVQ-02	Saved Queries	Ability to store queries for repeated use.
AVQ-03	Personal Queries	Ability to store queries for personal use.
AVQ-04	Group Queries	Ability to store queries for use within a group.
AVQ-05	Global Queries	Ability to store queries for use by any PPIM user.
AVQ-06	Report Generation	Ability to generate reports in Word and Excel format from a query (generate a reports from a query’s results list).

4.5.14. Procurement View

ID	Label	Description
PCV-01	Procurement Data Display	Ability to view the stage in the Procurement process of a Purchase Request (PR).

4.5.15. Dashboard

ID	Label	Description
DSB-01	Operational Dashboard	Ability to display key <u>operational</u> metrics using graphical display components (e.g., dials, bar graphs, pie charts).
DSB-02	Executive Dashboard	Ability to display key <u>strategic</u> metrics using graphical display components (e.g., dials, bar graphs, pie charts).

4.6. Technology Components

The following section outlines the functional requirements for the Technology Components for project and program management. The requirements shown should be cross-referenced with the Estimated Delivery matrix (Section 7) to determine the estimated phase and release for each requirement to be implemented.

4.6.1. Web / Portal Interface

ID	Label	Description
WPI-01	Browser Components	Ability to display application information using NETL standard browsers.
WPI-02	Portal Function	Ability to display configurable user interface components within definable window panes of a browser. This capability is also known as a Web Part (Microsoft term) or Portlet (JAVA term).
WPI-03	Portal Windows	Ability to display a page of information as a collection of non-overlapping portal windows, where each portal window displays a portal function.
WPI-04	Portal Component Functionality	Ability to support the basic operational user functions and key look & feel of the JSR 168 Portlet Specification (v1.0).

4.6.2. Context Based User Interface

ID	Label	Description
CBU-01	"My Projects"	Ability to view a list of "My Projects". Clicking on a list of projects display changes the context to display data only for that project.
CBU-02	"My Tasks"	Ability to view a list of "My Tasks". Clicking on a list of tasks display information about that task.
CBU-03	Bread Crumbs	Ability to display the nesting levels and jump to a displayed level by clicking on the hyperlink.
CBU-04	Screen -level Help	Ability to display pop-up context sensitive help information for each screen.
CBU-05	Field-level Help	Ability to display pop-up context sensitive help information for each field.

4.6.3. Event Reminder

ID	Label	Description
ER-01	Create Event	Ability for users to create a programmable event reminder that notifies the user when a date threshold is reached. Includes the ability to create personal, group, or global events.
ER-02	Event	Ability for users to view the status of all currently programmed

ID	Label	Description
	Administration	events
ER-03	Event Scheduling	Ability to program an event to occur periodically during a specified date range
ER-04	Event Deletion	Ability to delete active events
ER-05	Event Links	Ability to link the event to a particular data page
ER-06	Event Conditions	Ability to trigger an event reminder when a particular set of conditions are met. The conditions are based on PPIM field values in a logical expression (e.g., AND, OR, XOR).
ER-07	E-Mail Notification	Ability to receive event notifications via email.
ER-08	Application-level Notification	Ability to receive application-level event notifications via email.

4.6.4. Workflow Management

ID	Label	Description
WKF-01	Core Workflow Functionality	Ability to create core workflow capability by defining a routing sequence, roles and permissions, and states.
WKF-02	Locking Workflow Item	Ability to lock workflow items that are submitted for approval, preventing further changes after submission.
WKF-03	Notification Options	Provide users the option to select one out of three notification methods (a) online (b) email (c) both online and email.
WKF-04	Passive Notification	Ability to inform users of an event where the user is not expected to take any action.
WKF-05	Routing to Alternates	Option for user to route workflow item to an alternate role in the system.
WKF-06	Workflow Oversight	Ability to view pending workflow approvals in the system for any role.

4.6.5. System Integration

A key requirement for the PPIM application is to provide seamless integration with other NETL and DOE applications. The following sections identify key integration issues.

- Financial data is currently managed in the DOE STARS system and accessed through the DOE IDW (I-Manage) database.

ID	Label	Description
SI-01	STARS / IDW Integration	Ability to import cost data from the STARS / IDW database
SI-02	Cost Discrepancy Notes	Ability to enter a value, description and source for any cost item associated with a program or project

- Fossil Energy project deliverables and close-out is currently managed in the NETL Federal Information Tracking System (FITS) application and the Award Close-Out applications, respectively. Since a major goal of the PPIM project is to manage most, if not all, aspects of the project management business process, it is recommended to include the current FITS and Award Close-Out functionality into PPIM.

ID	Label	Description
SI-03	FITS Integration	Integrate with deliverable tracking system (FITS) to initiate contact closeout process.
SI-04	Two-Phase Submission	Ability to prepare and save working draft of deliverable prior to submission as well as a final copy.
SI-05	Store Deliverables	Ability to store deliverables in PDF format.
SI-06	Submit to OSTI	Ability to submit and track project documentation to OSTI (Office of Science and Technical Information)
SI-07	Submit to Patent Office	Ability to submit and track patent office documentation.
SI-08	Submit Internal Mgmt Reports	Ability for internal users to submit and track management reports.
SI-09	Submit Deliverables	Ability for awardees to submit required award deliverables and track actual submission date.
SI-10	Submit Ad-hoc Deliverables	Ability for contractor to submit ad-hoc award deliverables and track submission date.
SI-11	Deliverable Alert	Notify awardees of planned deliverables prior to the actual due date.
SI-12	Deliverable Approval Workflow	Notify users in sequence to obtain the required approvals on award deliverables.
SI-13	Workflow Approval	Ability for all identified approvers to approve or not approve the deliverables.
SI-14	Workflow Rejection	Ability for user to not approve a required deliverable including entering a reason for not approving and entering a revised delivery date.
SI-15	Rejection Notification	Notify awardee of non-approval of deliverable including reason and revised delivery date.
SI-16	Missed Deliverable Notification	Automatically notify PM (and COR?) of missed deliverable i.e., failure to submit a required award deliverable on the planned date.
SI-17	Deliverable Resubmit	Ability for contractor to resubmit required award deliverables due to non-approval of original submission.
SI-18	Issue Delinquency Notice	Ability for PM to submit a delinquency notice to awardee when deliverables are missed.
SI-19	Deliverable History	Maintain history of records for all approved and not approved awardee deliverables.
SI-20	Deliverable Status Report	Ability to report on award deliverable by name, type, Project number, due date, or actual submission date, contractor, contracting officer.
SI-21	Deliverable Queries	Ability to search and view a deliverable by name, type, Project number, due date, or actual submission date, contractor, contracting officer.

ID	Label	Description
SI-22	Deliverable Schedule	Automatically create a standard deliverable schedule for project with due dates when new awards added.

- PPIM needs to incorporate the functionality contained in the NETL Award-Closeout system that is used to manage the contract closeout processes.

ID	Label	Description
SI-23	Closeout Workflow	Provide workflow mechanism to track awards from closeout to retirement.
SI-24	Closeout Checklist	Automatically provide checklist of closeout activities to track closeout process.
SI-25	Closeout Queries	Provide ability to Query historical data.
SI-26	Closeout Reporting	Provide for reporting on closeout activities.

- The DOE PADS application manages the Purchase Request process. PPIM needs visibility into the PADS system to manage the contract performer information.

ID	Label	Description
SI-27	PADS Info Integration	Provide automated download of PADS data for projects over \$25,000 and award types equal to: Contract, Indefinite-Delivery Contract, Research Opportunity Award, Special Research Contract, Cooperative Agreement, Grant.

- PPIM needs data from the Congressional Database to enable reporting on project metrics by Congressional District.

ID	Label	Description
SI-28	CDD Interface	Integrate with 3 rd party congressional database to provide current congressional district information
SI-29	CDD Queries	Provide for querying on congressional district information for project performers.
SI-30	CDD Reporting	Provide for reporting on congressional district information for project performers.

- PPIM generates marketing information that is automatically shared with various systems located at DOE HQ. These systems include FRED, OSTI, and RaDiUS.

ID	Label	Description
SI-31	FRED Interface	Interface with FRED (Fossil Research and Engineering Database) to submit project information for DOE-wide R&D projects.
SI-32	OSTI Interface	Interface with OSTI (Office of Scientific and Technical Information) to submit project information for DOE-wide R&D projects.
SI-33	RaDiUS Interface	Interface with RaDiUS (Research and Development in the US) database (Federal-wide R&D data) to submit project information for Federal R&D projects.
SI-34	CPS Interface	Interface with CPS to provide project information to EERE.

- PMRS manages funding information based on NETL fiscal years. PPIM users need a mechanism to map program and project funding information based on the program / project lifecycle to NETL annual budgets.

ID	Label	Description
SI-35	PMRS Integration	Provide an interface that transfers funding information between PPIM and PMRS.

- Until the ProMIS application is completely replaced by PPIM, an interface that transfers information between the two systems could significantly reduce the effort needed to manage program / project data.

ID	Label	Description
SI-36	ProMIS Integration	Provide an interface that transfers program / project information between PPIM and ProMIS.

4.6.6. Fast Text Search

ID	Label	Description
FTS-01	File Indexing	Ability to create an index that represents the character distribution of a file. The index file is designed for fast searching of keywords.
FTS-02	Keyword Search	Ability to search quickly for keywords in a collection of files. Includes the ability to highlight the keyword in when displaying found files.
FTS-03	Logical Operators	Ability to use logical operators (e.g., AND, OR, XOR, NOT, NEAR, PARAGRAPH, PAGE) to include / exclude keywords in a search.
FTS-04	Search Results List	Ability to display search results in a list ordered from most relevant to least relevant.
FTS-05	File Hyper-linking	Ability to view a file in the results list. Clicking on the file entry launches the associated browser / application to view the file.
FTS-06	Standard File Support	Ability to scan and index files of standard types including Microsoft Office Formats (Word, Excel, PowerPoint), Portable Formats (PostScript and Acrobat) and Image Formats (GIF, JPEG, TIFF).

4.6.7. Document Management

ID	Label	Description
DOM-01	Document Lifecycle Support	Ability to support the management of documents throughout the entire document lifecycle (Create, Revise, Approve, Release, Store, Find, Change/Reuse, and Destroy).
DOM-02	Version Control	Ability to store and track different file versions.
DOM-03	Revision Control	Ability to track file revisions including storing meta data about why the change was made and who made the change.
DOM-04	Display Differences	Ability to display the differences between two MS Office files (doc, xls, ppt).
DOM-05	File Merge	Ability to merge two files derived from the same root file.
DOM-06	File Concatenation	The ability to combine two files by appending one file to another.
DOM-07	Files Supported	Ability to support MS Office files (doc, xls, ppt) as well as MS Project, MS Visio, and Adobe Acrobat (pdf).

4.6.8. Presentation Management

ID	Label	Description
PSM-01	Slide Management	The ability to manage a collection of presentation slides based on topic, group, and/or person.
PSM-02	Presentation Assembly	The ability to assemble a presentation from a collection of individual slide.
PSM-03	Version Control	The ability to track versions of a particular slide and/or presentation.
PSM-04	Presentation History	Ability to track which version of presentation was presented at a particular event.
PSM-05	Slide History	Ability to track which version of a slide was assembled for a particular presentation.
PSM-06	Web Publishing	Ability to publish presentations to a web site.

