E-GRANTS CONFIGURATION/ CHANGE MANAGEMENT PROCESS PLAN

E-Grants Program Management Office

Version 1.0

Washington, DC
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Grants.gov Configuration Management Plan

1.0 INTRODUCTION

Twenty-six U. S. Government agencies using about 600 different programs annually expend over $350 Billion for medical research, safety, education, transportation, defense, housing and other important public issues. Expenditures take the form of grants and assistance to State and Local Governments, Tribal organizations, education and research institutions, profit and non-profit organizations, public housing authorities and others. The passage of Public Law 106-107, the Federal Financial Assistance Management Improvement Act of 1999 requires streamlining of Federal Grants processes and increased performance accountability. The issuance of the President's Management Agenda in 2002 also called for improvements to customer service and internal Federal operations through the effective application of emerging technologies.

To comply with Public Law 106-107 and implement the 2002 President's Management Agenda, the

E-Grants Program Management Office was created. In February 2002, representatives from grant-making agencies, Grants.gov leadership, Office of Management and Budget, and grant communities agreed on a common a vision and set of goals for the E-Grants initiative. That vision consists of two main themes:

- Produce a simple, unified "Storefront" for all customers of Federal grants to electronically find opportunities, apply, and manage grants
- Facilitate the quality, coordination, effectiveness, and efficiency of operations for grant makers and grant recipients

The E-Grants initiative goals were set as follows:

- Eliminate redundant or disparate data collection requirements
- Define and implement simplified, standard processes and data definitions
- Protect the confidentiality, availability, and integrity of data
- Standardize financial and progress reporting requirements
- Achieve cost savings through consolidation

The Department of Health and Human Services was given the E-Grants lead by being designated as the managing partner with responsibility for running the Program Management Office (PMO). Partner agencies initially will consist of the following:

Department of Health and Human Services	Department of Agriculture
Department of Housing and Urban Development	Department of Defense
Department of Commerce	Department of Transportation
Department of Education	Department of Justice
Department of Labor	National Science Foundation
Federal Emergency Management Agency	Department of Homeland Security

Through its strategic planning, communication and branding efforts, the PMO, with advise and consent of the other partners, changed the name of the program from "E-Grants" to "Grants.gov" eliminating the "E" or electronic connotation expanding applicability to all Government grants. The PMO works with Federal Agencies and oversight organizations, other E-Gov initiatives, many stakeholders and the grants community to oversee development and deployment of a unified electronic portal for all grant interactions.

To achieve the E-Grants vision and goals, the renamed Grants.gov PMO presently envisions a two phase program. This program aims to change the current many-to-many framework between applicant organizations and Federal grant-making agencies to a trusted broker framework. In this framework Grants.gov will deploy an electronic portal "Storefront" which operates like a post office between federal grant agencies and grant applicants. This creates a simpler and more effective one-to-one relationship (Grant agency - Trusted Broker and Applicant – Trusted Broker), which will facilitate standardization, processing, grant award time and efficiency. Phase I of the program is to develop and deploy a simple, unified application mechanism containing grant find and apply functionality through a web-based electronic storefront. Phase II will expand functionality increasing the types of applications and allow submission of financial and progress reports.

The PMO has decided to employ an integrated product team (IPT) in planning, managing and executing the life cycle design, development, deployment, operation and user training of the Grants.gov electronic portal "Storefront". Key functional areas of this management approach are as follows.

Program Management (PM)
Independent Verification and Validation (IV&V)
Outreach and Liaison (OL)
Data Analysis and Modeling (DM)
System Integration (SI)

Northrop Grumman Government Solutions (NGGS) has been selected to accomplish the System Integration portion of this integrated team approach. As a CMMI Level 3 company with pride in the excellence of our work, we recognize the importance of an effective configuration management program (CMP) in achieving successful completion of contract requirements.

1.1 PURPOSE

This Configuration Management Plan (CMP) identifies the organization and personnel responsible for planning, implementing, executing and improving the polices, processes and procedures which will be used by the Northrop Grumman SI team to successsfully complete all phases of the Grants.gov Storefront project. Using Mil-Std 973 as our primary reference, this configuration management program is written to Level 4 of the Software Engineering Institute (SEI) capability maturity model integrated (CMMI) by including provision for advanced methodologies and processes. These advanced methods and processes utilize aspects of reliability engineering, systems engineering, software development and six-sigma methods. This plan is fully compliant with ENABLER V5.1, ISO 9001 and IEEE 12207. It is also compatible with the Project Management Institute (PMI) Project Management Body of Knowledge (pmbok). While advanced processes are included in the plan, these processes are modularized for piecewise implementation. Use of any these processes will not occur until we have determine their cost effective application use.

We have included provisions and interfaces to operate within the CM framework established by the Grants.gov PMO and seamlessly interact with the CM program being executed by the PMO. This plan is compatible with and reinforces the policies, processes and procedures defined in other NG Grants.gov SI plans. This document along with our Program Management Plan (PMP), Quality Assurance Plan (QAP) and Risk Management (RSKM) Plan are major building blocks of Northrop Grumman's continuous improvement program. This CMP will be a "living" document that will be revised periodically to institutionalize continuous improvement and defect prevention techniques acquired from ongoing operations and lessons learned.

1.2 SCOPE

This plan is applicable to all efforts being employed by NGGS in accomplishing the work necessary to successfully complete the Grants.gov contract on time and within budget. The methodology, policy, processes and procedures defined in this plan are to be followed by all NGGS SI team members. This plan is formulated to operate within the framework of the Grants.gov SI contract.. In the event of conflict, the Grants.gov PMO approved Configuration Management Program takes precedence.

1.3 DEFINITIONS

Definition of terms and acronyms that appear in this Configuration Management Plan can be found in Appendix A.

1.4 REFERENCES

- U. S. Department of Interior Contract 263-01-D-0066, Order No. 70960 and Task Order HHS-OS-2003-C-0066 of 03/31/2003
- Grants.gov Configuration Management Plan of 06/10/2003
- Grants.gov Program Management Plan of 04/25/2003
- Grants.gov Phase 1: Concept Of Operations of 05/20/2003
- Grants.gov Risk Management Plan and Current Assessment of 07/15/2003
- SEI CMMI V1.1 of August, 2002
- MIL-STD-973, Configuration Management, April 17, 1992
- ISO 9001 of 2001
- IEEE 12207, Standard for Information Technology – Software Life Cycle Processes of March 1998
- ENABLER V5.1 of 09/28/2004
- Project Management Institute (PMI) Project Management Body Of Knowledge (PMBOK), ISBN: 1-880410, 2000 Edition

Compliance with all applicable provisions of ENABLER V5.1 Configuration Management is contained in Appendix B.

2.0 CONFIGURATION MANAGEMENT POLICY

Northrop Grumman's policy is to take responsibility for the planning, design, implementation, execution and performance effectiveness of CM activities where NG Government Solutions (GS) is the developer, supplier or maintainer. If the project requires over 27 man months of effort, the CM program will use ENABLER processes and procedures as the CM program base. The objective of CM planning is to determine the most effective and economical CM program consistent with customer requirements for development of their system.

The Grants.gov Program Management Office (PMO) has approved a CM program for Grants.gov. This CM program is operative at the PMO level. Northrop Grumman will design, develop and execute a CM program, which operates within the framework of the PMO CM program and is consistent with Northrop Grumman's pursuit of performance excellence. We will supplement the base CM program with advanced methods and techniques whenever they can be employed cost effectively to increase our system integration (SI) performance.

2.1 Grants.gov Configuration Management Policy

At the heart of every successful initiative lies a strong infrastructure that uses robust, repeatable processes and best practices. This infrastructure is especially important when constructing a system that touches almost every agency in the Federal Government and is accessible to the general public. Configuration Management (CM) is a major component of the overall infrastructure that supports requirements, controls scope, and mitigates risk. This CM plan provides a framework for ensuring the Grants.gov Storefront's consistency, reliability and quality performance throughout the system development lifecycle.

As a key component of the Capability Maturity Model Integrated(CMMI) derived at Carnegie Mellon as an industry standard for software development, CM focuses on the development, management and delivery of work products to support system planning, development, deployment and ongoing management activities. The overarching benefit of an effective CM plan is its ability to establish processes and controls to ensure that the envisioned system is realized in a cost-effective manner, quality standards are enforced, and developers, managers, users, and system administrators are provided clear, concise and necessary information.

Best practices derived from information technology (IT) industry standards and CMMI methodologies are incorporated throughout this plan and touch on many Grants.gov Program Management Office (PMO) areas of responsibility including system development, communications, change management, auditing, and reporting. CM provides the following benefits:

- Effective management of requirements and changes
- Improved management of project assets
- Increased control of product and project information
- More accurate project status information
- Increased system reliability and quality
- Increased support in managing risk
- More stable platform for cooperative working relationships

- Increased potential for reusability of work products

Because Federal Representatives (detailees) and contractor staff will operate the Grants.gov PMO, an effective CM plan is essential. This CM plan is focused on ensuring that the Grants.gov PMO effectively manages its work products including source code, documentation and developmental work products; changes to those work products; and the process for making changes and updates.

2.1.1Configuration Management Overview

CM is a structured process designed to ensure the integrity and traceability of work products throughout the system development life cycle. The CM process involves identifying system-related work products, managing changes to those products, and maintaining the products. The Grants.gov PMO is taking a proactive and comprehensive approach to CM in order to ensure that system planning and management activities effectively support the Grants.gov initiative vision and goals. The work products to be managed includes not only the Grants.gov source code and website, but those key planning products that are used to design, develop and deploy the system as well as those materials that are presented to the general public and key stakeholders about the Storefront. This proactive and comprehensive CM approach is important to assist the PMO in effectively managing the large number of work products spanning multiple contractor teams that will be scrutinized by many internal and external stakeholders.

The key principles behind the CM Plan enable the Grants.gov PMO to:

- Plan and monitor CM activities
- Identify, manage, and share work products
- Control changes to work products
- Inform affected groups and individuals of the status and content of work products

CM is necessary to prevent incorrect or inadequate products from being delivered, avoid high rework costs, and provide processes for effective control of changes.

2.2 Grants.gov System Integrator (SI) Configuration Management Policy

The System Integration team will actively participate in CM activities at the PMO Level. The SI CM program described by this plan defines the processes and procedures, which will be employed to meet contractural and internal requirements. This is necessary to systematically control the Grants.gov Storefront hardware and software configurations and their changes to maintain the integrity and traceability of the Storefront throughout its system life cycle.

Provision is made to interact with the PMO CM program for all issues requiring PM attention. Examples of program and CM issues sent to the Grants.gov PM are Class I Configuration Change Proposals (CCPs), Requests For Waiver (RFW) and Risks which have been assessed as being beyond SI capabilities. In general CM issues affecting the Grants.gov Storefront form, fit, function and performance envelope which are outside the scope of the contract can only be resolved by the Grants.gov PM. Further the Grants.gov Deputy PM has been designated as the PMO CM manager. In this capacity, she is responsible for oversight of SI CM activities and Internal Review Board (IRB) actions.

This CM program is designed to seamlessly integrate with SI project management, systems engineering, software development, quality assurance, risk management and continuous improvement programs. CM activities are consistent and performed in parallel with all disciplines throughout the Grants.gov Storefront life cycle.

The main elements of the SI CM program are as follows.

- Configuration Identification
- Configuration Control
- Configuration Change
- Configuration Status Accounting
- Configuration Auditing

The procedures used in the processes comprising these program elements will be performed in the most effective and economical framework necessary to achieve CM program objectives.

While an important objective of these CM elements is controlling the evolution and integrity of the Storefront form, fit, function and performance envelope by identifying its configuration items, managing and controlling changes and verifying, recording and reporting status; the biggest payoff for System Integration is continuous improvement. The SI CM program forms the cornerstone of our continuous improvement efforts. Integration with other SI infrastructure programs such as quality assurance, risk management, systems engineering, project planning, requirements management, etc. allows the outputs from these disciplines to be transformed into distinct opportunities for positive changes in methodology, technological application, policies, processes and procedures. The CM program provides the mechanism and forum for recording, analyzing and adopting improvement opportunities stemming from System Change Requests (SCRs) both problems and enhancements (requirement changes), technology insertion, risk identification, configuration change proposals (CCPs), requests for waiver (RFW), and lessons learned.

The Internal Review Board (IRB) performing functions similar to Configuration Control Boards (CCBs) serves as the decision-making entity for all improvement changes. Since change is difficult, it is imperative that all changes being implemented result in quantifyable improvements. It is better to do nothing, than implement change that takes the enterprise effort backward. To minimize the risk of this occurring, IRB membership consists of all people with a stake in the issue being considered. This ensures that each issue being considered by the IRB is subjected to multiple independent reviews, analyses, verification and validation consistent with ENABLER SPPs Verification (547), Validation (548) and Decision Analysis and Resolution (565). Further since the stakeholders played an integral part in the adoption and implementation decisions, occurrence of change in the wrong direction becomes a rare event and resistance to change is minimized.