4.7. Infrastructure Components

4.7.1. System Access and Security

ID	Label	Description
SAS-01	Basic - Number of users	System will support 100-200 users
SAS-02	Extended – Number of Users	System will support up to 500 users
SAS-03	User Roles	Support multiple user roles.
SAS-04	User Permissions	Access permissions to functionality specific to the role of the user
SAS-05	System Admin	Support an administrator (Admin) role to manage users' accounts, security and access permissions.
SAS-06	Web Browser Access	Ability to securely access the system with a standard web browser and broadband internet connection, both from within NETL and remote locations
SAS-07	Application Security	Provide network, database and application level security
SAS-08	Data Encryption	Ability to encrypt and transfer data securely over a public network

4.7.2. Logical Security Requirements

ID	Label	Description
LSR-01	Account Creation and Deletion	Users' accounts will have an automatic process that enables manual vetting of account creation and deletion activities.
LSR-02	Initial Password	New web application users will be required to change their password at first login.
LSR-03	Password Characteristics	Passwords will be no less than 8 characters in length and will utilize 3 of the 4 types of character sets.
LSR-04	Password History	The application will maintain a password history of each user's last nine passwords used, preventing the user from re-using the last nine passwords.
LSR-05	Password Aging	The application will provide a minimum password age of one day. After a user changes his password, 24 hours must elapse before it can be changed again.
LSR-06	Login Attempts Limits	The application will provide for accounts to be locked out if the maximum number of five failed login attempts is exceeded.
LSR-07	Activity Logging	The application will have an administrator activity log and a user activity log.
LSR-08	Security Logging	At a minimum all logins, log offs, failed attempts, account deletions, account creations, user privilege changes, will be recorded in the syslog, security log, or separate log. It will contain the source, destination, time, and user identifier.
LSR-09	Log Reporting	The application will enforce these items automatically and provide an appropriate reporting mechanism. (WebAdmin)
LSR-10	Interoperability Requirements	The application will comply with the requirements for interoperability located in HSPD-12 (Homeland Security Presidential Directive).

4.7.3. Security Controls

NETL information systems provide support to multiple sites (Pittsburgh, Morgantown, Tulsa, Albany, Alaska) and has two different operational user groups: internal NETL users and authorized external users. The following are categories of high-level Cyber Security controls as defined in the NIST 800-53 minimum standard document that will be addressed for the PPIM application.

ID	Label	Description
CYB-01	Management Controls	Provide for appropriate management controls to provide organizational safeguards to manage the security of the system and the associated risks. Security controls Include: <ul style="list-style-type: none"> • Risk assessment; • Security planning; • Acquisition of information systems; • Review of security controls; and, • Authorization for processing.
CYB-02	Technical Controls	Provide for appropriate safeguards employed within the application to protect the application and its information from unauthorized use. Security controls include: <ul style="list-style-type: none"> • Identification and authentication; • Logical access control; • Accountability (including audit); and, • System and communications protection.
CYB-03	Operational Controls	Provide for appropriate operational controls to support the Management and Technical Controls of the application. Security controls include: <ul style="list-style-type: none"> • Personnel security; • Physical and environmental protection; • Contingency planning and operations; • Configuration management; • Hardware and software maintenance; • System and information integrity; • Media protection; • Incident response; and, • Security awareness and training.

4.8. Out-of-Scope Requirements

Due to the size and complexity of the scope of the program and project management activities at NETL, the scope of the project deliverables for phase 1 will be limited. While the following may be in scope for future release phases, the following functionality will be out of scope of phase 1 of the PPIM development project:

- **Data Conversion** - The implementation strategy including the plan for the transfer of information from existing application [ProMIS, etc.] will be out of scope of this Concept and Scope document and will be detailed in subsequent project documentation. The data conversion process will be detailed during the software development phase of the project.
- **NETL Budget Tracking Process** - While portions of the program and project budget tracking process were analyzed as part of the subject matter expert interviews, the complexity and extent of the process was determined by the PPIM team to be too large to include in the initial phases of the PPIM project. However, portions of the data that were produced by the budget tracking process will be entered and managed in PPIM and perhaps PMRS as well.
- **Data Warehouse Development** - The PPIM project utilizes Data Warehouse technology, particularly in the development of operational and executive dashboards. The PPIM project includes only a subset of the effort required to develop, deploy and manage a data warehouse at NETL. It is therefore important that the development of the data warehouse components be part of a more comprehensive data warehouse project.
- **Procurement (STRIPES)** - The PPIM project also includes procurement components that provide a view into procurement systems at NETL. In light of the ongoing STRIPES activities, the PPIM procurement components (i.e., Procurement View) should dovetail into a more comprehensive STRIPES project. The PPIM project does not include any provision for the upgrade or conversion of NETL procurement systems to support the DOE STRIPES initiative.
- **Portal Development** - The PPIM project references the use of portal technology to provide many common components (e.g., collaboration, fast text search). The PPIM project does not include the development of an enterprise-wide portal. If portal technology is selected for implementation, the PPIM project can include the development of a portal interface for PPIM.
- **Document Management** – PPIM includes the management of files associated with programs and projects. The document management component will support the full document lifecycle management of these files but it does not include the development of an enterprise-wide document management solution at NETL.
- **Business Process Improvement** - For a successful implementation of PPIM, significant effort is required to define and standardize the program and project management business process at NETL. The implementation of PPIM includes the analysis of this process with respect to implementing an application that supports the process. It is the responsibility of NETL stakeholders, business managers and staff to define the NETL program / project management process and the data required to support it. The PPIM project does not include the definition of standard processes and key data to support the process. PPIM does include the utilization of the business process and its associated data.

- **ProMIS Enhancement** - While some minor changes to ProMIS will be required to provide links to the PPIM application, the PPIM project does not include the enhancement of ProMIS to add any new functionality during the transition to PPIM. Any enhancement of ProMIS is a separate maintenance and operation activity. Whenever practical, data links will be provided to synchronize common data to minimize the effort required for duplicate data entry.
- **External Interfaces to ProMIS** - There are currently multiple interfaces to external systems from ProMIS. During the transition to PPIM, these interfaces will need to be updated to include data contained and managed in PPIM. The PPIM project does not include the development of new interfaces other than the effort required to add the PPIM data. The addition of new external interfaces or updates to existing interfaces to ProMIS is a separate activity.
- **Report Enhancements** - During the development of PPIM, many reports that are generated will need to be modified to utilize data that has been moved to PPIM. The PPIM project will include any modification of these reports to include PPIM data but it will not include the total cost of creating new reports.
- **Manual Forms-based Processes and Spreadsheets** – NETL utilizes many forms-based processes, some of which may spawn processes supported by PPIM. In addition, NETL also utilizes a large number of spreadsheets that are used to manage data that originates from ProMIS. This project does not include the automation or updating of these “manual” processes other than providing access to data that has moved from ProMIS to PPIM. Whenever practical, interfaces will be provided to back-populate ProMIS fields to maintain the integrity and functionality of existing reports.
- **Linked System Enhancements** – PPIM will utilize data from various DOE and NETL applications. With the exception of those applications targeted for incorporation into PPIM (e.g., FITS and Award Closeout), the PPIM project does not include the enhancement of any other NETL application. The PPIM application will require interfacing to some NETL applications. This interfacing will be transparent to the end-users.
- **Workflow Management** – PPIM is targeted to utilize flexible workflow technology to manage the PPIM internal processes. The PPIM project does not include the development of an enterprise-wide workflow solution for processes outside of the PPIM scope.
- **External User Interface** – PPIM is targeted to provide a means for external users to enter project status information. The PPIM project does not include the development of any external user application beyond the PPIM scope defined in this document. Any external user interface, if approved, will conform to NETL cyber-security requirements.

5. External System Dependencies

To reduce the effort required to interface with external applications, all inbound data will be managed via the Operational Data Store (ODS). PPIM will access externally managed data indirectly through the ODS. Due to the interdependency of data (see Appendix A – System Analysis), PPIM will need to:

- Integrate with STARS/IDW via the ODS
- Integrate with PADS via the ODS
- Integrate with PADS INFO via the ODS
- Integrate with STRIPES via the ODS
- Integrate with Site Support Task Management (SSTM) via the ODS
- Integrate with PMRS via the ODS
- Integrate with the Budget Directive process
- Integrate with the SPS system
- Extract data to FRED directly (eventually via the ODS)
- Extract data to CPS directly (eventually via the ODS)
- Extract data to Project Management Center deliverable tracking system (Golden) directly (eventually via the ODS)

6. Assumptions and Risks

6.1. Risks

A Risk Management Plan will be used to manage the risk identification, analysis, and risk response process for the PPIM development project. The following section outlines the foreseeable project risks that were identified during the PPIM business case development project. This initial set of risks will be added to the ITES Risk Repository and will be tracked via the Risk Management Plan and the Risk Repository.

- Business Case Schedule Risk – The original plan for the PPIM business case Development was based on input from project resources that are no longer on the contract and so there is a risk that the new project team members will not meet the scheduled dates reflected in the original PPIM business case development plan.
- Business Case Technical Risk - On the ITES team there were multiple technical resources that left the project within a short period of time after kickoff. Without a data warehouse project manager and a software technical lead, the business case development project may not have a contrasting engineering (technical) perspective to support the business perspective of the enterprise architecture resources. While a concerted effort was made to compensate for the loss of resources, the cost estimates, schedule estimates, and technical approaches may not be as complete if technical resource continuity had remained constant.
- Lack of standard NETL business processes – In the past, various NETL groups have been given significant autonomy in managing their programs and projects. This has resulted in significantly different program / project relationships between DOE headquarters, as well as, between other NETL groups. There are few enterprise-wide standard business processes, methods and tools used to perform program and project management activities. Currently there exist different processes between offices and divisions with additional variations based on the type of project. This lack of business standards results in significant project risk that must be addressed if the project is to be successful.
- Release Management Risk – PPIM use will be broad and touch many NETL organizations at many levels. ITES can develop a system to meet identified needs, but we do not have control of the resources necessary to effect a successful deployment of the system into the NETL environment. Without proper customer commitment there could be schedule, communications, and acceptance issues.
- Development Resource Risk – The software development market is currently experiencing a limited supply of experienced and productive development resources that have a history of stellar performance with the specialties (e.g., data warehousing, COTS integrations, and software development) required to effectively execute this project. These resources are difficult to find in this geographic region and are very costly. If there are staffing issues, the result could be schedule risks, technical risks, and budgetary risks.
- Data Interface Risks – PPIM will require data from many different source applications as well as providing data to many different applications including internal NETL systems and DOE HQ systems. Properly managing the interfaces is critical to ensuring data quality and maintaining the development schedule. Interfaces can change routinely without notification from DOE. The result would be schedule and data quality issues.

- STRIPES Risk – Aspects of PPIM deals with procurement, contracts, and purchasing. There could be a potential impact with the integration of STRIPES.
- Customer Expectation Risk – Due to the incremental nature of the RAPID methodology, a complete set of system capabilities will not be delivered on the first release rather a set of core functionality will be delivered with additional functionality in later releases. There is a risk that we will not meet customer expectations from either a functionality or timeliness perspective if the customers do not understand the incremental aspects of the RAPID model.
- Data Migration Risk – PPIM will ultimately replace existing systems. Migration of the data from the various applications could result in issues with the completeness of data. Additionally, not all data may be able to be migrated and schedule issues could result if substantial analysis or rework is required to ensure data integrity.
- COTS Integration Risk – PPIM will require the integration of more Commercial-Off-The-Shelf (COTS) technologies than any application previously developed for NETL. While COTS software may quickly provide significant functionality, significant time and effort is required to acquire application knowledge (e.g., to learn how to configure software, to complete developer training and the ability to conduct end-user training). Technical risk may result due to varying skill sets / experience of developers as they utilize 3rd party software.
- Compliance with DOE Project Management Standards – Standardized and defined program and project management processes are currently being refined but have not yet been institutionalized. There could be a substantial risk in creating an application prior to standard NETL-wide process being defined and institutionalized.
- Continuity of Funding – With multiple sources of funding, if appropriate funding is not in place or if funding cuts occur, the potential exists for a reduction in project budget resulting in staff reduction.
- IDW Interface Risk – There is a high likelihood of issues with the STARS / IDW interface.
 - Cost tracking will be limited based on how CIDs (contract IDs) are used. NETL does not use CID in a uniform way thus preventing the ability to track all costs the same way. (e.g. For example, FE projects use CIDs but ORD projects do not)
 - Cost data from STARS / IDW is not trusted because it is different than expected. Since the data is not trusted there are various external spreadsheets and processes that are used outside of the system to track cost data instead of using the data with the application. Issues are with correctness and timeliness of IDW data.
- Cyber Security Issues – Due to the many system interfaces, the introduction of COTS technologies, and the large user group including potential users external to NETL, it is critical that an appropriate and effective security model is used to ensure the safety of the data that will be managed by the application.
- Reorganization of NETL Business Units – NETL is a dynamic organization that has periodic reorganizations and restructuring. There is a risk that any substantial

reorganization could result in changes to the PPIM project team (stakeholders), changes to business processes, or changes to project priorities, objectives, or funding.