3.0 ORGANIZATION

This section is divided into two main subsections. The first describes the Grants.gov PMO CM program and the CM activity roles and responsibilities of Government personnel and various Grants.gov contractors. The second part defines the roles and responsibilities of the Northrop Grumman Systems Integration team members as the NGSI CM program is executed over the Grants.gov StoreFront system life cycle.

3.1 Grants.gov PMO CM Program Organization

Members of the Grants.gov team have defined CM roles that naturally align with assigned responsibilities. These roles are divided into six categories: the Grants.gov Configuration Manager, Configuration Control Board (CCB) members, Federal Representatives and Contractor Team Leads, System Integrator contractor, PM Support contractor, and IV&V contractor. These roles are summarized below in Figure 3.1-1: CM Responsibilities by Activity.

Figure 3.1-1: CM Responsibilities by Activity

Configuration Activity	Primary CM Responsibility
Establish Levels of CM Control	Recommend: Configuration Manager Approve: CCB
Identify Configuration Items	Recommend: Configuration Manager Approve: CCB
Determine Baselines	Recommend: Configuration Manager Approve: CCB
Maintain CM Library	PM Support
Conduct CCB	Configuration Manager, CCB
Build and Deploy Product	System Integrator
Conduct Audits	IV&V
Report Configuration Status	Configuration Manager, PM Support

The following sections present an overview of the Grants.gov team members CM responsibilities.

3.1.1Grants.gov Configuration Manager

The Deputy Program Manager acts as the Grants.gov Configuration Manager. The Configuration Manager is the focal point for all Grants.gov CM activities, and provides oversight and coordination of those activities. Additionally, the Configuration Manager will oversee the activities of the System Integrator to ensure that CCB decisions are adequately implemented in an efficient manner. Specifically, the Grants.gov Configuration Manager will:

- Oversee development of system-related work products, including scope, requirements and deployment-related documents
- Oversee development of the Grants.gov Storefront functionality
- Recommend system-related work products to be managed
- Recommend baselines
- Recommend levels of CM control
- Oversee establishment of a CM library

- Estimate CM activities
- Chair CCB meetings
- Report configuration status

3.1.2 Configuration Control Board (CCB)

The Grants.gov Program Manager will appoint the members of the Configuration Control Board (CCB) to serve as an advisor on all configuration management matters. The CCB members will include the Grants.gov Configuration Manager and designated Federal Representatives. Additional CCB members could include other Federal Representatives, representatives from the Grants.gov contractors, representative from the General Services Administration overseeing the activities related to the Find Opportunity functionality, and external stakeholders. As an advisory group to the Program Manager, CCB members will do the following:

- Define the Grants.gov Storefront's scope, requirements and significant changes
- Monitor Grants.gov Storefront system development activities
- Review system-related work products
- Identify system-related work products to be managed
- Identify baselines
- Identify levels of CM control
- Review CM activities
- Participate in CCB meetings
- Review configuration status reports

The Grants.gov Program Manager oversees the activities of the CCB and addresses policy and other issues as necessary. In addition, the Grants.gov Program Manager can identify strictly controlled work products that do not require CCB approval for changes. This is particularly important on work products that are being presented to oversight organizations and other stakeholder groups, and when the schedule does not permit adequate review by CCB members.

3.1.3 Federal Representatives/Contractor Team Leads

The Federal Representatives/Contractor Team Leads conduct activities to develop and deploy the Grants.gov Storefront and support the Configuration Manager in all CM-related activities. Working with the Configuration Manager, the Federal Representatives/Contractor Team Leads implement CCB decisions. The Federal Representatives/Contractor Team Leads:

- Prepare system-related work products
- Implement CCB decisions
- Provide input into CM estimates and documentation

3.1.4 System Integrator Team

The System Integrator works with the Configuration Manager and Federal Representatives/Contractor Team Leads to develop and deploy the Grants.gov Storefront and implement CCB decisions. The System Integrator:

- Prepares system-related work products
- Develops Grants.gov Storefront functionality
- Provides input into CM estimates and documentation
- Participates in CCB meetings
- Maintains source code for the Grants.gov Storefront and PMO-controlled websites

Working with the Configuration Manager, the System Integrator will implement a CM tool in accordance with this CM Plan.

3.1.5 PM Support Team

The PM Support team, working closely with the Configuration Manager, supports CCB meetings and coordinates activities to implement CCB decisions. In addition, the PM Support team will:

- Suggest baselines and prepare documentation
- Suggest levels of CM control and preparing documentation
- Estimate CM activities and prepare documentation
- Prepare configuration status reports
- Prepare Grants.gov work products

The PM Support Team is also responsible for establishing and maintaining the CM library.

3.1.6 IV&V Team

The Independent Verification and Validation (IV&V) contractor is responsible for conducting periodic CM audits and reviewing all Grants.gov system-related documents. Initially, it is recommended that quarterly audits be conducted to ensure that Grants.gov employs the appropriate level of CM activity to ensure successful deployment of Phase 1 functionality.

3.2 SI CM Program Organization

Northrop Grumman will not employ a separate CM staff on the Grants.gov SI contract. Everyone on the SI team is empowered and responsible for conducting CM activities during the course of producing the products and services necessary to successfully integrate the various Grants.gov systems, subsystems, COTS and GOTS components. Personal involvement whether as a user of CM services or participant in creation of CM products is a daily occurrence for most members of the SI Grants.gov team. Figure 3.2-1 depicts the current SI Team Organization. The following sections will identify specific CM program roles and responsibilities for each team member.

3.2.1 All Team Members

The CM program described in this plan will be used by all members of the SI Grants.gov Team. It will be updated as improvements in performing CM functions are adopted. All personnel are empowered to suggest changes, which increase the effectiveness of the CM program as part of our continuous improvement efforts. Each member of the SI team is actively involved in the creation of Storefront CI functionality through development of work products and integration of COTS and GOTS. Maintenance of Storefront CI form, fit and function integrity and traceability is built into our products and services by the work of our team members. The following list of CM functions is the responsibility of each SI team member.

- Understand and apply CM program principles, policy, processes and procedures
- Develop Storefront CI work products and functionality
- Update and revise work products maintaining CI traceability

- Use Product Development Library and PVCS Version Manager for in-process product development
- Use CM Library and PVCS Version Manager for maintenance of CI integrity
- Provide CM data, records and reports to CM Manager
- Prepare SCRs, CCPs and RFWs
- Perform member functions and participate in IRBs
- Participate in CM Audits

3.2.2 System Integrator Program Manager (PM)

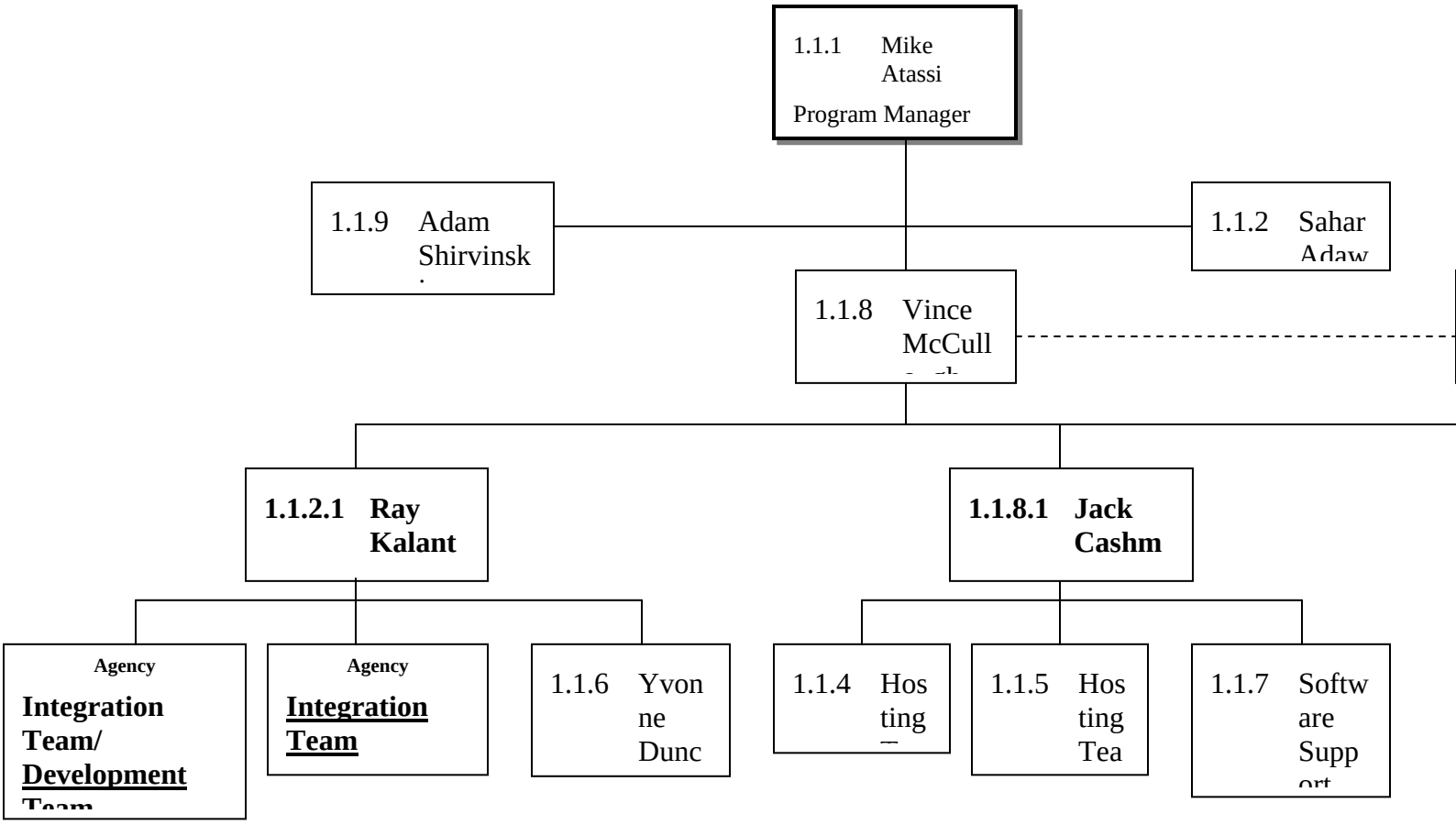
The Program Manager (PM) is responsible for the performance of all Gants.gov SI contract services and products. The PM delegates authority and responsibility to various members of the SI Team and directs them in the performance of their tasks. Being responsible for the continued effectiveness of the SI Team includes planning, implementing, executing and monitoring the CM program. Specific CM program responsibilities consist of, but are not limited to the following.

- Serve as a member of the CCB
- Establish and maintain the CM program, obtaining sufficient resources for its execution
- Provide CM Training
- Identify and involve relevant stakeholders
- Conduct management reviews taking appropriate corrective actions
- Interact with Grants.gov CM Manager.
- Provide effective Configuration Identification (CI)
- Provide effective Configuration Control
- Provide effective Configuration Change
- Approve Class II CCPs and Enhancement SCRs
- Recommend Class I CCPs, RFWs and Risks to PMO
- Chair IRBs, review and approve IRB recommendations
- Provide Configuration Status Accounting as directed by Grants.gov PMO
- Provide effective Configuration Audit program.
- Incorporate lessons learned and other change improvements into CM plan as part of the NG continuous improvement program.
- Report CM program results to NG Senior Management (SM) and Grants.gov PMO

3.2.3 Systems Integrator Deputy Program Manager

In the absence of the SI PM or as otherwise directed, the SI Deputy PM shall be responsible for performing all CM program functions defined for the SI PM in Section 3.2.2. For those occasions when the SI PM is present and executing his defined roles and responsibilities, the Deputy PM shall be responsible for the same CM program functions as the Team Leads which are described in Section 3.2.4. In the absence of the Deputy PM, the InFlowSuite™ Advisor shall perform all CM program functions assigned to the Deputy PM. Otherwise the InFlowSuite™ Advisor shall perform the CM functions assigned to Team Leads.

Grants.gov Systems Integration Team



Grants.gov SI Team Organization
Figure 3.2-1

3.2.4 Systems Integrator Team Leads

Leads have been assigned to the following teams:

Forms Factory
Web Services
IFS Development.
Production Support

In addition to the responsibilities described for all SI team members in section 3.2.1, each Team Lead will have specific CM program functions as follows.

- Ensue consistent application of CM program principles, policy, processes and procedures
- Direct development of Storefront CI work products and functionality
- Ensure accurate updates and revise work products maintaining CI traceability
- Supervise and control use of PVCS Tracker and Version Manager, Product Development Library for in-process product development and CM Library for maintenance of CI integrity
- Supervise preparation of accurate CM data, records and reports to CM Manager
- Review and prepare SCRs, CCPs and RFWs
- Perform and participate in CM Audits
- Capture experience in lessons learned

3.2.5 Configuration Manager

The Configuration Manager is the principle assistant to the PM for CM program activities. There is also a NG Configuration Manager for InFlowSuite who performs similar functions and reports to the IFS Program Manager for the daily execution of duties. Specific duties and responsibilities are as follows.