- Data Complexity and Quality – Within ProMIS there exists data quality issues. If the quality issues cannot be resolved within PPIM either technically or procedurally, they will be repeated in PPIM. The result of the quality issues is as follows:
 - There is a significant amount of data that is managed outside of ProMIS in Excel spreadsheets and Access databases.
 - In some cases, changes to the processes or procedures have led to confusion that resulted in inaccurate data in ProMIS. Current metrics do not track the quality of data in ProMIS.

6.2. Assumptions

The following project assumptions were made based on current project and technical information and were considered during the creation of the PPIM business case. The assumptions establish the current project environment and provide a basis for planning and estimating costs and schedules. If any of the below assumptions are proven false, there could be an impact on the estimated cost, schedule, and scope of the PPIM project.

6.2.1. Project Environment

- There will be sufficient NETL management support to ensure that NETL staff resources will be available when and as they are needed.
- There will be sufficient NETL management support to ensure that the project will be funded appropriately to ensure project staffing levels, to cover hardware costs, and to maintain continuity of funding throughout project schedule
- There will be sufficient schedule allocated to PPIM project and implementation teams to ensure adequate analysis, coding, testing, and implementation activities.
- The PPIM development team will have a sufficient level of staffing to enable the work to be completed according to plan. Assumed staffing level is a project manager, tech lead, 4 developers, and an analyst.
- The PPIM development team will have a sufficient level of experience and expertise in software development lifecycle, technical expertise in data warehouse and software engineering, particularly .NET developing, integration of COTS technologies, and in common project management processes.
- NETL management will support the creation and implementation of uniform business processes across the project management environment at NETL.
- The high-level processes that have been defined during the business case analysis are an initial step in the process but are accurate as of the date that they were submitted with the business case. The business process flows were created, reviewed, and approved with NETL subject matter expert input.
- It is assumed that the core stakeholders (Subject Matter Experts) assigned to the PPIM business case development project have sufficient knowledge in their relevant subject areas, or can provide the contacts and support required for their roles and responsibilities

and are able to adequately represent the business requirements of their respective organizations.

- There will be no substantial organizational or process related changes that would impact the project and program management environment at NETL.
- The scope of the project is limited to those components and functionality that is defined in this Concept and Scope document. Any changes to the scope will be managed through formal scope change request processes.

6.2.2. Technical Assumptions

- It is assumed that in the current network environment at NETL and considering the current bandwidth utilization levels, adding the PPIM application to the NETL network will not cause performance issues. The current bandwidth utilization levels are around 4% (11% peak) so there should be sufficient bandwidth for PPIM to operate without stressing the current network capabilities especially if PPIM resides in Morgantown. (Note: The public website resides in Pittsburgh which consumes a large portion of bandwidth.)
- Systems components including any COTS technologies will be capable of being integrated with a minimum of rework.
- The proposed PPIM project utilizes an approach that limits the initial integration with procurement applications and processes used at NETL. Integration with procurement systems and business processes is targeted to occur after the STRIPES project is well underway. From what has been communicated about STRIPES to the PPIM project team, it does not appear that the deployment of STRIPES into the NETL environment will result in substantial integration issues or require substantial rework to the proposed PPIM system.
- ITES staff will be able to effectively coordinate with external system technical resources to understand changes before they occur for interfacing applications. ITES will receive appropriate support from ITD, NETL, and DOE to establish the data interfaces required for PPIM implementation.
- The high-level concept defined in this document that provides for external users to submit data into the DMZ to then be pulled into the internal PPIM database is feasible from a technology aspect and fits in the cyber security model for NETL information systems.

7. Estimated Delivery

PPIM will be developed by following the Rapid Application Prototyping and Incremental Development (RAPID) methodology, whereby system functionality is developed incrementally. The scope of the initial system will be limited to basic program management and full project management process. The system will be delivered in four phases. The implementation strategy includes:

- **Phase #1** – Building the project and program infrastructure while adding funding capability
- **Phase #2** – Continue to build the program and project functionality while adding milestone, documents, decisions capability
- **Phase #3** – Add remaining program and project capability, add collaboration and procurement functionality.
- **Phase #4** – Add enhanced marketing and presentation capabilities and deliverable management.

The table below shows the estimated delivery schedule and the requirements that will be met for each of the four releases of phase 1 only. Phase 1 constitutes the creation of the base capabilities of PPIM. Subsequent phases should require substantially less development effort.

A significant amount of infrastructure will be developed in Phase 1. The incremental development approach employed develops **Basic** Capability first and later provides **Enhanced** Capability in subsequent releases. In some cases, the **Full** Capability can be created in a single release. Some releases require that the function have a **Design** but not necessarily be implemented in that release.

Note: ♦ denotes capabilities based on current ProMIS capability, ▲ denotes infrastructure capabilities (i.e., fundamental or underlying capabilities that support other functions).

Requirement:			Phase 1			
			Rel. 1 (Est. del. 13 mo.)	Rel. 2 (Est. del. 8 mo.)	Rel. 3 (Est. del. 16 mo.)	Rel. 4 (Est. del. 5 mo.)
External Audits and Reviews	EAR-01	Change Management	Basic	Enhanced	Enhanced	Enhanced
	EAR-02	Audit Tagging			Phase 4	
	EAR-03	Audit Findings			Phase 4	
	EAR-04	Action Plan			Phase 4	
	EAR-05	Audit Action Tracking			Phase 4	
Project Mgmt External UI	EUI-01	Project Status Entry Screen			1 Screen	
	EUI-02	Project Milestone Entry Screen			Phase 2	
	EUI-03	Project Cost Entry Screen				1 Screen
	EUI-04	Draft Data ▲			Basic	Enhanced
	EUI-05	Final Data ▲			Basic	Enhanced
	EUI-06	Project Manager Review ▲			1 Screen + Workflow	Enhanced
	EUI-07	File Attachments			Basic	Enhanced
	EUI-08	Information Publish				Basic

	EUI-09	Data Export	Phase 2			
			Phase 1			
<i>Requirement:</i>			Rel. 1	Rel. 2	Rel. 3	Rel. 4
Program Management	PGM-01	Organization Setup ▲	Basic	Enhanced	Enhanced	Enhanced
	PGM-02a	Current Program Info. (Funding)	Basic	Enhanced	Enhanced	Enhanced
	PGM-02b	Current Program Information (Milestones, Documents, Decisions)	Phase 2			
	PGM-02c	Current Program Info. (Remaining)	Phase 3			
	PGM -03	Historical Program Information ▲	Design	Basic	Enhanced	Enhanced
	PGM -04	Cost Accounting Basis ▲	Design	Basic	Enhanced	Enhanced
	PGM -05	Data Visibility ▲	Basic	Enhanced	Enhanced	Enhanced
	PGM -06	Program Scope ▲	Basic	Enhanced	Enhanced	Enhanced
	PGM -07a	Cross-Cutting Programs (Funding)	Basic	Enhanced	Enhanced	Enhanced
	PGM -07b	Cross-Cutting Programs (Milestones, Documents, Decisions)	Phase 2			
	PGM -07c	Cross-Cutting Programs (Remaining)	Phase 3			
	PGM -08	Program Funding	Basic	Enhanced	Enhanced	Enhanced
	PGM -09	Funding Changes	Design	Basic	Enhanced	Enhanced
	PGM -10	Funding Analysis			Basic	Enhanced
	PGM -11	Program Metrics			Basic	Enhanced
PGM -12	FE Black Book Data View	Phase 3				
PGM -13	Funding Type	Basic	Enhanced	Enhanced	Enhanced	
PGM -14	Program Milestones	Phase 2				
PJM-01	Project Creation	Full				
PJM-02	Project Visibility ▲	Basic	Enhanced	Enhanced	Enhanced	
PJM-03	Project Proxy	Phase 2				
PJM-04	Basic Project Queries	Basic	<i>See PJQ Requirements for Query Reqs</i>			
PJM-05	Summary Information ♦	Phase 3				
PJM-06	Project Facts Information ♦			Basic	Enhanced	
PJM-07	People Information ♦ ▲	Basic		Enhanced		
PJM-08	Performer Information ♦ ▲	Basic		Enhanced		
PJM-09	Funding Information ♦	Basic	Enhanced	Enhanced	Enhanced	
PJM-10	Demonstration Information ♦	Phase 3				
PJM-11	Milestones Information ♦	Phase 2				
PJM-12	Requirements Information ♦	Phase 3				
PJM-13	Data / Publications Information ♦	Phase 3				
PJM-14	Files (Attachments) Information ♦ ▲	Basic	Enhanced	Enhanced	Enhanced	
PJM-15	Project Templates	<i>To Be Determined if Needed</i>				
PJM-16	Mandatory Field Configurator ▲	Basic	Enhanced	Enhanced	Enhanced	
PJM-17	Mandatory Field Indicator ▲	Basic	Enhanced	Enhanced	Enhanced	
PJM-18	Project Milestones	Phase 2				
PJM-19	Spend Plan Information	Basic	Enhanced	Enhanced	Enhanced	
PJM-20	Procurement Plan Information	Phase 2				
PJM-21	Project Input Hits ▲	Basic	Enhanced	Enhanced	Enhanced	
PJM-22	Project Type Maintenance ▲	Basic	Enhanced	Enhanced	Enhanced	

			Phase 1			
<i>Requirement:</i>			Rel. 1	Rel. 2	Rel. 3	Rel. 4
Contract Mgmt	PJM-23	Project Cost Estimates			Basic	Enhanced
	CTM-01	Contract View	Phase 2			
	CTM-02	Contract Information	Phase 2			
	CTM-03	Procurement Collaboration	Phase 3			
Content Management	CNM-01	Document Lifecycle Support ▲ (∞ PJM-14)	Phase 2			
	CNM-02	Revision Control	Phase 2			
	CNM-03	Publish Control (∞ EUI-08)				Basic
	CNM-04	Content Security ▲ (∞ PJM-14)	Basic	Enhanced	Enhanced	Enhanced
	CNM-05	Fast Text Search (of Public Content)	Phase 2			
	CNM-06	Archiving	Phase 4			
Marketing Materials	MM-01	Marketing Identification	Phase 4			
	MM-02	Marketing Material Extract	Phase 3			
	MM-03	Marketing Material Formatting	Phase 4			
	MM-04	Marketing Material Preview	Phase 4			
	MM-05	Consolidate Fact Sheets	Phase 4			
Collaboration	COL-01	Discussion Groups	Phase 2			
	COL-02	Joint Projects	Phase 2			
	COL-03	Presentation Management	Phase 2			
	COL-04	Bulletin Board	Phase 2			
	COL-05	Whiteboard	Phase 2			
Program Queries	PGQ-01	Program Status Search	Basic	Enhanced	Enhanced	Enhanced
	PGQ-02	Organization Search	Basic	Enhanced	Enhanced	Enhanced
	PGQ-03	Technology Area Search	Full			
	PGQ-04	Program Number Search	Full			
	PGQ-05	Performing Organization Search	Basic	Enhanced	Enhanced	Enhanced
	PGQ-06	Multiple Requirement Search	Phase 2			
	PGQ-07	Subset Search	Phase 4			
	PGQ-08	Personal Query Templates	Phase 4			
	PGQ-09	Group Query Templates	Phase 4			
	PGQ-10	Global Query Templates	Phase 4			
	PGQ-11	Synonyms	Phase 2			

			Phase 1			
Requirement:			Rel. 1	Rel. 2	Rel. 3	Rel. 4
Project Queries	PJQ-01	Project Status Search ♦	Basic	Enhanced	Enhanced	Enhanced
	PJQ-02	NETL Division Search ♦	Basic	Enhanced	Enhanced	Enhanced
	PJQ-03	Technology Area Search ♦	Basic	Enhanced	Enhanced	Enhanced
	PJQ-04	Project Number Search ♦	Basic	Enhanced	Enhanced	Enhanced
	PJQ-05	Agreement Type Search ♦	Basic	Enhanced	Enhanced	Enhanced
	PJQ-06	Project Manager Search ♦	Basic	Enhanced	Enhanced	Enhanced
	PJQ-07	Performing Organization Search ♦	Basic	Enhanced	Enhanced	Enhanced
	PJQ-08	Multiple Requirement Search ♦	Phase 2			
	PJQ-09	Subset Search ♦	Phase 4			
	PJQ-10	Personal Query Templates	Phase 4			
	PJQ-11	Group Query Templates	Phase 4			
	PJQ-12	Global Query Templates	Phase 4			
	PJQ-13	Synonyms	Phase 2			
Structured Standard Reporting	RFX-01	Basic – Output Format	Basic	Enhanced	Enhanced	Enhanced
	RFX-02	Enhanced – Output Format	Phase 3			
	RFX-03	Report Export	Basic	Enhanced	Enhanced	Enhanced
	RFX-04	Report Filters		Basic	Enhanced	Enhanced
	RFX-05	Report Content		Basic	Enhanced	Enhanced
	RFX-06	Report Sorting			Basic	Enhanced
	RFX-07	Historical Reports	Phase 4			
	RFX-08	Report Distribution			Basic	Enhanced
Advanced Queries	AVQ-01	Logical Queries	Phase 4			
	AVQ-02	Saved Queries	Phase 4			
	AVQ-03	Personal Queries	Phase 4			
	AVQ-04	Group Queries	Phase 4			
	AVQ-05	Global Queries	Phase 4			
	AVQ-06	Report Generation	Phase 4			
Proc. View	PCV-01	Procurement Data Display	Phase 3			
Dash-board	DSB-01	Operational Dashboard	Basic	Enhanced	Enhanced	Enhanced
	DSB-03	Executive Dashboard			Basic	Enhanced
Web / Portal Interface	WPI-01	Browser Components ▲	Full			
	WPI-02	Portal Function (a.k.a. Web Part)	Phase 2			
	WPI-03	Portal Windows	Phase 2			
	WPI-04	Portal Component Functionality	Phase 2			

Requirement:			Phase 1			
			Rel. 1	Rel. 2	Rel. 3	Rel. 4
Context Based UI	CBU-01	"My Projects"	Full			
	CBU-02	"My Tasks"	Phase 2			
	CBU-03	Bread Crumbs ▲	Full			
	CBU-04	Screen-level Help ▲	Full			
	CBU-05	Field-level Help	Phase 2			
Event Reminder	ER-01	Create Event	Phase 4			
	ER-02	Event Administration	Phase 4			
	ER-03	Event Scheduling	Phase 4			
	ER-04	Event Deletion	Phase 4			
	ER-05	Event Links	Phase 4			
	ER-06	Event Conditions	Phase 4			
	ER-07	E-mail Notification	Phase 4			
	ER-08	Application-level Notification	Phase 4			
Workflow Management	WKF-01	Core Workflow Functionality	Basic	Enhanced	Enhanced	Enhanced
	WKF-02	Locking Workflow Items	Basic	Enhanced		
	WKF-03	Notification Options			Basic	Enhanced
	WKF-04	Passive Notification			Basic	Enhanced
	WKF-05	Routing to Alternatives	Basic	Enhanced	Enhanced	Enhanced
	WKF-06	Workflow Oversight		Basic	Enhanced	
System Integration	SI-01	STARS / IDW Integration	Basic	Enhanced	Enhanced	Enhanced
	SI-02	Cost Discrepancy Notes		Basic	Enhanced	Enhanced
	SI-03	Two-Phase Submission	Full			
	SI-04	Store Deliverables (FITS Replace.)	Phase 4			
	SI-05	Submit to OSTI	Phase 4			
	SI-06	Submit to Patent Office	Phase 4			
	SI-07	Submit Internal Management Reports	Phase 3			
	SI-08	Submit Deliverables		Basic	Enhanced	Enhanced
	SI-09	Submit Ad-Hoc Deliverables	Phase 2			
	SI-10	Deliverable Alert	Phase 4			
	SI-11	Deliverable Approval Workflow	Phase 4			
	SI-12	Workflow Approval	Phase 4			
	SI-13	Workflow Rejection	Phase 4			
	SI-14	Rejection Notification	Phase 4			
	SI-15	Missed Deliverable Notification	Phase 4			
	SI-16	Deliverable Resubmit	Phase 4			
	SI-17	Issue Delinquency Notice	Phase 4			
	SI-18	Deliverable History	Phase 4			
	SI-19	Deliverable Status Report	Phase 4			
	SI-20	Deliverable Queries	Phase 4			
	SI-21	Deliverable Schedule	Phase 4			
	SI-22	FITS Integration	Phase 4			
	SI-23	Closeout Workflow	Phase 4			

			Phase 1			
Requirement:			Rel. 1	Rel. 2	Rel. 3	Rel. 4
	SI-24	Closeout Checklist	Phase 4			
	SI-25	Closeout Queries	Phase 4			
	SI-26	Closeout Reporting	Phase 4			
	SI-27	PADS Info Integration	Basic	Enhanced	Enhanced	Enhanced
	SI-28	CDD Interface	Basic	Enhanced	Enhanced	Enhanced
	SI-29	CDD Queries	Basic	Enhanced	Enhanced	Enhanced
	SI-30	CDD Reporting	Basic	Enhanced	Enhanced	Enhanced
	SI-31	FRED Integration	Phase 3			
	SI-32	OSTI Integration	Phase 4			
	SI-33	RaDiUS Integration	Phase 4			
	SI-34	CPS Data in support of AOP	Phase 3			
	SI-35	PMRS Integration	Basic	Enhanced	Enhanced	Enhanced
	SI-36	ProMIS Integration	Basic	Enhanced	Enhanced	Enhanced
Fast Text Search	FTS-01	File Indexing	Phase 2			
	FTS-02	Keyword Search	Phase 2			
	FTS-03	Logical Operators	Phase 2			
	FTS-04	Search Results List	Phase 2			
	FTS-05	File Hyper-linking	Phase 2			
	FTS-06	Standard File Support	Phase 2			
Document Management	DOM-01	Document Lifecycle Support	Phase 2			
	DOM-02	Version Control	Phase 2			
	DOM-03	Revision Control	Phase 2			
	DOM-04	Display Differences	Phase 2			
	DOM-05	File Merge	Phase 4			
	DOM-06	File Concatenation	Phase 4			
	DOM-07	Files Supported	Phase 4			
Presentation Management	PSM-01	Slide Management	Phase 4			
	PSM-02	Presentation Assembly	Phase 4			
	PSM-03	Version Control	Phase 4			
	PSM-04	Presentation History	Phase 4			
	PSM-05	Slide History	Phase 4			
	PSM-06	Web Publishing	Phase 4			
System Access and Security	SAS-01	Basic - Number of users	Full			
	SAS-02	Extended – Number of Users		Full		
	SAS-03	User Roles	Full	Enhanced	Enhanced	Enhanced
	SAS-04	User Permissions	Full	Enhanced	Enhanced	Enhanced
	SAS-05	System Admin	Full	Enhanced	Enhanced	Enhanced
	SAS-06	Web Browser Access	Full	Enhanced	Enhanced	Enhanced
	SAS-07	Application Security	Full	Enhanced	Enhanced	Enhanced
	SAS-08	Data Encryption	Full	Enhanced	Enhanced	Enhanced

Requirement:			Phase 1			
			Rel. 1	Rel. 2	Rel. 3	Rel. 4
General Logical Security	LSR-01	Account Creation and Deletion	Full	Enhanced	Enhanced	Enhanced
	LSR -02	Initial Password	Full	Enhanced	Enhanced	Enhanced
	LSR -03	Password Characteristics	Full	Enhanced	Enhanced	Enhanced
	LSR -04	Password History	Full	Enhanced	Enhanced	Enhanced
	LSR -05	Password Aging	Full	Enhanced	Enhanced	Enhanced
	LSR -06	Login Attempts Limits	Full	Enhanced	Enhanced	Enhanced
	LSR -07	Activity Logging	Full	Enhanced	Enhanced	Enhanced
	LSR -08	Security Logging	Full	Enhanced	Enhanced	Enhanced
	LSR -09	Log Reporting	Full	Enhanced	Enhanced	Enhanced
	LSR -10	Interoperability Requirements	Phase 4			
Cyber Security	CYB-01	Management Controls	Full	Enhanced	Enhanced	Enhanced
	CYB-02	Technical Controls	Full	Enhanced	Enhanced	Enhanced
	CYB-03	Operational Controls	Full	Enhanced	Enhanced	Enhanced

8. Business Value and Benefits

The PPIM system will provide significant savings in effort and time for personnel associated with project management and reporting activities. In an era of shrinking budgets and the business need to do more with fewer resources, PPIM is expected to significantly increase staff productivity and increase the efficiency by which NETL resources are used. In addition to productivity gains there are several intangible benefits:

- Opportunity cost – more effective utilization of discretionary funds
- Reduced time lags in workflow processes such as approvals, milestone reporting, etc.
- Streamline communication and workflow across all organization levels
- Elimination of bottlenecks and dependence on key people for program and project information
- Significantly reduce paper flows
- Eliminate errors due to re-keying and duplication of data
- Improve reliability and consistency of program and project information
- Improve decision-support capability through program views and the capability to drill-down and roll-up program data at any level
- Reduced costs due to a standard project management process across the organization
- Improve overall staff productivity and morale through the reduction in effort to manage program and project information