- Serve as the principle CM technical advisor to the PM.
- Serve as IRB Secretariat and meeting facilitator for IRBs. The IFS CM shall perform similar functions for the IFS Engineering Review Board (ERB).
- Design, develop and implement the CM Plan IAW direction from the PM.
- Provide CM training.
- Design, develop and implement Configuration Identification process
- Design, develop and implement Configuration Control process, Work Product Development, CM Libraries and PVCS Tracker and Version Manager.
- Design, develop and implement Configuration Change process, CCP form and RFW form.
- Design, develop and implement Configuration Status Accounting process, CM DBs and reports.
- Review and analyze CM data, trends and performance effectiveness of CM activities.
- Design, develop and implement Configuration Audit process.

3.2.6 Roles and Responsibilities

The roles and responsibilities for the Systems Integrator Team members are summarized in Table 3.2.6-1 below.

Table 3.2.6-1. Configuration Management Program Responsibility Matrix

	Program Manager	Deputy PM	Config Mgr	Team Leads	SI Team
PMO CCB	X				
Establish and Maintain CM Program	X		X		
Provide CM Program Resources	X				
Conduct Management Reviews	X				
Identify and Involve CM Stakeholders	X		X		
Configuration Identification Policy, Processes and Procedures	X	X	X	X	X
Develop Storefront CI Work Products and Functionality	X	X	X	X	X
Revise Work Products Maintaining CI Traceability	X	X	X	X	X
Configuration Control Policy, Processes and Procedures	X	X	X	X	X
WPD and CM Libraries	X	X	X	X	X
PVCS Tracker and Version Manager	X	X	X	X	X
Configuration Change Policy, Processes and Procedures	X	X	X	X	X
Participate in IRB Meetings and Perform IRB Functions	X	X	X	X	X
SCR, CCP and RFP Preparation and Review	X	X	X	X	X
CM Training	X	X	X	X	X
Configuration Status Accounting Policy, Processes and Procedures	X	X	X	X	X
Record and Report CM Data		X	X	X	X
CM Audit Policy. Processes and Procedures	X	X	X	X	X
FCA, PCA and IPA Participation		X	X	X	X
Lessons Learned	X	X	X	X	X
Analyze CMP Trends, Lessons Learned, Incorporate Improvements in CM Plan	X		X		
Close Class II CCPs and SCRs, Recommend Class I SCRs, CCPs, RFWs & Risks to PMO	X	X	X	X	
Report CM Program Results to Senior Mgt	X	X	X		

3.3 Internal Review Board (IRB)

To assist the SI Grants.gov PM determine the extent and breath of CM program activities, the PM will establish an Internal Review Board (IRB). The IRB determines items to be subjected to configuration management such as configuration identification and baseline establishment, configuration control, configuration change processing, standard operating procedures, process improvements, configuration status accounting and auditing. Items that affect cost, schedule and Grants.gov Storefront form, fit, function and performance envelope shall be referred to the PMO CCB for action along with a disposition recommendation from the IRB. More importantly the IRB is the decision-making entity for all process improvements affecting work of the SI Team. This mechanism allows quick adoption of improvement methodologies, lessons learned and advanced technology for Grants.gov Storefront use.

Figure 3.3-1 depicts the organization of the Grants.gov SI IRB. Appendix C contains its charter. The IRB is created to assure coordination, foster communication and provide a systematic means of continually improving service performance in development and maintenance of. Grants.gov Storefront. The IRB is responsible for accurate review and revision of all SI Team prepared items being presented to the PMO CCB. The items may include, but will not necessarily be limited to requirements, specifications, interfaces, technical documentation, hardware and software configuration items, engineering drawings and associated lists, standard configurations and architectures, policies and procedures affecting operations and Storefront performance envelope. At the direction of the PMO CCB Configuration Change Proposals originating from other Grants.gov contractors may be referred to the IRB for review, impact analysis and disposition recommendation. The SI IRB shall review and approve items within the scope of the contact such as the following examples:

- All configuration identification items subject to configuration management
- Functional, allocated, and product configuration baselines
- All program plans such as the Program Management Plan, Configuration Management Plan, Quality Assurance Plan, etc.
- Standard Operating Procedures (SOPs)
- Engineering drawings and other technical documentation defining the ATIC Network and IT environment architecture, design, and operational characteristics
- Configurations for Storefront Development, Test and Production Environments.
- Enhancement SCRs
- SI Team originated Configuration Change Proposals (CCPs)
- SI Team originated Waiver Requests (RFWs)

SI IRB Organization

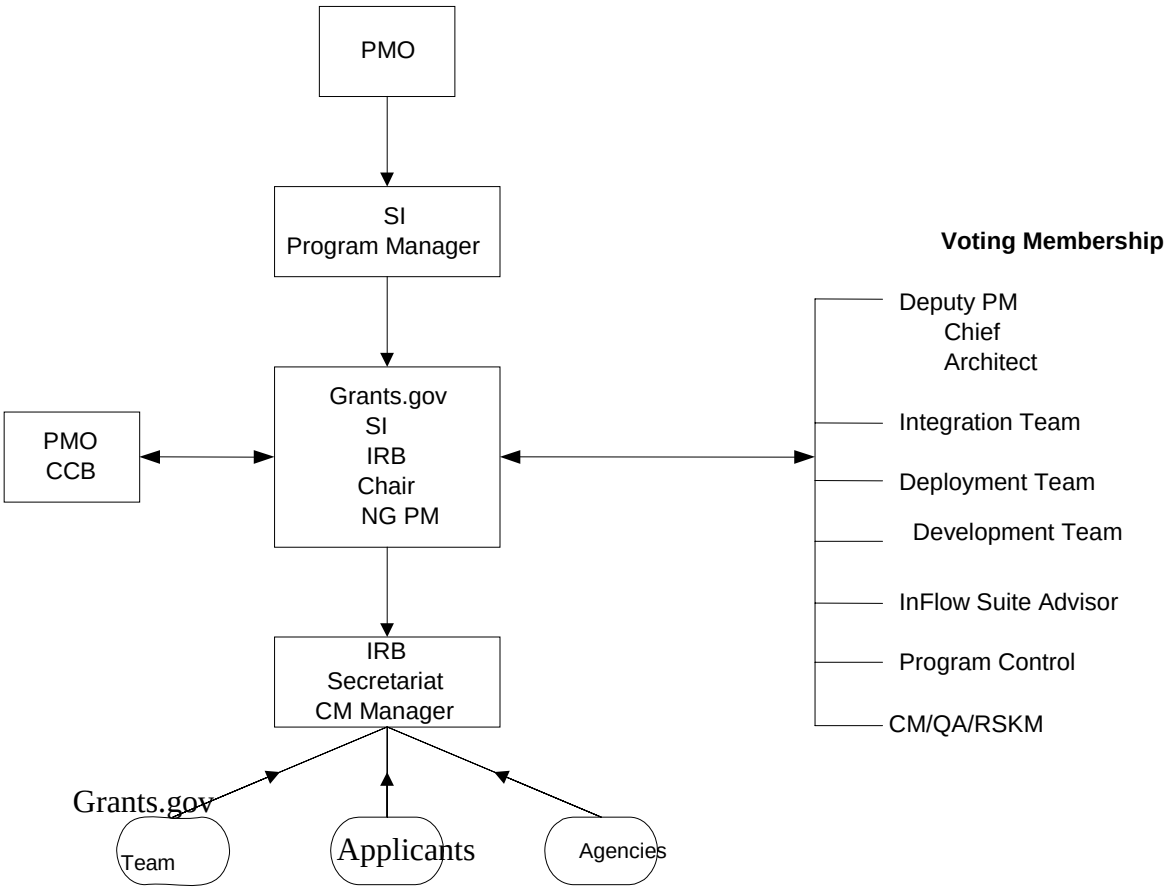


Figure 3.3-1
Grants.gov SI IRB Organization

3.3.1 IRB Member Responsibilities and Authority

This section defines the roles and responsibilities of the Chairperson, IRB Members, and the IRB Secretariat. In general, all members serve as advisors to the Chairperson. IRB membership, as specified in the attachment to this charter, is broad enough to include all contractors' employees having potential impact on IRB decisions. The membership at each IRB will be limited to stakeholders and those members having relevant information on the issues being considered by the Board. Each member will have a single vote on each item being considered. This vote will be recorded in the minutes of the IRB. The Chairperson's vote, however, represents 51 percent of the voting population.

3.3.1.1 IRB Chairperson

The SI Program Manager (PM) or a designated alternate will chair each IRB session. Since the SI PM has the contractual authority and responsibility for the actions of all SI Team employees in the execution of the Grants.gov Storefront contract, decision authority or the delegation of that authority remains with the Program Manager and cannot be usurped.

The Chairperson will approve the IRB agenda and scheduling. In the event the Chairperson is unavailable for a scheduled IRB and an alternate is not chosen, the Configuration Manager will assume the IRB Chairperson's responsibilities for conducting the IRB proceedings and obtain the Chairperson's approval of the proceedings after the meeting.

The Chairperson has authority to direct implementation of all Standard Operating Procedures, completion of Class II CCPs and problem report corrective actions within contract scope, selection of items for CM along with changes to existing CIs, and the selection of vendors or subcontractors for which the contract has not specified direct purchase.

3.3.1.2 IRB Members

Each member or designated alternate of the IRB has authority to make decisions for his or her area of corporate responsibility. Each member is responsible for reviewing and researching each item on the IRB agenda before the IRB meeting. This review should include the following:

- Ensure accuracy and completeness
- Determine validity of the identified problem or proposed change
- Assess the technical, schedule, cost, and benefit impact
- Identify the impact on form, fit, and function, other configured items, interfaces, technical documentation, and deliverables
- Determine the approach to implementation

All members should be prepared to discuss all agenda items, providing additional information and recommendations for implementing actions. Members are expected to participate in follow up actions for release planning and analysis sessions. An example listing of IRB Members is contained in the Attachment to Appendix C, the IRB Charter.

3.3.1.3 IRB Secretariat/Configuration Manager

The IRB Secretariat is the Configuration Manager who gathers, organizes, presents, tracks, and reports all CM changes. This includes, but is not limited to, agenda preparation, IRB scheduling, IRB membership, distribution of IRB review materials, conduct of IRB proceedings, preparation and

distribution of IRB minutes, and follow-up tracking of implementation actions. The Configuration Manager is a nonvoting member of the IRB.

3.4 CM Tools

While the SI Grants.gov Team is using a suite of several COTS software development tools, performance of CM functions and activities employ two COTS tools – Merant PVCS Professional, V7.0 and Microsoft Windows 2000.

3.4.1 Merant PVCS Professional

PVCS Professional V7.0, produced by Merant Corporation, is the primary software tool being used by CM to perform activities to control the development of integration software, fixes of its problems and requirement changes. It allows the SI Team to retrieve and build any version of the application software components in a consistent and repeatable manner. It is a set of inter-related applications that provide mechanisms for managing file versions, track change requests and automate the build process. This core program consists of three major subprograms.

PVCS Version Manager

PVCS Configuration Builder

PVCS Tracker

3.4.1.1 PVCS Version Manager

PVCS Version Manager enables teams of any size to coordinate concurrent development while controlling changes in multiple revisions. It is the repository for all source code developed by the SI Team and runs with concurrent users on Windows NT. Developers check in and check out all source code files using this tool. The promotion model feature determines file revisions to establish baselines forming a hierarchy of milestones that control code from design to final release. Promotion groups have been created to form development, integration, acceptance and deployment baselines.

3.4.1.2 PVCS Configuration Builder

PVCS Configuration Builder provides the mechanism, which automates and standardizes the build process for each of the promotion group baselines.

3.4.1.3 PVCS Tracker

PVCS Tracker records all changes requests in a database to enable change tracking from inception to their closure. It provides a standard mechanism for capturing software defects reported as problems and requirement changes by entering their particular data into the system as SCRs (System Change Requests). The SCRs are then matched to specific source code files and tracked until the source code has been changed to successfully resolve the issue. In support of the Quality Assurance program software problem reports (PRs) will be converted into SCRs as they are entered into PVCS Tracker. For the Configuration Management program both Configuration Change Proposals (CCPs) and Requests for Waiver (RFWs) will originate as Enhancement SCRs as they are entered into PVCS

Tracker. Use of PVCS Tracker in this manner provides the control, accounting and traceability functions of the SI Grants.gov Requirements Management Program.

3.4.2 Microsoft Office 2000 Professional

Performance of daily CM functions, creation of work products, measurement and analysis, data reduction and analysis, decision resolution and analysis use Microsoft Office 2000 Professional such as Word, Excel, Microsoft Project, PowerPoint and Access. The CM database will be built on Excel spread sheets and Access DB.