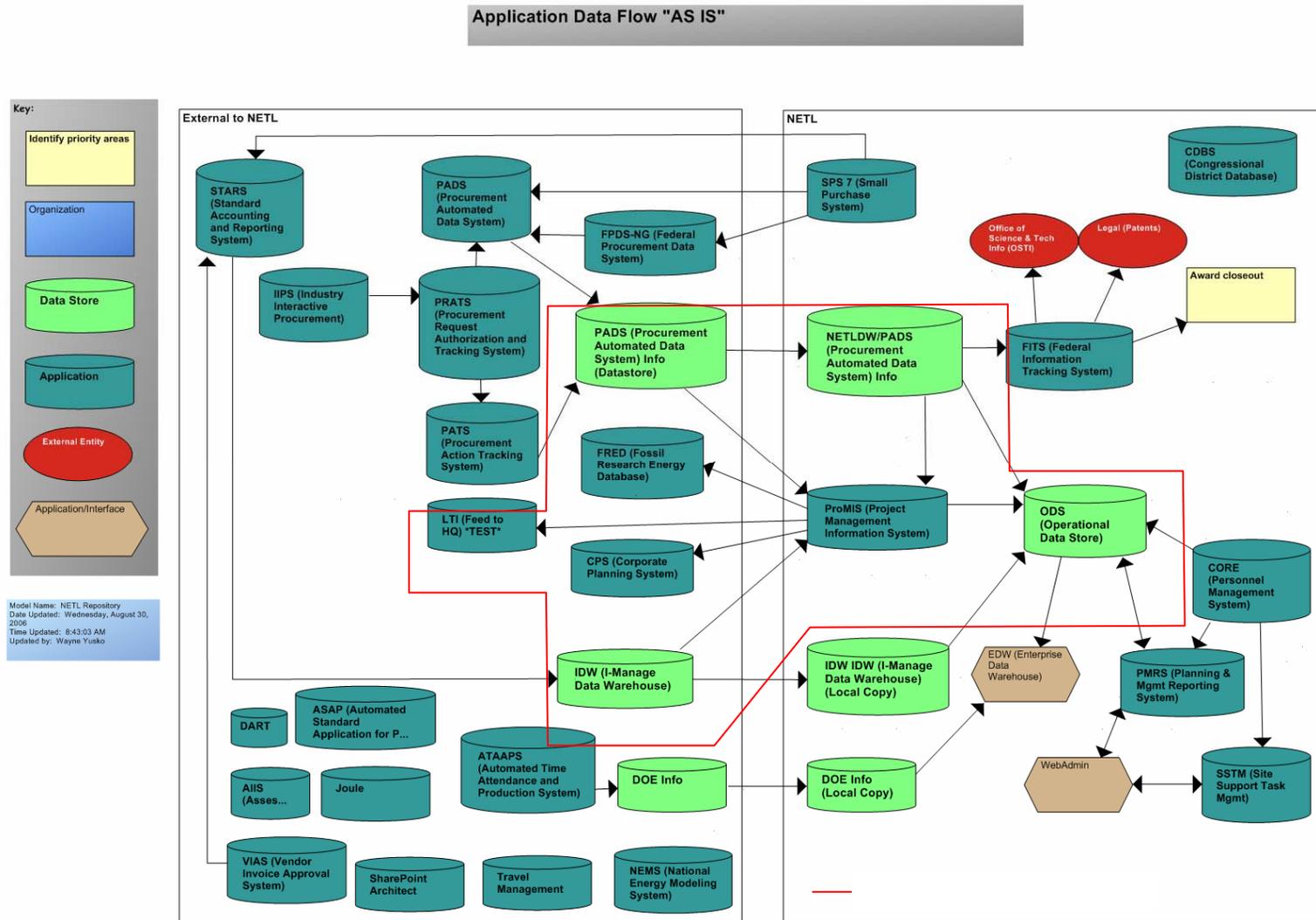


Figure A.1 – Current ProMIS Integration

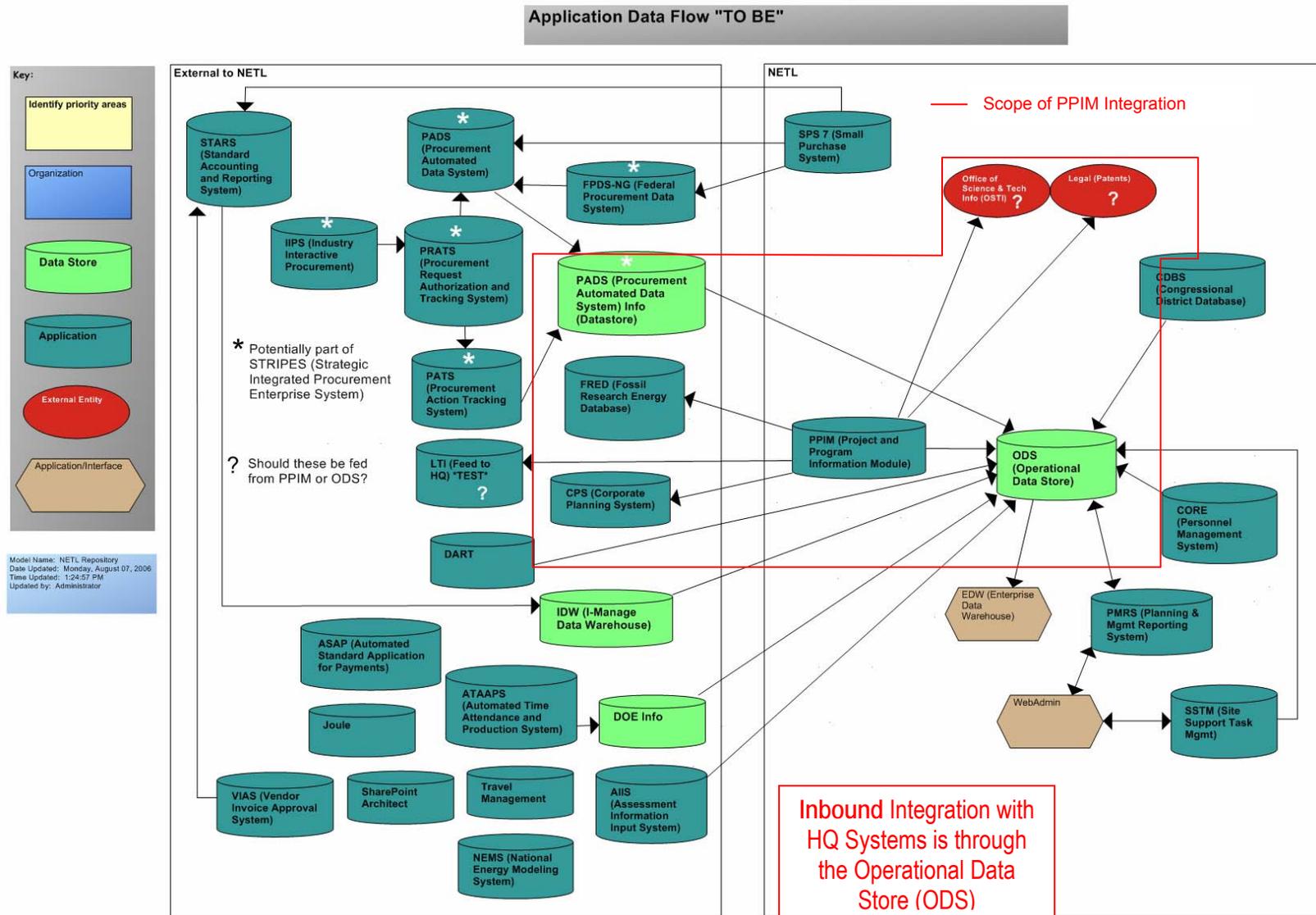


Figure A.2 – Proposed PPIM Integration

10. Appendix B – Document Analysis

The objective of a document analysis is to identify the process and data used to manage a project. The goals of analysis are:

- Identify the key process steps of the project management process.
- Identify the source documents used.
- Identify the applications fields populated.
- Identify any reports or data extracts that are produced by the project.

The document analysis consists of simulating the execution of a project throughout the entire project lifecycle (solicitation through close out) and capturing which information is used from source documents to populate specific data fields in the target applications (e.g., ProMIS, FITS).

For the document analysis, two simulations were conducted:

- A Major Demonstrations Project managed by Wolfe Huber (Strategic Center for Coal, Advanced Energy Systems Division)
- A Solid State Lighting Project managed by Joel Chaddock (Project Management Center, Buildings and Industrial Technologies Division)

The analysis includes:

- Identifying what data is placed in the system
- Identifying how the information is consumed or produced
- Identifying where the activities occur inside and outside of NETL
- Identifying who (individuals and organizations) performs each step of the process
- Identifying when events occur that trigger activities
- Identifying why certain things are performed (rules and reasons)

Conclusions:

- There were a few differences between the two projects but the basic project management process was the same.
- There is a core set of information that is captured for these two projects that should also be representative of most, if not all, projects.
- There are multiple “consumers” of the information both inside and outside of NETL.

It is recommended that additional analyses occur for other NETL Projects including:

- Analysis of a “typical” ORD project
- Analysis of a small-scale grant (e.g., SBIR or University Grant)

While the actual document analysis for the large projects reviewed is quite comprehensive, summary documents for the two simulations follow.

Document Analysis – FE Major Demonstration Projects – Wolfe Huber		
	Source Document	Application Information
◇	Post / Send Solicitation (<i>Solicitation is Posted or Sent</i>)	Status: Procurement
Solicitation	<ul style="list-style-type: none"> • Solicitation (Posted on FedBizOps or Sent to Targeted Organizations) 	<p><i>ProMIS Facts Screen:</i></p> <ul style="list-style-type: none"> • Goals • Objectives
◇	Selection is Made (<i>Negotiation with Selectees Begins</i>)	Status: Selected But Not Yet Awarded
Negotiation Phase	<ul style="list-style-type: none"> • Solicitation Proposal <ul style="list-style-type: none"> ○ Financial Information -----> (Cost Plan) ○ Technical Information -----> (Technical Proposal) • Environmental Questionnaire -----> 	<p><i>ProMIS Funding Screen:</i></p> <ul style="list-style-type: none"> • Financial Information (High-Level) <p><i>ProMIS People / Performer Screen:</i></p> <ul style="list-style-type: none"> • Contact Information <p><i>ProMIS Facts Screen:</i></p> <ul style="list-style-type: none"> • Statement of Work Information <p><i>ProMIS Demos Screen:</i></p> <ul style="list-style-type: none"> • Demonstration Locations Listed <p><i>ProMIS Performer Screen:</i></p> <ul style="list-style-type: none"> • Subcontractor Information (e.g., Host Site) <p><i>ProMIS Demos Screen:</i></p> <ul style="list-style-type: none"> • Actual Demo Locations Identified
◇	Make the Award	Status: Active
Project Execution	<ul style="list-style-type: none"> • Cooperative Agreement / Contract • Mandatory Status Reports -----> FITS Information: <ul style="list-style-type: none"> ○ Federal Assistance Checklist ○ Financial Status Reports ○ Progress Reports ○ Special Status Reports • Milestones -----> • Cost Information -----> (e.g., Invoices) • Funding Info from PADS, IDW -----> • Requirements (NEPA) -----> 	<p><i>ProMIS Funding Screen:</i></p> <ul style="list-style-type: none"> • Funding Information <p><i>ProMIS Demos Screen:</i></p> <ul style="list-style-type: none"> • Demonstration Site <p><i>ProMIS Milestones Screen:</i></p> <ul style="list-style-type: none"> • Milestones <p><i>ProMIS Performer Screen:</i></p> <ul style="list-style-type: none"> • Sub Contract Information (if any) <p><i>ProMIS Status Screen:</i></p> <ul style="list-style-type: none"> • Update Weekly Status • Update Monthly Status • DOE Secretaries Weekly Status (outbound) • Special Reports • Quarterly Reports <p><i>ProMIS Milestones Screen:</i></p> <ul style="list-style-type: none"> • PIP Milestones • Joule Milestones <p><i>ProMIS Funding Screen:</i></p> <ul style="list-style-type: none"> • Accruals (STARS / VIAS) (Estimated Invoices) <p><i>ProMIS Funding Screen:</i></p> <ul style="list-style-type: none"> • Planned Cost (READ-ONLY) <p><i>ProMIS REQs Screen:</i></p> <ul style="list-style-type: none"> • NEPA Determination • NEPA Requirements Description • NEPA Number • NEPA Due Date
◇	Project Ends or Terminates	Status: Inactive
Project Closeout	<ul style="list-style-type: none"> • Project reaches its scheduled end date or is stopped and is not extended • Final Report (Reviewed) -----> 	<p><i>ProMIS Milestones Screen:</i></p> <ul style="list-style-type: none"> • Scheduled Project End Date <p><i>ProMIS Files Screen:</i></p> <ul style="list-style-type: none"> • Conclusions (Milestones Description)
◇	Project Close Out	Status: Retired
	<ul style="list-style-type: none"> • Final Report is Accepted • Final Report into FITS 	<p>FITS</p> <p><i>ProMIS Contract Screen:</i></p> <ul style="list-style-type: none"> • Status is Changed Automatically in ProMIS

11. Appendix C – Component Priorities

Organization	OIBO-BA	SCC-AES	OIBO-FMD	ORD-CSD	FPMC	PMC-B&ITD	SCNG&O-GTMD	ITD	ITD	Average	Unweighted Rank
Planning											
Project Planning	1	1	2	2	1	2	2	1	3	1.67	1
Program Planning	2	2	3	1	2	1	1	2	2	1.78	2
Federal Budget Tracking	3	4	1	4	4	3	3	3	1	2.89	3
Strategic Planning	4	3	4	3	3	4	4	4	4	3.67	4
Information Management											
Project Management	1	1	3	1	1	1	1	1	1	1.22	1
Program Management	2	4	4	3	2	3	2	2	3	2.78	2
Contract Management	3	2	1	5	5	2	3	4	2	3.00	3
Content Management	5	5	6	2	4	4	5	3	5	4.33	4
External Audits and Reviews	7	3	2	4	3	7	7	5	4	4.67	5
Marketing Materials	4	7	7	7	6	5	4	6	7	5.89	6
Collaboration	6	6	5	6	7	6	6	7	6	6.11	7
Queries and Reports											
Project Queries	2	2	3	2	1	2	5	1	1	2.11	1
Program Queries	3	4	4	6	2	1	1	2	2	2.78	2
Structured Standard Reports	1	1	5	4	4	4	3	3	4	3.22	3
Procurement View	6	5	1	1	3	3	6	6	5	4.00	4
Dashboard	5	3	2	3	6	6	4	4	6	4.33	5
Advanced Queries	4	6	6	5	5	5	2	5	3	4.56	6
Technology											
System Integration	3	1	1	4	1	2	1	1	1	1.67	1
Context Based User Interface	1	4	8	1	5	3	2	3	3	3.33	2
Document Management	5	6	4	2	3	1	7	2	5	3.89	3
Web / Portal Interface	2	2	3	8	2	5	8	4	2	4.00	4
Fast-Text Search	4	5	5	6	4	6	4	5	4	4.78	5
Event Reminders	7	3	6	5	6	4	3	7	7	5.33	6
Presentation Management	6	8	2	3	7	7	6	8	8	6.11	7
Workflow Management	8	7	7	7	8	8	5	6	6	6.89	8
 											

12. Appendix D – ProMIS Required Fields

A preliminary analysis was performed to determine if there was a core set of information that is required for all projects, as well as, subsets of project specific information. Six documents contained in the ProMIS “Information-ProMIS Metrics Processes” menu were used to perform this analysis. The documents are entitled “**ProMIS Minimum Maintenance Requirements**” for the following project types:

#	DESCRIPTION	DOC DATE
1.	PROCUREMENTS	28 Jan 2000
2.	“SELECTED NOT YET AWARDED” PROJECTS	28 Jan 2000
3.	“MINIMUM” Projects	28 Jan 2000
4.	GRANTS (All Values) and COOP. AGREE'S <\$2.5 MIL	27 Feb 2001
5.	TECHNOLOGY CONTRACTS	27 Feb 2001

While these documents are somewhat dated, they provide a starting point for determining the key data used for tracking all projects, as well as, what additional project type specific data is needed.

NOTE: When the PPIM development project is started, these fields will need to be reviewed and finalized by NETL Project Management.

ProMIS Data Field	Procurements	Selected Not yet Awarded	“Minimum” Projects	Grants and Cooperative Agreements	Support Contracts	Technology Contracts
Core Project Data						
Agreement Type	X	X	X	X	X	X
Contract Specialist	X	X	X	X	X	X
Contracting Officer	X	X	X	X	X	X
External Product Line	X	X	X	X	X	X
NETL Division	X	X	X	X	X	X
NETL Product Line	X	X	X	X	X	X
NETL Product Manager	X	X	X	X	X	X
NETL Project Manager	X	X	X	X	X	X
Performance Period, Begin Date	X	X	X	X	X	X
Performance Period, End Date	X	X	X	X	X	X
Performance Period, Government Cost	X	X	X	X	X	X
Performance Period, Nongovernment Cost (Cost Sharing)	X	X	X	X	X	X
Performer Project Manager	X	X	X	X	X	X
Performing Organization	X	X	X	X	X	X
Project Number	X	X	X	X	X	X
Project Objective	X	X	X	X	X	X
Project Type	X	X	X	X	X	X
Solicitation Mechanism	X	X	X	X	X	X
Title	X	X	X	X	X	X

ProMIS Data Field	Procurements	Selected Not yet Awarded	"Minimum" Projects	Grants and Cooperative Agreements	Support Contracts	Technology Contracts
Project Type-Specific Data						
Actual Commercial Applications						X
Background	X					X
Competing Technologies						X
Conclusion	X			X		X
Contract Modifications			X	X	X	X
Cost/Schedule Variance (if +/- 10%)						X
Data Sheet Fields (if Data Sheet Required)						X
Demonstration(s), Title, Type, Dates, and Description/Results						X
End User						X
Funding Transactions (Allotments, At Issue)			X	X	X	X
Funding Transactions (Initiations, Obligations, Costs)			X		X	X
Images						X
Maturation Stage						X
Milestone(s), Title, Type, Planned and Actual Completion Dates	X			X	X	X
Monthly Actual Cost of Work Performed (ACWP)						X
Monthly Budget Cost of Work Performed (BCWP)						X
Monthly Budgeted Cost of Work Scheduled (BCWS)						X
Monthly Report	X		X		X	X
Name & Address Data	X		X		X	X
NEPA Determination and NEPA Number						X
Project Accomplishment(s), Title and Date					X	X
Project Monthly, Title and Report						X
Project Publication(s), Title, Date, and Bibliography					X	X
Project Quarterly, Title and Report					X	X
Project Secretary Weekly, Title and Report						X
Project Status (A, I, R)			X	X	X	X
Project Status (P, I, R)	X					
Project Weekly, Title and Reports						X
SOW-Briefings	X			X	X	X
SOW-Deliverables	X			X	X	X
SOW-Scope	X			X	X	X
SOW-Tasks	X			X	X	X
Subcontractor(s), Share of Gov. Cost, Bus. Type, and Cong.			X	X	X	X

An important function of PPIM will be the need to designate which fields are **required** and which fields are *optional*. To handle current and future needs, a flexible mechanism for designating fields is needed.

13. Appendix E – Glossary

Acronym / Abbr.	Description
Annual Operating Plan (AOP)	An organizational one-year plan that identifies what is to be accomplished, when, and using what resources during the planned execution year (also Baseline Plan).
AOP Program	Program level that is identified and used for developing AOPs and Spend Plans (i.e., Innovations for Existing Plants). AOPs are prepared for the same organizational components that formerly prepared Program Implementation Plans.
Application Server	An application server is a server computer on a computer network dedicated to running certain software applications (as opposed to e.g. a file server or print server). Generally, an application server is a software engine that delivers applications to client computers. Moreover, an application server should handle most, if not all, of the business logic and data access of the application. The main benefits of application server technology are ease of application development and centralization.
Approved Funding Program (AFP)	A document issued to DOE organizations setting forth the funds available for obligation and expenditure (not to exceed the amount allotted) in each appropriation account. It specifies obligation control levels applicable to each program. The AFP is a detailed breakdown of allotments for program management purposes.
Business Management Information System (BMIS)	The core system used by FE Headquarters to support budget development, advanced procurement planning, and procurement execution. The system provides management with an overview of how the approved budget will be spent, and tracks the execution of that plan through initiation and award. BMIS affords all organizations within FE Headquarters the ability to track the life cycle of the dollars — planned, initiated, obligated and remaining; and the ability to track the disbursement of budget authority (B/A), carryover funds, and prior-year de-obligations (PYD) at the contract level.
Cooperative Research and Development Agreements (CRADAs)	An agreement between the Government and private parties to collaborate on specific R&D activities, each providing funding or other resources in accordance with an agreed-upon ratio.
Crosscut Plan	Plans used to coordinate and integrate activities where the goal and/or objectives cross more than one function or organizational entity.
Dashboard	A digital dashboard, also known as an enterprise dashboard or executive dashboard, is a business management tool used to get a "bird's eye view" of business health. It is a simple, yet powerful device to visually ascertain the status of a business enterprise. Used to monitor the status of key business indicators, digital dashboards use visual, at-a-glance displays of critical data pulled in from disparate business systems to provide warnings, action notices, next steps, and summaries of business conditions.
Data Warehouse	A data warehouse is a computer system designed for archiving and analyzing an organization's historical data, such as sales, salaries, or other information from day-to-day operations. Normally, an organization copies information from its operational systems to the data warehouse on a regular schedule, such as every night or every weekend; after that, management can perform complex queries and analysis (such as data mining) on the information without slowing down the operational systems.
Document Management	A document management system (DMS) is a computer system (or set of computer programs) used to track and store electronic documents and/or images of paper documents. The term has some overlap with the concepts of Content Management Systems and is often viewed as a component of Enterprise Content Management Systems and related to Digital Asset Management.
Electronic Proposal Management Application (ePMA)	System for the electronic receipt and processing of national laboratory proposals.
Full / Fast Text Search	In text retrieval, full text search (also called <i>fast</i> or <i>free</i> search text) refers to a technique for searching a computer-stored document or database; in a full text search, the search engine examines all of the words in every stored document as it tries to match search words supplied by the user.
Federal Procurement Data System — Next Generation (FPDS-NG)	The central repository of contract information. The system collects and reports data in real time through a Web interface.

Acronym / Abbr.	Description
Field Work Proposal (FWP)	Description of work proposed by a national laboratory submitted on a standard form or electronically through ePMA. Each proposal must have a distinct scope of work including estimated proposal begin and end dates and a qualified principal investigator responsible for the research effort. A detailed budget is required for the entire project period and for each fiscal year. Budget dollars must include operating expense total obligations and operating expense total cost. Technical information must also be included within the proposal briefly describing facilities to be used for the conduct of The proposed research, project objective description, category of research, and milestone information.
Firewall	A firewall is an information technology (IT) security device which is configured to permit, deny or proxy data connections set and configured by the organization's security policy. Firewalls can either be hardware and/or software based.
Government Performance and Results Act (GPRA)	An Act that provides the basis for assessing the performance of Federally funded programs through annual estimates of program benefits that is included in Congressional Budget Requests.
"GPRA Program"	Program level that is identified and used for GPRA reporting purposes (i.e., Clean Coal, Natural Gas Technologies).
Grant	An agreement through which funds are provided for assistance to provide the means for a recipient to accomplish a public benefit with little oversight or other Government involvement.
Joule	Joule is DOE's performance measurement tracking system for program goals and annual targets included in the Department's Annual Performance Plan (APP). Quarterly programmatic milestones are mandated for Joule to ensure annual targets are on track. Progress is audited annually.
Multi-Year Program Plan	A plan that identifies the program's quantitative technical goals, objectives, strategies, milestones, and resources required each year for the next five years.
"MYPP Program"	Program level that is identified and used for strategic and multi-year planning (i.e., Innovations for Existing Plants)
National Energy Policy (NEP)	Designed to help the private sector, and, as necessary and appropriate, State and local Governments, promote dependable, affordable, and environmentally sound production and distribution of energy for the future.
Obligated	Funds that have been set aside to cover a Government obligation for payment, typically when a contract is entered into that the Government must pay upon performance by the recipient or contractor.
Obligations	Spending commitments by the Federal Government that will require outlays either immediately or in the future.
Planning	First stage of the program management cycle; includes strategic plans, multi-year plans, and annual operating plans.
Portal	A Web portal is a site on the World Wide Web that typically provides personalized capabilities to its visitors, providing a pathway to other content. It is designed to use distributed applications, different numbers and types of middleware and hardware to provide services from a number of different sources. In addition, business portals are designed to share collaboration in workplaces.
Portlet	Portlets are pluggable user interface components that are managed and displayed in a web portal. Typically, following the desktop metaphor, a portal page is displayed as a collection of non-overlapping portlet windows, where each portlet window displays a portlet. Hence a portlet (or collection of portlets) resembles a web-based application that is hosted in a portal. Portlet applications include email, weather reports, discussion forums, and news.
Procurement Plan	A plan that serves as the baseline for creating new awards for the upcoming fiscal year. It addresses the schedule for all major activities and milestones associated with issuing solicitations and making awards.
Program	An organized set of ongoing activities directed toward a common purpose or goal undertaken in support of an assigned mission area.
Program Implementation Plan (PIP)	Document prepared by NETL that describes the work they intend to do in-house and through procurement. It usually also includes milestones for the year's work. Like an FWP, it is only a plan and does not authorize any funds transfer. (To be replaced by AOP.)
Project	An executable element of a program, normally with its own discrete beginning, end and specified outcome(s).