3.5 CM Training

Training in the principles of the CM discipline will be provided to all Grants.gov SI Team members by means of OJT, PM Weekly Status Meetings, ENABLER training sessions, SI team meetings, one-on-one meetings with the Configuration Manager and lessons learned sessions. An individual training record will be setup for each team member and maintained by the SI Technical Editor / Trainer.

4.0 CONFIGURATION IDENTIFICATION

Hardware, software and documentation may be designated as configuration items (CIs). Hardware and software CIs are usually an aggregation of piece parts that fit and operate together to satisfy an end use function. The design, implementation, test and operation of CIs are subjected to configuration control to ensure maintenance and integrity of the CI's intended form, fit and function. Hardware and software items may be system, subsystem, and assembly or unit level components. The majority of the CIs comprising the Grants.gov Storefront System are COTS. Software development is necessary to (a) customize Northrop Grumman's InFlow Suite software to the Grants.gov Apply and Find functional requirements; (b) to integrate the various Government database systems and GOTS such as the Contractor Central Registry (CCR), Catalog of Federal Domestic Assistance (CFDA), and E-Authentication and (c) integrate the Storefront with the various Grant-making Agency Systems. The production Grants.gov Storefront System will be hosted at AT&T's Ashburn, VA Information Management Center. The primary development system for Agency integration and training will be located at Northrop Grumman Rockville, MD with the secondary development system for InFlow Suite customization and Storefront Apply functionality located at Northrop Grumman, Reston, VA.

4.1 Hardware Configuration Items

Hardware configuration items are the equipment items. Since there are no developmental items in the Grants.gov Storefront System, all equipment is COTS. Configuration control of the equipment will remain with the original equipment manufacturer or franchised vendor. Our configuration control will start at the subsystem level where we will collect data on individual equipment units such as model changes, operating hours, failures and corrective actions. Grants.gov StoreFront unique configuration identification numbers will not be assigned. Each line replaceable equipment item will be designated as a CI using Original Equipment Manufacture (OEM) configuration item data such as nomenclature, model number and part number. The hardware architecture for both the primary and secondary development systems is very similar. The systems are composed of two subsystems, the network and data management subsystems to facilitate data gathering, analysis, storage, retrieval and reporting.

4.2 Software Configuration Items

The Grants.gov Storefront development systems use a variety of software subsystems COTS, GOTS and developmental applications. For COTS and GOTS software, configuration control remains with the original developer who licenses the software to the Grants.gov program. We will accept the software CM structure used by the developer with minimal modification for data management purposes. We will track COTS and GOTS software by developer assigned version numbers.

No software will be made available to users until it is under control in the CM Library. CI numbering of various subsystems will follow the software architecture hierarchy. Data will be gathered on software problems, software requirement changes and implementations.

4.2.1 Software/Data/System Configuration

In general we number software components according to the following pattern :

$$d_1d_1.d_2d_2.d_3d_3. \ldots d_nd_n$$

where d_1d_1 represents a two-digit number for the highest-level (project-level) component, d_2d_2 represents a two-digit number for the second-level component, and so on down to the lowest level. Leading zeroes shall be used for all component numbers as required. For example, the FinCEN project has several second-level components, including one called CustomerWebSupportFiles, which in turn has several lower-level components : images, manuals, and news. The component identifiers for these components are:

02 for the highest-level component, FinCEN

02.06 for the second-level component, FinCEN/CustomerWebSupportFiles

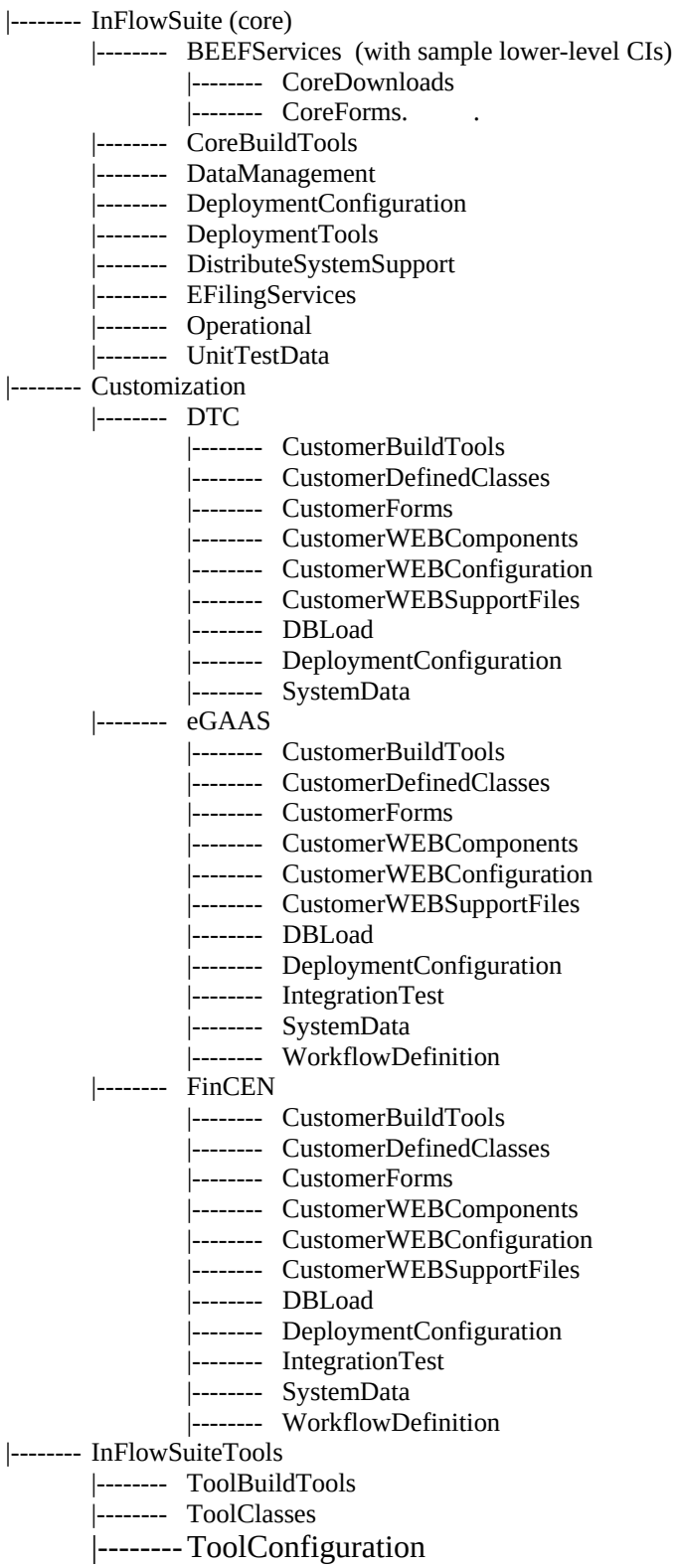
02.06.01 for the 1st third-level component, FinCEN/CustomerWebSupportFiles/images

02.06.02 for the 2nd third-level component, FinCEN/CustomerWebSupportFiles/manuals

02.06.03 for the 3rd third-level component, FinCEN/CustomerWebSupportFiles/news

The InFlowSuite configuration items for software, data, and system configuration are built in a logically related structure. The highest-level CIs consist of the core, of the customized components, and of the suite tools. The core provides the basic functionality for the suite: each high-level package comprises a lower-level configuration item of the core CI. Lower-level configuration items for each project CI include build tools, defined classes, forms, customer-specific web components, customer-specific web configuration, customer-specific web support files, customer-specific data, deployment configuration, test scripts, and system data. Lower-level configuration items for the suite tool CI include tools, classes, and configurations. The core, project, and tool lower-level configuration items are further broken down into lower-levels as needed. Figure 4.2.1-1 illustrates the organization of the highest-level CIs and their immediate children. The structure is subject to change as more projects are added to InFlowSuite.

Figure 4.2.1-1. InFlowSuite CI Hierarchy



4.3 Release Management

The release management process controls the incremental capture of developmental artifacts, and incorporates these products in an evolving baseline. Releases reflect incremental deliveries of functionality to the production system.

The release concept is also reflected in incremental changes to pre-production baselines, allowing these baselines to evolve in support of the incremental development and testing process. Internal releases, or 'builds," capture a snapshot of the software artifacts contained in a particular baseline. These artifacts are built to produce executable, deployable software. The following paragraphs define the processes involved in defining and managing both builds and releases.

4.3.1 Content of Builds

Builds are developed by the software engineering group of the specified system and include the following elements:

- Compiled core code
- Compiled project-specific code
- Project-specific data
- Documentation as required, including a Version Description Document

4.3.2 Criteria for Release

The following conditions shall be met before a release is delivered to the customer :

- Software has been tested in accordance with the software test plan in both test and operational environments
- Software test report documents the testing and deficiencies/defects approved by the customer.
- Software has been tested by customer in the test or operational environment
- Outstanding deficiencies/defects found in internal or acceptance testing by TRW and the customer, have either been repaired or logged as problems for future versions
- Complete set of documentation is available, e.g., release notes, updated technical description, etc.
- Version Description Document or Release Notes has been prepared, listing problems/defects fixed by release and outstanding problems/defects still remaining
- The hardware/software environment is prepared for build deployment
- Site functional check is accomplished
- Release notes, forms and schema addresses are e-mailed to all appropriate stakeholders
- Application Deployment Check List shown in Table 4.3.2-1 is completed.
- Verification of release activities has been conducted by Quality Assurance
- Customer approves the release

4.3.3 Authorization for Release

Release authorization is initiated by customer requests for updates. The IRB will recommend and the Grants.gov CCB will designate the SCRs and CCPs to be included in a specific release.

Grants.gov

Application Deployment Check List

Table 4.3.2-1

Activity	Date Performed /Initials	Notes
Prepare Build Environment		
Check SCRs list		
Prepare Release Notes: • Build's URL/location • Schema and forms location/inclusion • SCR list and notes • Other related build instructions • Web Services-specific instructions/notes		
Deploy Build		
Site Functional Check		
E-mail Release Notes, Forms & Schemas Addresses		

4.3.4 Distribution

The following steps shall be performed to distribute a release:

- The master copy of the released work products is created under configuration control.
- Each copy of the work products for distribution is replicated in the master set.
- The process is documented in procedures under configuration status accounting.
- All media is marked with the version/release number and date, along with the sponsoring organization and the contract number.
- E-mails and/or media sent to all appropriate stakeholders.

4.3.5 Post Release Activities

The following activities shall be performed after a release is delivered:

- Once the work products are released, they are maintained under configuration control as the current baseline.
- These controlled directories are used to generate additional copies of the work products.

4.3.6 Patches and Upgrades

Patches and upgrades consist of changes that affect a small number of executables and that can be delivered without recompiling the entire system. They are generally provided as corrections to problems found after successful system testing and acceptance or when the customer request for changes requires an especially rapid turnaround. When a patch is delivered, the following activities are performed:

- Changes and patches to the Product Baseline are created as new products with version numbers in the decimals, e.g., Version 7.51.
- A new set of software directories for the patch version is maintained.
- Document numbers are updated, following schema described in configuration identification.

4.4 Documentation Configuration Items

All documentation submitted to the Government except for periodic reports will be placed under CM control prior to submission for Government acceptance. Documentation subjected to CM control may consist of various plans, technical proposals, engineering drawings and associated lists, etc. Minor changes will be issued in document change notices while major changes will necessitate rolling the revision letter on a completely republished document. Unique CI numbers will be assigned to all documentation according to the following convention.

4.4.1 Naming Conventions

The Grants.goc SI documents have the following naming convention:

<Program ID> BBB-NNN C.D

- <Program ID> = Program Identifier (e.g., “Grants.gov.”; for documentation of the core, the “InFlow” identifier is used)
- BBB = Document Type (e.g., “PMP” for Project Management Plans, “CMP” for Configuration Management Plans, “BRF” for Briefings, “OTH” for Other, “SOP” for SOPs, “REP” for Report)
- NNN = Sequential control number for that type of document
- C = Version number (increases when more than 50% of the document has been modified)
- D = Revision number (increases when less than 50% of the document has been modified).

5.0 CONFIGURATION CONTROL

Configuration control of all Grants.gov "Storefront" CIs defined in Section 4 will be exercised by placing master copies of the documentation CIs in the CM Library and software CIs in PVCS Version Manager. The CM Library will consist of three formal baselines: Functional, Allocated and Product. Each baseline has an associated set of specifications, documentation, technical data, etc., which define the CIs characteristics, development, end use and form, fit, and function. In general, all contract deliverable items except status reports are subject to configuration control and assigned to a baseline. Figure 5.0-1 is a depiction of the life cycle baselines of Grants.gov Storefront CIs and the documentation that will be subjected to configuration control as a means of managing the item's physical and functional performance characteristics. The System Integration (SI) CM Library will reside on the "W" Drive. IRB Approval is a prerequisite for assignment to the CM Library. Software CIs begin configuration control at the successful completeion of Unit Testing during their life-cycle development. The Grants.gov PMO CM Library will reside on the Live Link at Booz Allen Hamilton. CCB approval is the prerequisite for assignment to the Grants.gov PMO CM Library.