Acronym / Abbr.	Description
Project Plan	A detailed plan to ensure the objectives of a specific project is achieved. A project plan defines the methods applied, resources used, and timelines for the project.
Spend Plan (obligations)	The Spend Plan relates to budget formulation, program implementation, and evaluation by assisting each ESE organization to plan, track, and report each obligation over the course of a fiscal year. A Control Table is an inherent part of the Spend Plan and summarizes the administrative control levels and compares those to the spending plan to identify instances of funds remaining at HQ too long.
Standard Accounting and Reporting System (STARS)	Departmental financial management system that is the foundation for linking budget formulation, budget execution, financial accounting, financial reporting, cost accounting, and performance measurement. STARS is a financial system that records and processes accounting transactions for general accounting, payments, receivables, purchasing including obligations and reservations, accruals, plant and capital equipment, and many other functions. STARS replaced both DISCAS and MARS.
Strategic Management System (SMS)	An organizational management framework that integrates planning, budget formulation, program implementation, and analysis and evaluation.
Strategic Plan	A plan that identifies the organization's vision, mission, values, and broad goals, looking forward at least five years into the future.
Uncosted (Uncosted Balances)	The amounts of obligations incurred in this fiscal year or prior fiscal years that have not yet been costed (either actual costs or accrued costs). For example, when a contract has been awarded (obligated), costs are incurred as the contractor performs work. So at the end of the fiscal year, if work remains to be performed on that contract, it is an indication that the contractor has not used all the funds provided (obligated) and consequently has an uncosted balance.
Unobligated Balances	Designates the portion of budget authority that is allocated during the fiscal year, but has not yet been obligated (awarded). In 1-year or annual accounts, the unobligated balance expires (i.e., ceases to be available for obligation) at the end of the fiscal year, except for valid obligation adjustments associated with that fiscal year. In multiple year accounts, the unobligated balance may be carried forward and remain available for obligation for the period specified. In no-year accounts, the unobligated balance is carried forward and available for obligation indefinitely until specifically rescinded by law or until the purposes for which it was appropriated have been accomplished.
Web Server	A computer that is responsible for accepting HTTP requests from clients, which are known as Web browsers, and serving them HTTP responses along with optional data contents, which usually are Web pages such as HTML documents and linked objects (images, etc.).
Workflow	Workflow at its simplest is the movement of documents and/or tasks through a work process. More specifically, workflow is the operational aspect of a work procedure: how tasks are structured, who performs them, what their relative order is, how they are synchronized, how information flows to support the tasks and how tasks are being tracked. As the dimension of time is considered in Workflow, Workflow considers "throughput" as a distinct measure.

14. Appendix F – NETL Program / Project Definition

Programs

A Program can be defined as an organized set of ongoing activities directed toward a common purpose or goal undertaken in support of an assigned mission area. Typically, a program is a group of related projects managed in a coordinated way to accomplish broad goals over a relatively long period of time, to which individual projects contribute.

Generally speaking, a program is the highest level of a work breakdown structure within a specific mission area. Each office level program can then be broken out to subprograms and further subdivided into Technology Development subprograms. Individual projects are then aligned to a Technology Development subprogram and the associated program budget codes via the STARS financial accounting system.

The program offices manage programs through the creation and maintenance of Multi-Year Program Plans (MYPP), Annual Operating Plans (AOP), and Acquisition Plans. These plans are then rolled down to the subprograms and projects that support the program and achieve the program goals, objectives, and milestones.

Projects

A Project is an executable element of a program normally with its own discrete beginning, end, and specified outcomes. A project is an executable increment or stepping stone of program activity aimed at achieving specific objectives or targets in a specified period. A project may be a single financial assistance award instrument or a solicitation that may result in multiple awards that are being implemented to accomplish specific goals and objectives and thus obtain scientific, technical and engineering knowledge of the concept under study.

There are several distinct categories of “projects” that are managed by NETL project managers: Solicitations, EERE States Grants, EERE Formula Grants, Extramural Research Development and Demonstration (RD&D) projects, In-house Research, and Site-Support Contracts.

While the general principles of project management are applicable to all classes of projects, the projects are treated differently due to where the responsibilities reside for each project class as well as the result of each project class.

- Solicitation projects – Projects that are initiated with a Requirements Document and typically result with the award of one or more financial assistance agreements or contracts. While they obtain input in the form of proposals from external participants, the process is managed by NETL employees.
- In-House Research and Development (R&D) projects – Research projects that are aligned with programmatic goals and objectives and result in research findings that further the NETL knowledge-base. In-House R&D projects are executed by performers that are employed by NETL.
- Extramural Research Development and Demonstration (RD&D) projects – Research projects that are executed by performers outside of NETL including private-sector partners, other DOE National Laboratories, universities, and other government agencies. The projects begin after the selection and award process and end at project closeout.

- Site-Support projects – Projects initiated under Site Support Contracts that fulfill certain on-site service needs such as site maintenance, housekeeping, and IT support. The projects are generally executed by private-sector partners and provide services that support the ability of NETL to conduct business. Also includes Research and Development Support projects that support NETL in accomplishing laboratory mission objectives.
- Capital Asset Projects – Projects managed under the guidance of DOE Order 413.3A that are related to the acquisition of capital assets including construction projects. Capital projects are not generally aligned with any programmatic or departmental goals but instead provide the physical infrastructure to support the ability of NETL to conduct business.

Extramural RD&D projects can be further subdivided into five categories of projects based on their development through technology maturation levels:

- Fundamental Research. - Explores and defines technical concepts or fundamental scientific knowledge; laboratory-scale; traditionally but not exclusively the province of academia.
- Applied Research. - Laboratory or bench-scale proof of the feasibility of multiple potential applications of a given fundamental scientific discovery.
- Prototype Testing. Prototype technology development and testing, either in the laboratory or the field; predictive modeling or simulation of performance; evaluation of scalability.
- Proof-of-Concept. Pilot-scale development and testing of technology or process; field testing and validation of technology at full-scale but in a manner that is not designed or intended to represent a long-term commercial installation.
- Major Demonstrations—commercial-scale demonstrations of energy and energy-related environmental technologies; generally a first-of-a-kind representation of a long-term commercial installation.

While project classes and project categories define types of projects based on project goals or technology maturation, funding vehicles (agreement types) are also used to define projects and drive project requirements. The following are common project agreement types that are used by NETL:

- Cooperative Agreements – A financial assistance agreement where NETL provides project management oversight, generally for extramural RD&D projects. Can be broken out into groupings based on total estimated costs, for example, less than \$750K, \$750K-\$5 million, greater than \$5 million, and major demonstration agreements.
- Grants– Typically for smaller RD&D projects, grants are financial assistance awards in which NETL involvement is minimal. Includes R&D grants (typically valued at less than \$750K) and formula grants that were congressional established.
- Cooperative Research and Development Agreements (CRADA) – A partnership agreement between NETL and private sector participants to work together on a mutually beneficial project. Each partner applies whatever resources are agreed to, such as

personnel, equipment, or facilities. CRADAs are subdivided into Simplified (less than \$150K) and Standard (greater than \$150K).

- Technology Investment Agreements (TIA) – Agreement used to carry out basic, applied, or advanced RD&D projects when it is appropriate to use assistance instruments. The research is to be performed at least in part by private sector partner and in cases as a member of consortia.
- Work for Others (WFO) – An agreement by NETL to perform non-NETL funded RD&D work. For example, work funded by Department of Homeland Security but performed by NETL.
- Field Work Proposals (FWP) – Agreement where NETL funds other National Labs for RD&D projects. Funding is directed by DOE HQ, but NETL is responsible for oversight of the work.

While all projects will have a core set of project data that is the same across all projects, generally the data needs of individual projects will vary based on project class, category, and agreement type as well as other project criteria such as project size, complexity, and risk. (Figure 3.3.3 – Project Types).

References

- Project Management Guidelines - Extramural Research, Development and Demonstration
- EERE Project Management Guide – A Ref Manual for Project Management and the EERE PMC
- FE Guide and Quick Reference to the ESE Strategic Management System (SMS)
- ProMIS, NETL’s Project Management Information System – User’s Manual
- NETL Project Compliance Review Memorandums

15. Appendix G – Business Process Workflows

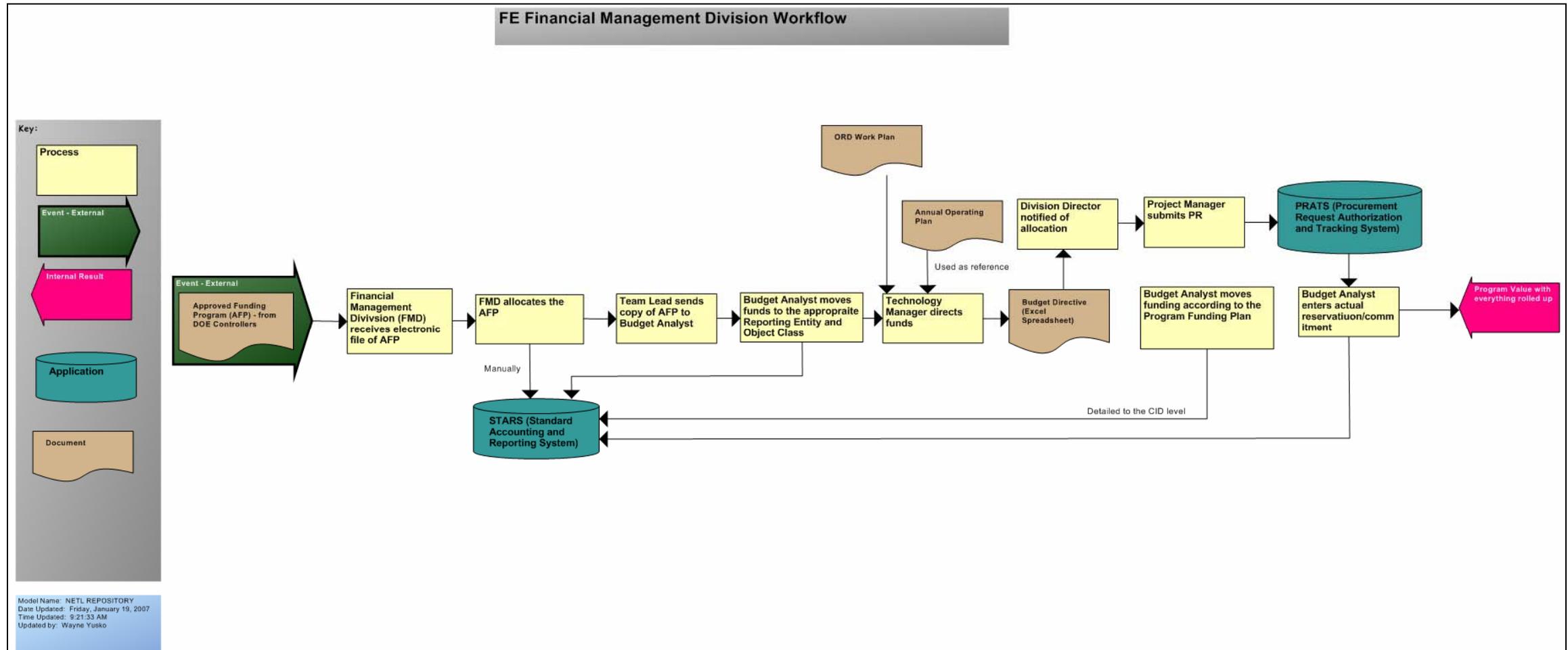


Figure G.1a – FE Financial Management Workflow

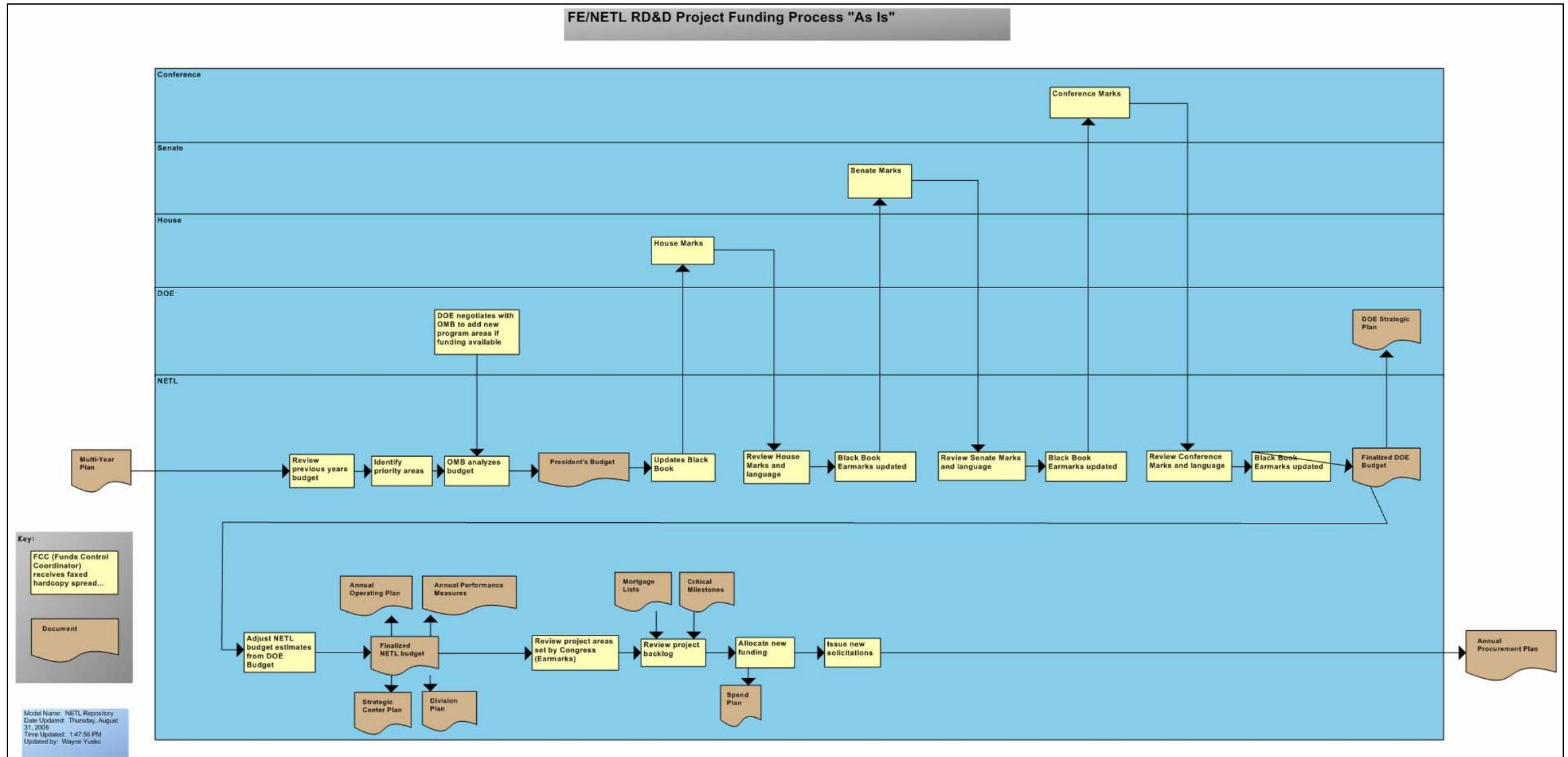


Figure G.1b – FE RD&D Project Funding Workflow

ITES PPIM Project Management REVISED Process "As Is"

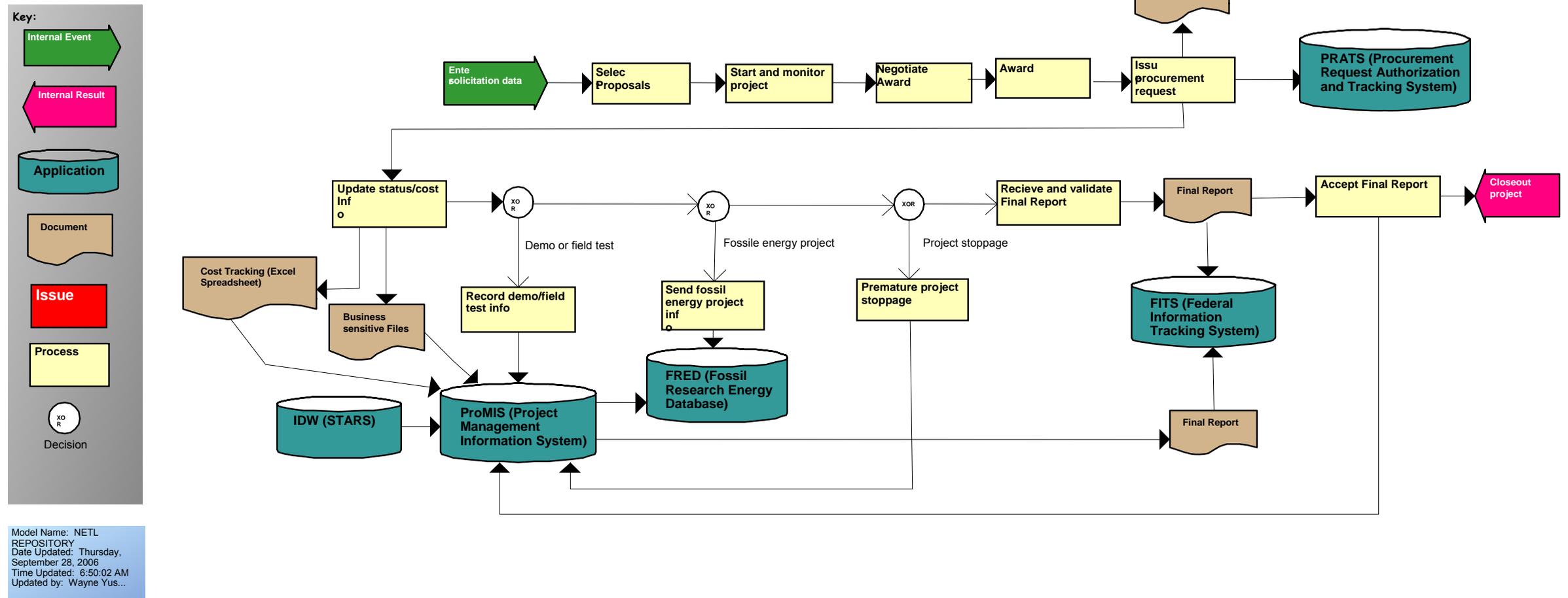


Figure G.2 – Current Project Management Workflow

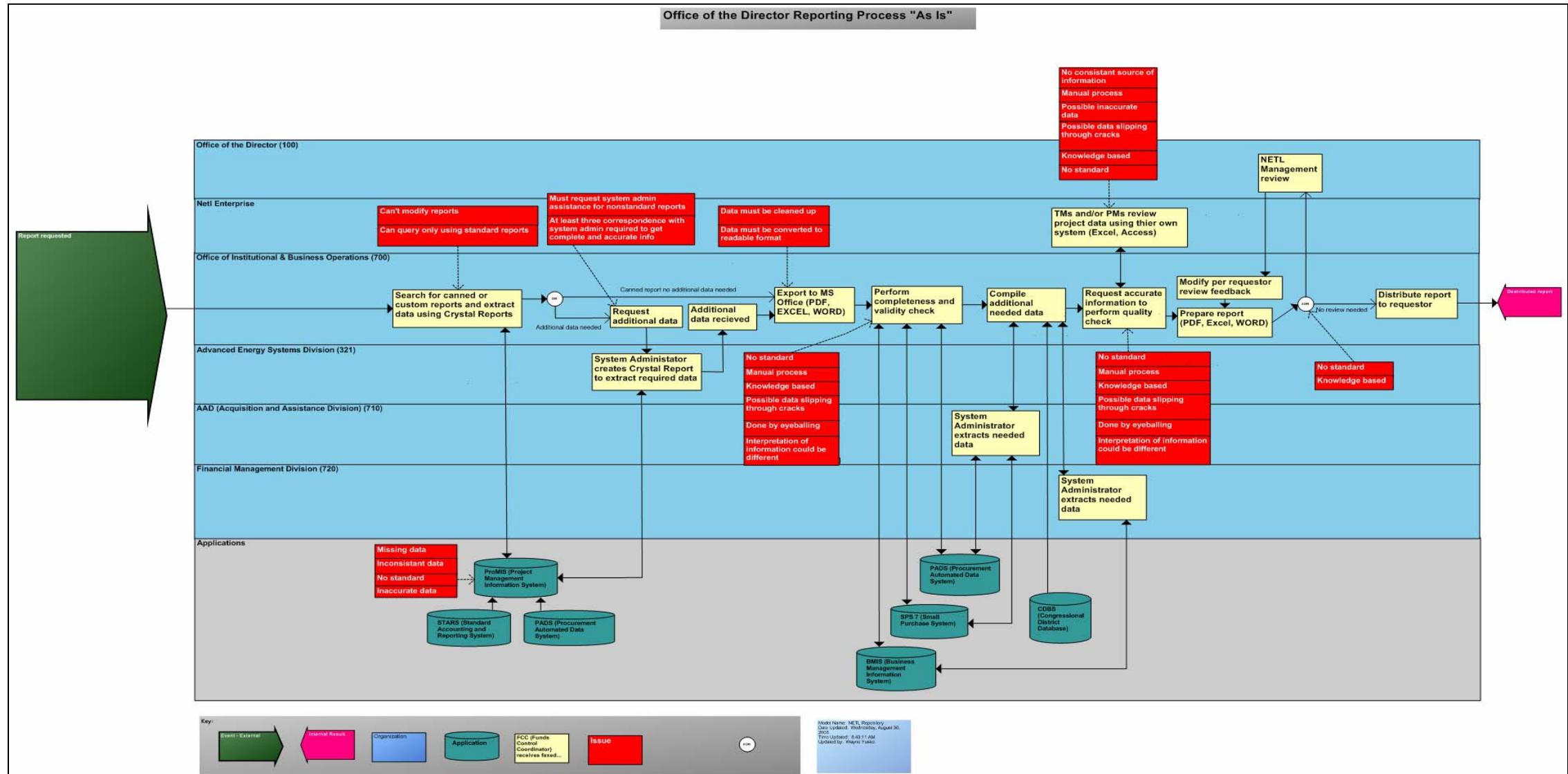


Figure G.3 – Current Reporting Process Workflow