5.1 Functional Baseline

The Functional Baseline consists of all work products developed during the Concept/Planning/Requirements Development phase of the system life cycle. This baseline consists of the documentation describing functional requirements of components necessary to achieve Grants.gov Storefront performance and the planning necessary to accomplish the system reengineering, operation and maintenance. The functional baseline for the Grants.gov Storefront starts with the SOW and continues with development of the following:

- All essential functional characteristics as defined in the Storefront Requirements document or Form Data Analysis Templates (DATs)
- Necessary interface characteristics
- Function characteristics of key CIs
- Tests required to demonstrate achievement of each specified functional characteristic
- Design constraints, COTS compatibility requirements, equipment processing capability, security constraints, logistics requirements, training, etc.
- Planning for specific disciplines to accomplish the project.

The documents under configuration control plus any approved changes constitute the functional baseline for the Grants.gov Storefront throughout the life cycle of the project.

Storefront CM Baselines

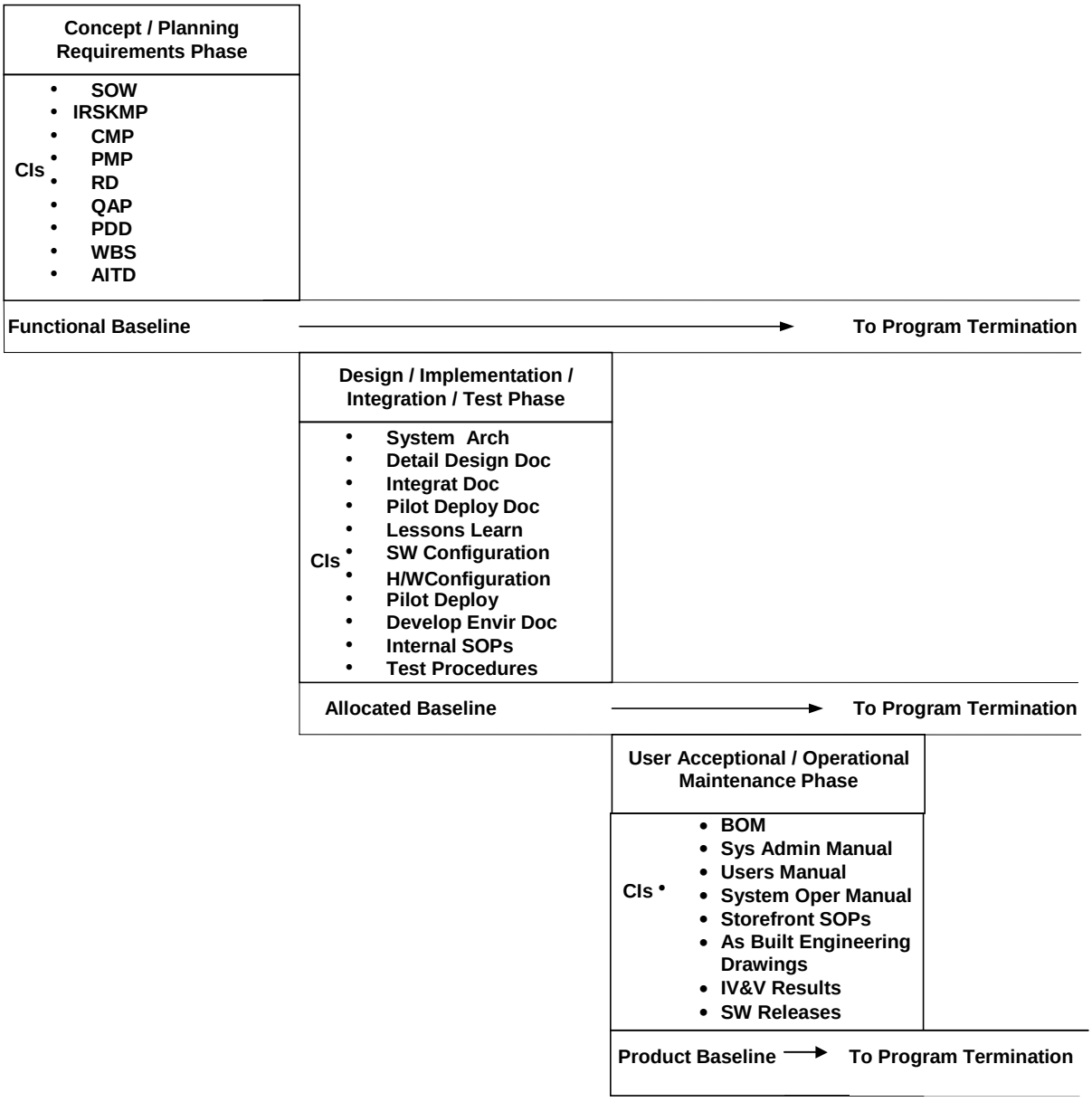


Figure 5.0-1
Grants.gov Storefront Life Cycle Baselines

5.2 Allocated Baseline

The Allocated Baseline translates the functional requirements into technical requirements and allocates them to various software and hardware components. It is documented by the various design, system architecture, integration and test procedures. The allocated baseline specifications, documentation, procedures and test results demonstrate:

- All essential system functional characteristics allocated from the system level to hardware and software components
- Interface requirements for each hardware and software CI
- Performance characteristics necessary to achieve network service requirements
- Subsystem hardware and software architecture
- Standard configurations and calibration specifications
- Test procedures and results demonstrating achievement of functional requirements and satisfaction of design constraints, security constraints and accomplishment of training and installation implementation objectives.
- Storefront Pilot Deployment
- Each Grants.gov SI originator is responsible for the maintenance of documentation in the allocated baseline. These documents are placed under configuration control but are updated by the originator as configuration change requests. Approved configuration change requests are maintained and tracked by the configuration manager.

5.3 Product Baseline

The establishment of the Product Baseline marks the end of CI development. It documents the approved hardware, software and WEB functionality. The delivered hardware and software satisfaction of contract requirements will be documented by means of a Functional Configuration Audit (FCA) and a Physical Configuration Audit (PCA). These audits will be conducted jointly with the customer and IV&V contractor to demonstrate functional performance of the Storefront Production version items and to verify and validate asset management inventory data as part of the deployment process. Northrop Grumman will exercise a zero defect quality process in that no FCA or PCA checkoff list will be signed-off by the customer until all defects and problems have been fixed. All critical and major problem SCRs originated by the IV&V contractor must be closed by the IV&V contractor prior to Government approval for deployment to the Production Environment. Updates to baseline software, hardware and documentation are incorporated through the CM process.

5.4 CM Libraries

The SI Storefront CM Library is composed of all documentation that has been placed under configuration control. This in essence is the three life cycle baselines: functional, allocated and product plus all Software COTS and GOTS. The library will consist of a physical storage area containing paper copies of all CI documentation, COTS and GOTS and an electronic storage area having a copy of all baseline documentation. Northrop Grumman's electronic CM Library will reside on the "W" Drive. Documentation in this library will be approved by the IRB before

entrance to the library. Similarly the Grants.gov PMO CM library will contain only those items which have been approved by the Grants.gov CCB. The electronic Grants.Gov PMO CM library will reside on the Live Link at Booz Allen Hamilton. CM library paper copies, COTS and GOTS will be stored and filed by the CM manager.

5.5 Work Product Development Library (WPDL)

The Work Product Development Library is an electronic library containing a series of work product folders to reflect the development, integration, and acceptance testing of work products (documentation, software, patches, etc.) prior to government acceptance and formal configuration control. Its purpose is to provide a means of keeping everyone updated on current development status. Figure 5.5-1 depicts the composition of the Development Library and its transition to the CM Library. The Work Product Development Library will reside in electronic form on the "V" Drive.

5.5.1 Development Folder

The Development Folder is intended for use by the individuals developing work products to store the latest version of the product being developed. Each Northrop Grumman SI project staff member will have his or her own folder. The member will be the only person with read and write privileges. All other staff members will have read access only. Exit criteria from the development folder for promotion to the integration folder is successful completion of all unit testing and peer reviews by the developer.

5.5.2 Integration Folder

The Integration Folder contains work products that are undergoing internal manager review, assessment and testing. It also contains patches and software integration testing. The Technical Lead is the only person with read and write privileges. All other staff members will read access only. Exit criteria from the integration folder for promotion to the test folder is successful passing of manager review and/or integration testing as applicable.

5.5.3 Acceptance Test Folder

The Acceptance Test Folder contains all work products and software that are going to IRB and will been submitted to the Government for acceptance testing. CM/QA has read and write privileges in this folder while all other staff members have read privileges only. Exit criteria from the test folder for promotion to the CM Library is successful completion of Government acceptance review and testing or FCA and PCA as applicable.

DEVELOPMENT LIBRARY TRANSITION TO CM LIBRARY

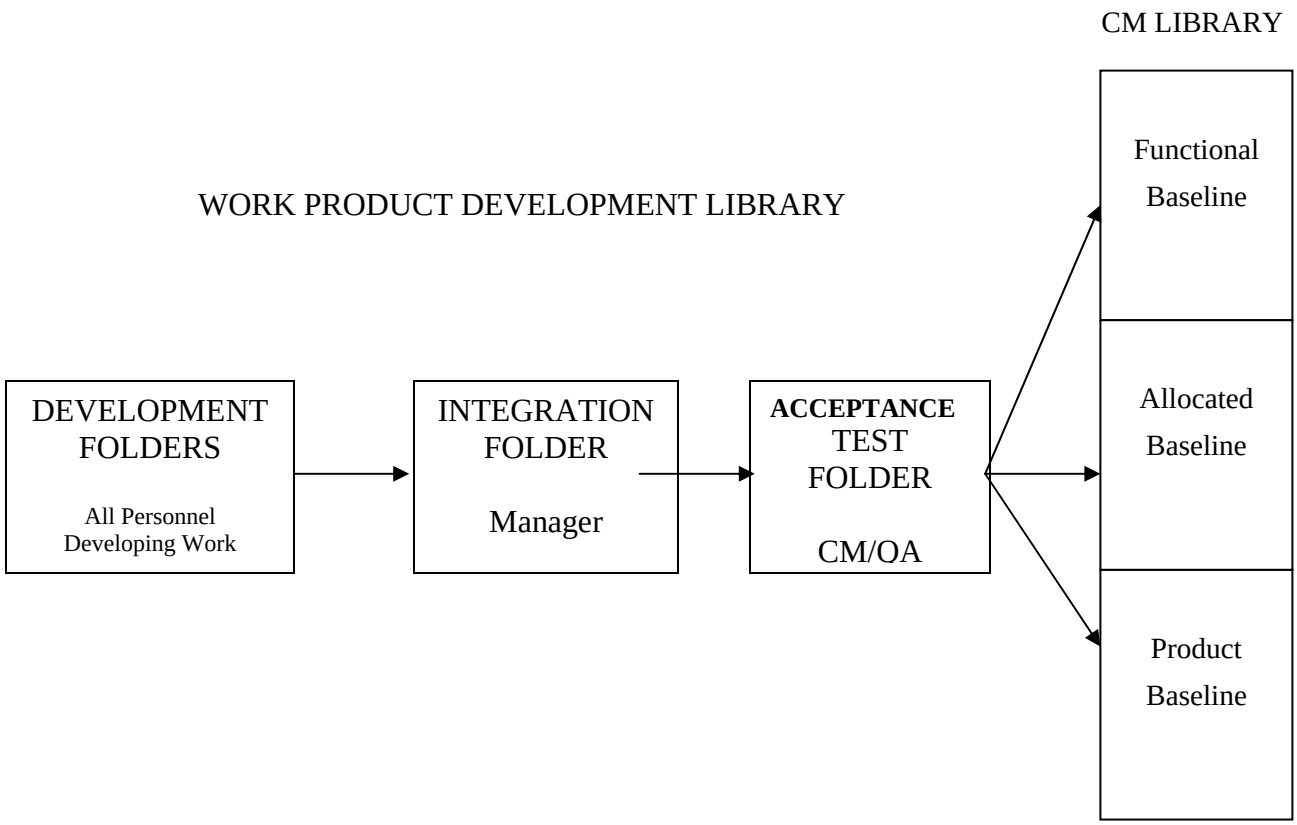


Figure 5.5-1
Work Product Development Transition to CM Library

6.0 CONFIGURATION CHANGE

Configuration change is the process, which provides for orderly updating and change to establish baselines which have been placed under configuration control to maintain the integrity of the Grants.gov Storefront, its operations and IT environment form, fit function and performance envelope. It creates the administrative mechanism for preparing, evaluating, approving, disapproving, tracking and implementing change. It provides a means to ensure change is in the correct direction of improvement over existing performance. It also establishes an audit trail of the change history allowing review of the rational behind the change decision analysis and resolution process.

The Grants.gov change process consists of a two tier level organization operating in sequential order to systematically collect change proposals and their justification, coordinate evaluation among integrated product teams and facilitate approval or disapproval decisions on the proposed item. Changes such as Class II Enhancement SCRs or Configuration Change Proposals (CCP) within contract scope are resolved at the Northrop Grumman Systems Integrator (NGSI) IRB while changes out of contract scope such as Class I Enhancement SCRs or CCPs are escalated to the Grants.gov PMO CCB. Approved changes are tracked to assure correct implementation and subsequent baseline updating. Once a configuration baseline is formally established, it can only be changed through the configuration management processes set forth in this CM Plan.

The process described here uses the integrated product team approach by involving all potential stakeholders at each of the IRB and CCB levels providing full visibility of all changes and an open communication forum to resolve issues and analyze alternatives associated with the change requests. Since change is often difficult to implement and change in the wrong direction is worse than inaction, it is important to minimize the risk that a change is not an improvement. The integrated stakeholder review and analysis of all issues minimizes risk of inappropriate change. Simplicity of change definition and description; linkage and continual flow from problem identification through corrective action and other systems to IRB and CCB; minimum introduction of new procedures and maximum use of electronic data processing and telecommunication facilities have enabled CM to realistically set goals of four business days for change resolution by IRB and eleven business days for change resolution by CCB.

It should be noted that change implementation actions might often require contractual actions such as modifications, changes or task order release. Recognizing that emergencies occur, provision is established for critical change processing to overcome catastrophic failures via a critical CCP.

6.1 Sources of Change

There are three sources of change requests, which potentially affect Grants.gov configuration baselines. These are:

1. Requests for Waiver from the Grants.gov functional requirements for Storefront Find and Apply functions, Government database interfaces, E-Authentication functionality, Agency specific requirements. network security policy, etc. will be prepared by the SI team, reviewed by the IRB and submitted to the CCB with recommendations for disposition. The PMO CCB will have final approval authority of all waivers.
2. SCR problem resolutions, which need requirement, policy, SOP, engineering design, interface, equipment replacement, etc. changes will be converted to Enhancement SCRs

or CCPs. Programmatic problems beyond the capability of the System Integrator to resolve with be converted to identified Risks and transition to the PMO Risk Management program

3. Enhancement SCRs or CCPs initiated by the System Integration team will cover business or functional policy, process and procedure improvements and interface, system or document change requests. CCPs within the scope of the SI contract will be designated Class II Enhancement SCRs or CCPs and resolved at the Northrop Grumman IRB level. All Enhancement SCRs and CCPs out side the scope of the contract, i.e. those that affect cost, schedule or the form, fit, function or performance envelope of the Grants.gov Storefront are Class I SCRs or CCPs and must be approved by the CCB.

6.1.1 Request For Waiver (RFW)

Request for Waiver initiated by the Systems Integration team should be submitted to the Configuration Manager for entrance into CM system. These requests will follow the format; information and processing guidelines established by this plan in accordance with the various Government procurement regulations. A copy of the Request For Waiver is contained in Appendix D.

6.1.2 Problems

These change requests enter the system as problems being reported to the Configuration Manager via PVCS Tracker. The CM manager enters the problem SCR in the CAS system initiating its problem solving mechanism. If the problem escalates to the point where its corrective action or root cause analysis indicates that changes to configured baselines are necessary to solve the problem; it is converted into an Enhancement SCR or CCP, and its CAS problem SCR is "Closed". The newly opened Enhancement SCR or CCP is referred to the IRB for appropriate action.

6.1.3 Configuration Change Proposal (CCP)

The Grant.gov team or any Storefront user can initiate configuration change proposals, which are not the result of logical flow from the CAS. The preferred method of initiation is from the originator to Configuration Manager who will review it, and if necessary, refer it to an appropriate functional area for review and comment prior to scheduling an IRB. An alternate means of submission available to Grants.gov staff, applicants and agencies is to send the configuration change proposal directly to the PMO CCB Secretariat. The CM program recognizes four types of configuration change proposals as described in the following paragraphs. A copy of the CCP form is contained in Appendix E.

6.1.3.1 Business or Functional Policy, Process, and Procedure Improvement (PPPR)

These are changes to policy, process or procedures under configuration control affecting the methods of operating and maintaining the Grants.gov Storefront providing services to the Agencies and Applicants.

6.1.3.2 Interface Change Request (ICR)

These are changes to the interfaces, which cross systems, processes, functional areas, business products or organizational entities only part of which are under Grants.gov Storefront configuration control.

6.1.3.3 System/Subsystem Change Request (SCR)

These are changes to the various systems and subsystems comprising the Grants.gov Storefront, which are under configuration control. The changes may be technological enhancements requiring replacement of unit or component level piece parts involving changes in equipment, software or vendors.

6.1.3.4 Document Change Request (DCR)

These are changes to documentation under configuration control. They usually consist of major modifications, which necessitate rolling the revision letter or version number of the document.

6.2 Configuration Change Proposal Classifications

For the sake of project management efficiency and effectiveness the configuration management program provides a division of labor attribute where by simple, common, no cost changes are handled directly by the Systems Integrator without the need of direct action from the PMO. These Changes are termed to be Class II CCPs. By definition they are Configuration Item changes that do not materially affect the form, fit, function and performance envelop of the System/Subsystems under configuration control. Their implementation will not affect any contractual item such as cost, schedule or requirements. Changes that affect contract matters will be designated as Class I CCPs. Class I CCPs can only be approved by the Government. This will usually be reviewed, analyzed and decided through the CCB process involving all Stakeholders. For flexibility and recognizing the need for taking positive action to control emergencies, a critical CCP process is included which allows the Grants.gov PM or Deputy PM to bypass all CM procedures to resolve crises that may occur. The CM documentation is created after the fact in this instance. The Grants.gov Deputy PM will also have oversight responsibility for SI contractor Class II CCP resolution and implementation.

6.3 Configuration Change Proposal (CCP) Data Elements

The following data should be recorded, stored and managed for every change proposal entered into CM system. If a data element does not apply, it should be listed as Not Applicable (NA):

- Date: MM/DD/YYYY
- CCP Number – Must be a unique consecutive number for each change proposal submitted. It is assigned by the CM Manager

- Reference Problem Number – Problem number assigned to originating CAS problem, if applicable.
- Subsystem/System/Project – Enter names of primary subsystem, system or project affected.
- Originator – Name of person originating issue.
- Telephone Number – Telephone number of originator
- Location – Location of originator.
- Organization – Name of originator's organization.
- POC Name and Telephone – Name of originator's point-of-contact and his or her telephone number.
- Change Title – Short descriptive title of the proposed change.
- Type of Change – PPPR, ICR, SCR or DCR.
- Justification Code – One of the following:

B – Interface	P – Production stoppage
C – Compatibility	R – Cost Reduction
D – Deficiency	S – Safety
O – Operations or Logistics Support	V – Value Engineering

Priority – Same as CAS definitions.

(1) Catastrophic, (2) Critical, (3) Major, (4) Minor, (5) Other

- Nomenclature – List equipment description or software unique name and number.
- Configuration Item Number – Unique configuration item number.
- Model Number – Hardware manufacturer's or software developer's model name and number.
- Part Number – Hardware manufacturer's or software developer's assigned part number.
- Serial Number – Hardware manufacturer's assigned serial number or software developer's license number.
- Quantity – Number of exact same items affected.
- Revision/Version – As listed on configuration controlled item.
- Category – Hardware, software or documentation.

All Other or Lower Level CIs Affected – For each other or lower level configuration item affected, list nomenclature, configuration item number, model, serial number and quantity as applicable. For documentation list configuration item number, section and pages affected. Be sure to identify all components, external interfaces and other contractor activities affected.

- Need For Change – Description of problem or issue causing the need for a change to baseline items.
- Description of Change – List the characteristics of the change or item being changed.

- DAR - Impact Analysis/Trade-offs/Alternative Solutions/Cost-Benefit – This decision analysis and resolution should provide an analysis of all known impacts on system, interfaces and performance. It should identify any significant trade-offs and feasible alternatives. The final portion of this section addresses the associated benefits stemming from making the proposed change and the costs to be incurred to implement the change showing clear evidence that is an improvement.
- Implementation Schedule – Work breakdown schedule of activities, their start and finish times, duration and logical sequencing.
- IRB Action and Date – List result of IRB decision and date.
- CCB Action and Date – List result of CCB decision and date.
- Closed Date – Date all implementation actions were completed.

6.4 Configuration Change Processing

The configuration controlled item change process is geographically depicted in Figure 6.4-1. This process diagram shows the seamless process flow linkage between the Corrective Action System, Risk Management and the Configuration Change Process. The configuration control process consists of four distinct stages, which are defined as:

- Change Gathering, Review, Revision, Recording and Presentation
- Internal review Board Action
- CCB Secretariat Review, Revision, Recording and Presentation
- Configuration Control Board Action and Implementation

6.4.1 Change Gathering, Review, Revision, Recording and Presentation

Change gathering occurs at two points in the process. The first and preferred entry point is the CM manager. The CM manager receives change items as requests for waiver, configuration change proposals or problems, which escalate, to the point where corrective action requires change to configuration controlled items. The other entry point is direct submission of CCPs to the CCB Secretariat. This entry point is reserved for CCPs that have been prepared by Grants.gov team members, Agencies or Applicants.

All requests for waiver and CCPs entering the system through the CM manager are referred to Analysis, Design, Integration (Integration); Systems Architecture/Deployment (Deployment); or Systems Development (Development) for review and possible resolution. The results of the review are noted and recommendations are prepared in comments on the item sending it to CM.

CM will review all CCPs and requests for waiver to assure that the information presented is complete and understandable. If necessary, CM will contact the originator to resolve difficulties. Analysis, Design, Integration (Integration); Systems Architecture/Deployment (Deployment); or Systems Development (Development) comments will impact prioritization and scheduling for IRB action. All events described previously in this paragraph should, on the average, be completed within eight hours or one business day after initial receipt of the item. Table 6.4.6-1 is the IRB-CCB Action Timeline Table for the change process.

During Day 2, CM will prepare a proposed IRB agenda, membership and schedule for IRB Chair review and approval. Once the IRB Chair approves the agenda, CM switches to the IRB Secretariat mode and distributes the agenda and reference materials to the IRB members.

6.4.2 IRB Action

IRBs are expected to be a frequent occurrence. They are event driven. Most IRB deliberations will be complete in less than one half-hour. IRB members will, on the average, have one day (Day 3 of Table 1.4.6-1) to review the agenda, issues and reference material. Heavy reliance on office automation, e-mail and telephone communications is essential to successful IRB operation. IRBs have authority to implement any changes within the scope of the contract, vendor changes, baseline documentation, etc. IRBs will also determine a recommended disposition action for all change items sent to the CCB Secretariat for CCB action. The Grants.gov Deputy PM will exercise oversight responsibility on the IRB actions. As shown in Table 6.4.6-1, IRB actions should be completed in one day (Day 4).

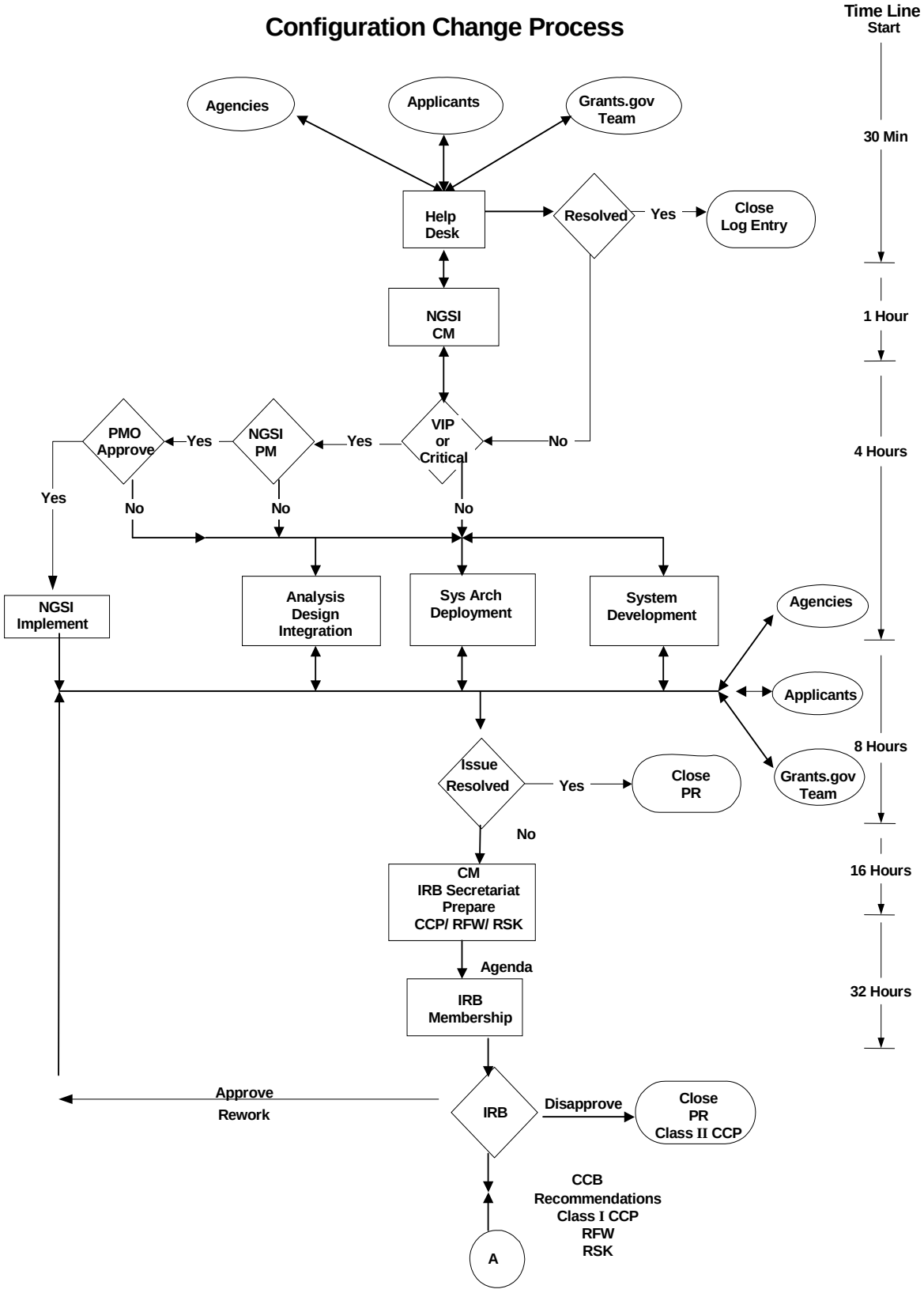


Figure 6.4-1 Configuration Change Process, 1 of 2

Configuration Change Process

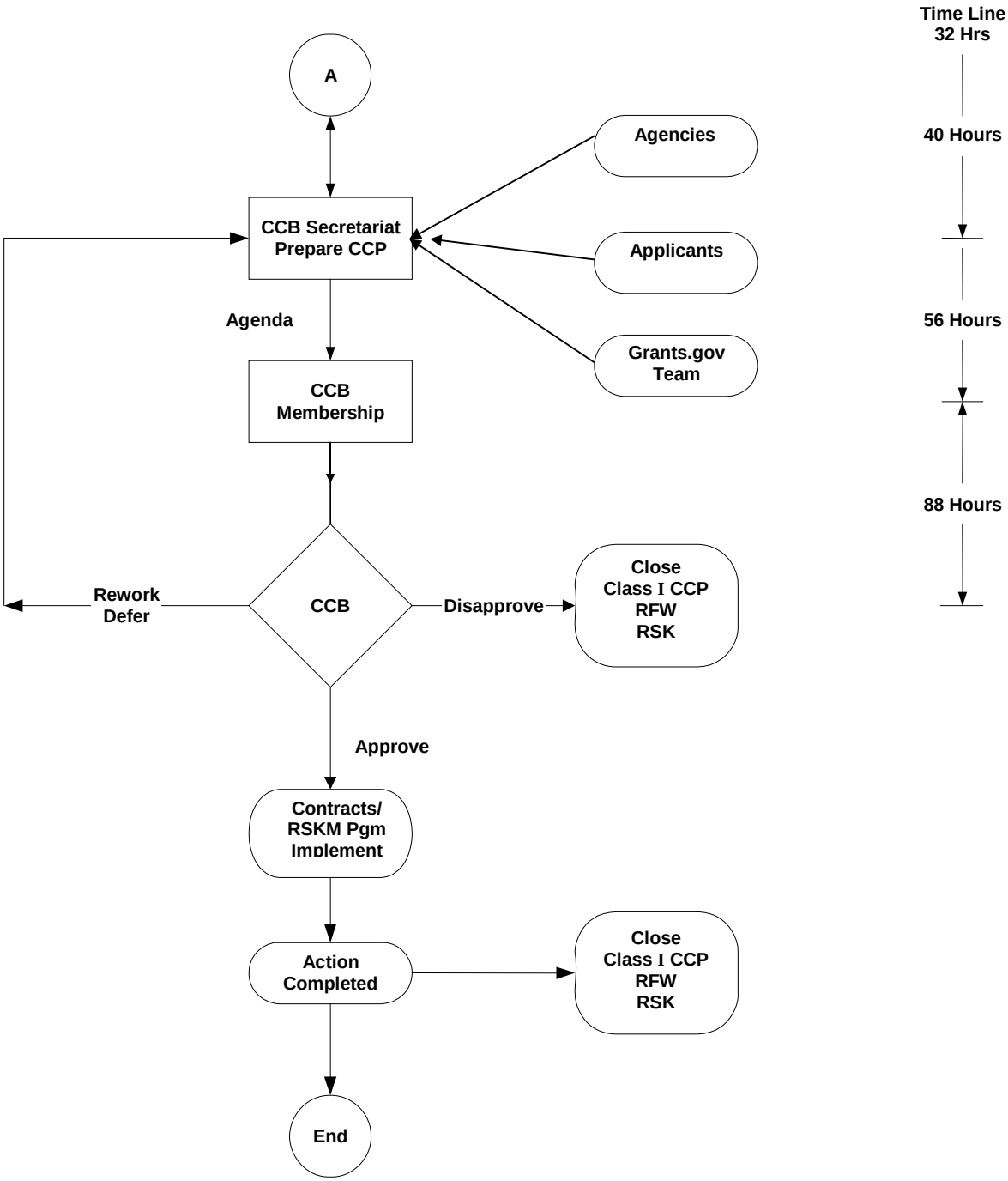


Figure 6.4.-1, Configuration Change Process, 2 of 2

6.4.3 CCB Secretariat

The CCB Secretariat will function under the oversight direction of the Grants.gov Deputy PM and work directly for the CCB Chair. The secretariat will review all change items referred to CCB by IRB action or directly received from Grants.gov staff, Government Agencies or Applicants. All items will be entered into the CM database after review and, if necessary, revision consultation with the originator. The Secretariat prepares the proposed CCB agenda, membership list, schedule and reference material sending it to the CCB Chairperson for review and approval (Table 6.4.6-1, Day 5). The next two days of the IRB-CCB Action Timeline are for the CCB Chair to review the agenda and reference material; determine what if any, revisions are necessary; have the Secretariat effect the revisions; and approve the CCB agenda and reference material. (Days 6 & 7).

6.4.4 CCB Action

CCBs are intended to be held frequently with all CCB deliberations completed within one hour of the start of the CCB proceedings. Most CCBs will be held via video teleconferencing or telephone conference calls. CCB members will normally have three business days (Days 8, 9 & 10) to review the agenda, issues and reference materials as they formulate their positions on the issues. Voting membership on any individual CCB will be restricted to issue stakeholders. Heavy reliance on office automation, e-mail and telecommunications is essential for successful CCB operation.

Most CCB decisions will require action by other organizations or the contracting authority to allow contractors to work the implementation actions. CCB deliberations and subsequent dissemination of decisions can be completed in a single day (Day 11).

6.4.5 Implementation Action

The results of CCB actions may require some type of contract modification actions by the Contracting Authority. The CCB Secretariat will actively track all CCB decisions until change item documentation is available to the CM Library.

6.4.6 IRB-CCB Action Timeline

The IRB-CCB Action Timeline is presented in Table 6.4.6-1. This timeline realistically depicts gathering and preparation for IRB actions with review time by IRB members, preparation for CCB by the Secretariat, CCB member review and time for CCB action including dissemination of CCB decisions.

Table 6.4.6-1 IRB – CCB Action Timeline

Source	Day 1	Day 2	Day 3	Day 4	Day 5	Days 6&7	Days 8,9,&10	Day 11
Configuration Change Proposal (CCP)	CM Prepare CCP Referred to Integration, Deployment or Development CCP Comments Sent to CM	CM Prepare IRB Agenda Issues, Members, & Schedule IRB Chair Review OK Secretariat Distribute	IRB Member Review	IRB Action Refer to CCB with Recommendation	Secretariat Prepare CCB Agenda Issues, Members, & Schedule	CCB Chair Review, Revise, OK CCB Agenda Secretariat Distribute to CCB Members	CCB Member Review	CCB Action
Request for Waiver	CMP Prepare RFW Referred to Integration, Deployment or Development RFW with Comments Sent to CM	CM Prepare IRB Agenda Issues, Members, & Schedule IRB Chair Review OK Secretariat Distribute	IRB Member Review	IRB Action Refer to CCB with Recommendation	Secretariat Prepare CCB Agenda Issues, Members, & Schedule	CCB Chair Review, Revise, OK CCB Agenda Secretariat Distribute to CCB Members	CCB Member Review	CCB Action
Problem Report Requiring CCP Resolution or conversion to Risk	CM Open CCP or Risk Refer to Integration, Deployment or Development	CM Prepare IRB Agenda Issues, Members, & Schedule IRB Chair Review OK Secretariat Distribute	IRB Member Review	IRB Action Refer to CCB with Recommendation	Secretariat Prepare CCB Agenda Issues, Members, & Schedule	CCB Chair Review, Revise, OK CCB Agenda Secretariat Distribute to CCB Members	CCB Member Review	CCB Action

6.5 Critical CCP

Critical system issues will occasionally arise that warrant an emergency response action. The Configuration Change Process shown in Figure 6.4.1-1 provides accommodation for critical situations. A CCP or Enhancement SCR may be classified as critical, if, and only if, its implementation prevents immediate adverse system impacts, such as major degradation or total disruption of Grants.goc Storefront operations. In other words, the change must be effected to prevent mission failure and keep the system operating. Only the Grants.gov PM or Deputy PM have authority to approve the classification and implementation of a critical change outside the normal change control process. Within hours of a critical CCP receipt, the Northrop Grumman Systems Integrator PM will seek direct approval from the Grants.gov PM to implement the critical change.

7.0 DATA MANAGEMENT

Efficient, effective data management is a critical element in the successful functioning of the SI Grants.gov CM program. The Data Management process defined here is fully compliant with ENABLER SPP 562, Data Management. The primary tools of the SI Grants.gov Data Management are the various data repositories and libraries resident on the "W" Drive and Merant PVCS Tracker and Version Manager resident on the Grants.gov DEV WEB, development server. Accurate accounting of baseline configurations, problems encountered by hardware and software CIs, the location of configured items, changes to configured items and status of changes must be available to support effective ongoing operations and maintenance of the Grants.gov Storefront. CM data management consists of planning, organizing, gathering, updating and storing data comprising four main entities – the CM Library and CM databases and PVCS Tracker and Version Manager.

Management of the Grants.gov Production Environment COTS, GOTS, DBs, Tape and Disk Backups, etc. is performed by the AT&T Hosting facility under the supervision of the Production Support Team. IFS Development and Forms Factory Development team are responsible for controlling the work products that they develop and deploy to the operational Grants.gov system. A primary tool in the CM of these work products is PVCS Tracker and Version Manager.

Data comprising project management, defined engineering processes, CM, QA, RSKM, Continuous Improvement and other management infrastructure operations will be under the control of the CM Manager using the CM Library and CM DBs. This documentation, data and performance measures will be gathered in both electronic and physical form. On-line and off-line repositories will be maintained. All CM Library current versions and active CM database information will be available on-line to the entire SI team. The off-line repository is for historical purposes and will be under the control of the CM Manager. It will contain the various CI revisions or versions and closed CM database reports to allow audit trails of CI changes, trend analysis and process improvement analysis.

7.1 CM Library

Description of the CM Library is contained in Sections 4.0 through 4.4. There are two versions of the CM Library: the on-line and the off-line. The on-line CM Library consists of two separate entities. One is an electronic repository located on the shared "W" Drive and the other is the CM tool PVCS Professional located on the Grants.gov development server. PVCS is a supplement to the CM Work Product Development Library and the CM Baseline Library. PVCS is the repository for controlling software code development, tracking software changes due to correction of problems and requirement change implementations so that the integrity and traceability of software CIs is maintained. The Baseline portion of the CM Library will contain the latest versions of all configuration identification documentation items such as requirements, specifications, plans, designs, engineering drawings, integration and test procedures, etc. which comprise the functional, allocated and product baselines shown in Figure 4.0-1.

The Off-Line CM Library will replicate the structure and substance of the on-line CM Library. It will consist of paper copies and electronic floppy disks or CD-ROMs of all present and past versions of CI documentation, COTS and GOTS. This serves two purposes – (a) backup for the

on-line CM Library and (b) the CM historical file. Since many Grants.gov Storefront CIs are COTS, it will not be possible to obtain electronic media for some of the technical documentation, making the off-line repository the only source of that current information. Copies of items in the off-line CM Library may be requested from the CM Manager.

7.2 CM Databases

CM databases will be created to track CM action items and the history of CIs; gather information regarding problems CIs encounter; document changes made to CIs; and record and status Northrop Grumman requests for waiver from contract requirements set by the Government. Records for the Baseline File, Performance Measurements Data File, SCR Problem File, Enhancement SCR File, Configuration Change Proposal File and the Waiver Request File.

7.2.1 Baseline File

The Baseline File will have both an on-line and off-line repository. The on-line file contains the most current listing of all CIs in each of the functional, allocated and product baselines. A record will exist for each CI giving its current hardware model and part number, documentation revision letter or software version number and release data as appropriate. Also each CI record will contain a listing and current status of all CAS Problem Reports, CCPs and Requests for Waiver affecting the CI.

The off-line file will be a backup for the on-line file. For historical purposes, it will contain a record for all CIs ever employed in the Grants.gov System showing the SCR Problem and Enhancemen Reports, CCPs and Requests for Waiver affecting the CI over its operational life cycle.

7.2.2 Performance Measurements Data File

This file will have both an on-line and off-line database. The on-line database will be a listing of the last three months of performance data for the following performance measures.

Configuration Change Proposal File

This file will have both an on-line and off-line database. The on-line database will be a listing of all CCPs that are still open with an indication of their resolution status.

The off-line database is a historical file, which will contain a record for every ATIC CCP ever created. The off-line database can be used to backup the on-line database. Its most important function is to maintain an audit trail of all CI changes, provide historical data for analyzing process and product stability, performance improvements, and lessons learned. The record of each CCP will contain the data elements described in Section 6.2.

7.2.3 Request for Waiver File

This file also has an on-line and off-line database. The on-line database is a listing of all IntelliDyne submitted waiver requests that have not yet been approved, or if approved, not yet

implemented. The off-line database will contain a record of every IntelliDyne waiver request submitted IAW the following Government policy memorandums.

- OSD Memorandum, OSD Network Security Policy, December 21, 1997
- OASD (HA) CIO Memorandum, MHS Office Automation Guidance, September 7, 2000
- OASD (HA) CIO Memorandum, MHS Personal Computer Hardware Requirements, September 7, 2000
- OASD (HA) CIO Memorandum, MHS Standard Notebook Hardware, Minimum Requirements, September 7, 2000
- OASD (HA) CIO Memorandum, Minimum Server Hardware Requirements, December 8, 1999

7.2.4 Action Item File

The Action Item File will also have an on-line and off-line database. The file structure for each database will be subdivided based on the originating source of the action item as follows:

- Configuration Control Board (CCB)
- Internal Review Board (IRB)
- CM Audit
- PM Weekly Status Meeting Minutes

The CM Audit portion of the database will be further subdivided according to the type of audit as follows:

- Functional Configuration Audit (FCA)
- Physical Configuration Audit (PCA)
- In-Process Audit (IPA)

The on-line database is a listing of all open action items pending resolution. The off-line database serves as a backup for the on-line database and constitutes the historical record of all action items created through CM Program functions.

8.0CONFIGURATION STATUS ACCOUNTING (CSA)

Configuration Status Accounting (CSA) is the process of documenting, monitoring, analyzing and reporting information needed to effectively manage the ATIC baselines, configuration items, problem resolution and proposed changes leading to continuous network performance improvements. CSA provides the Government Task Manager; our program manager, technical lead, engineers, and support personnel, ATIC POCs and users with information regarding the status of current CM activities. Specific information available falls into one of the following categories:

(a) Approved Baseline Composition – This is a listing of approved hardware, software and documentation CIs (systems, subsystems, equipment, and software units) showing the latest model, revision, version or release data with the CI's change history consisting of Configuration Change Proposals (CCPs), CAS Problem Reports (PRs), and Waiver Requests.

(b) Current Status Listing – This is a listing of all OPEN CCPs, CAS PRs, Waiver Requests and Action Items.

(c) Metric Reports – These are individual reports on CM program performance and ATIC process and product improvements.

8.1 CSA Reports

All configuration status accounting reports will be generated from CM databases. CM databases are described in Sections 7.2 through 7.2.5. CSA reports will be generated and distributed to the ATIC community on the basis of need. The following sections describe the various status reports, frequency of their preparation and distribution along with some expected information usage.

8.1.1 Baseline Status Report

The Baseline Status Report will be prepared on a quarterly basis. It will contain a listing of all CIs comprising the Functional, Allocated and Product Baselines. Once the baselines are established the frequency of change should be well within manageable CM program limits.

There will be a record for each CI. Each record will give the CI's current status (hardware model number, documentation revision or software version and release data as appropriate) and a listing showing current status of every CCP, CAS PR and Waiver Request affecting the CI over its operational life cycle.

8.1.2 CAS Problem Report Status

A monthly listing of all problem reports currently OPEN will be prepared showing the PR number, priority, title, CIs affected, date opened and resolution efforts undertaken such as problem cause, corrective action, root cause analysis, preventative actions, etc. as appropriate. The monthly CAS Problem Report Status will be sent to all users who initiated the open PRs, their POCs, the Government Task Manager, IntelliDyne program manager and the technical lead.

8.1.3 Configuration Change Proposal Status

This report will be prepared monthly. The report will show the current status of all OPEN CCPs and the CIs to which they apply. The report will be a listing of each open CCP showing its number, type of change, priority, short title, date opened and resolution status. This report will

be sent to all users who initiated the CCPs, their POCs, the Government Task Manager, IntelliDyne program manager and technical lead.

8.1.4 Request for Waiver Status

This report will be produced monthly showing the current status of all OPEN Waiver Requests that have been prepared and submitted by IntelliDyne. The report will be sent to the Government Task Manager, affected users and their POCs, Tri-Service Infrastructure Management Program Office (TIMPO), Technical Integration Working Group (TIWG), Technology Management Integration & Standards (TMI&S), IntelliDyne program manager and technical lead.

8.1.5 Action Item Status Report

Action item status reports will be prepared monthly. The report will have a section for each of the three sources originating action items – Configuration Control Board (CCB), Internal review Board (IRB) and Configuration Audits. The action item report will list all OPEN action items by number showing the assignee, title and current status.

8.1.6 Metric Reports

Metric reports will be prepared as requested or as driven by the occurrence of events leading toward product or process improvement initiatives. IntelliDyne recognizes that collection of good performance measurement data is a prerequisite for the effective use of statistical techniques to (a) analyze and document network performance and (b) accurately determine performance trend changes over time. As an IntelliDyne initiative to improve our capabilities consistent with Level 4 organizations, we will use quality function deployment (QFD) to analyze each of our operations necessary to maintain and improve ATIC operations. This will heighten our understanding of which metrics to collect and allow prioritization of metrics based on their criticality to successful performance.

These metrics will then be used to determine statistical process control limits for each of our operations. Instances when control limits are exceeded will be documented and subjected to analysis of variance, cause and effect analysis, and/or failure effect and mode cause analysis (FEMCA). This information will identify opportunities for process improvement that are not readily apparent. Continued use of time series analysis and regression and correlation techniques on metrics will allow isolation and more accurate determination of performance impacts resulting from product, policy, process and procedure changes. The following is a listing of metric type CAS reports, which will eventually be available from the data contained in the CM databases:

- Aging Analysis – Identifies the time to resolve CAS PRs, CCPs, Waiver Requests and action items.
- Pareto Analysis – This CSA report utilizes the Pareto Principle to identify the top 20% of CAS PRs, CCPs, and Waiver Requests causing 80% of the impact or costs.
- Trend Reports – Regression & Correlation – These reports will use various metrics and performance data to develop production functions to determine the impact of different factors upon the

performance of the HA/TMA Network.

- Root Cause Analysis – This type of report employs Ishikawa Diagrams (Cause & Effect– Fishbone) to provide a visual representation of the factors, failures, symptoms, etc. to find the real problem.
- Quality Function Deployment (QFD) – This type of report documents identification and prioritization of metrics critical to performance success. Creation of a relationship matrix for each operation specifies the WHAT (attributes) to the HOW (characteristics). This operational matrix is iteratively reduced to correlation matrices for processes and products and then for methods and tools.
- Statistical Process Controls (SPC) – This report will document the use of metric data means and standard deviations to establish control limits for each operation. Incidents of operations exceeding control limits are subjected to analysis of variance, cause and effect analysis and failure effect mode cause analysis (FEMCA).
- Analysis of Variance – This report documents the use of statistical variance of metric data to isolate various factors to determine impact on performance.
- Failure Effect Mode Cause Analysis (FEMCA) – This report will document the use of this analytical technique to improve the accuracy of root cause analysis results.

9.0 CONFIGURATION MANAGEMENT AUDITS

The ATIC CM program will use three types of configuration management audits to assure that delivered products and services are compliant with established processes, that processes are effective and that delivered network and office automation meets baseline performance requirements. Ensuring new installations, moves, repairs and upgrades are correctly accomplished will be documented by the conduct of both a Functional Configuration Audit (FCA) and Physical Configuration Audit (PCA). These audits will be performed by the IntelliDyne installer and the ATIC user. IntelliDyne will employ a ZERO DEFECTS policy. All discrepancies will be recorded and tracked by CM until the user is satisfied with their resolution and signs-off on the audit checklist. In-Process Audits (IPAs) are performed by the CM Manager to assure that services and product development processes are effective and operating within established standards.

9.1 Functional Configuration Audit (FCA)

The Functional Configuration Audit is performed by the installer with the ATIC user utilizing a checklist prepared for the specific installation, move, repair or upgrade. This checkoff list will demonstrate that each delivered product has been operationally tested by the user. User sign-off signifies agreement that the product operates according to its define performance characteristics. All deficiencies will be recorded, and the audit will remain open until all deficiencies are resolved to the user's satisfaction.

CM will track deficiencies as open action items until they have been corrected and user sign-off is obtained. CM will retain the original copy of the FCA as part of the Product Baseline, and update CM databases as appropriate. Copies of the FCA will be given to the user, the user's POC and the IntelliDyne program manager and technical lead.

9.2 Physical Configuration Audit (PCA)

The Physical Configuration Audit is performed by the installer with the ATIC user using a checkoff list prepared for the specific installation, move, repair or upgrade. This checkoff list will show each product (equipment or software) delivered along with its model number, serial number or version and release data as appropriate. User sign-off signifies agreement that this particular item has been received by the user and is now accountable by that user. Any discrepancies found will be recorded as action items until resolved to the satisfaction of the user. Completed PCA checkoff lists will be sent to the CM Manager. CM will retain the original PCA as part of the Product Baseline Library and send copies to the user, the user's POC, IntelliDyne Inventory, program manager and technical lead. CM will be responsible to update CM database records. Inventory will update the Asset Management System (AMS).

9.3 In-Process Audit (IPA)

CM will have the ability to audit any phase of ATIC operations, product development or standard operating procedure execution to determine how closely actual in-use processes comply with established process requirements and standards. The key is to identify any gaps between the approved and actual procedures and methods being used, document the gaps and then analyze them to determine if and how they are more effective than approved processes. Audits are another tool in our continuous improvement methodology.

The CM Manager will develop an audit plan and checkoff list for each specific in-process audit. These will be given to the program manager, technical lead and any personnel being audited sufficiently in advance of the audit in order to assure attainment of audit objects in a minimal amount of time. Upon completion of the audit, the CM Manager will go over the proposed findings with the personnel engaged in the audit. This meeting establishes areas of agreement, disagreement and the necessary action items to implement audit findings. The audit report will be submitted to the Program Manager for approval. Once approved, all action items will be tracked until their satisfactory completion. CM will retain the original audit report for the CM Library and distribute copies to all affected personnel.

Acronyms and Abbreviations

AIS	Automated Information System
AMS	Asset Management System
ATIC	Advanced Technology Innovation Center
BPI	Business Process Improvements
CAC	Customer Assistance Center
CAS	Corrective Action System
CCB	Configuration Control Board
CCP	Configuration Change Proposal
CI	Configuration Item, Configuration Identification
CII	Configuration Item Identification
CIO	Chief Information Officer
CITP	Clinical Information Technology Program
CM	Configuration Management
CMM	Capability Maturity Model
CMMI	Capability Maturity Model Integrated
CMP	Configuration Management Plan, Configuration Management Program
CO	Colorado
CONUS	CONtinental United States
COTS	Commercial Off The Shelf
CSA	Configuration Status Accounting
DCR	Document Change Request
DEN	Denver
DISA	Defense Information Systems Agency
DISN	Defense Information Services Network
DLSC	Defense Logistics Support Center
DMP	Document Management Plan
EIDS	Executive Information Decision Support
FC	Falls Church
FCA	Functional Configuration Audit
FEMCA	Failure Effect Mode Cause Analysis
FMP	Facilities Management Plan
FPI	Function Process Improvement
HA	Health Affairs
HA/OA	Health Affairs Office Automation
H/W	Hardware
ICR	Interface Change Request
IM	Information Management
IMP	Inventory Management Plan
IMT&R	Information Management Technology & Reengineering

IPA	In-Process Audit
IPT	Integrated Product Team
IRB	Internal Review Board
ISO	International Standards Organization
IT	Information Technology
LAN	Local Area Network
LSNMP	Lab Systems & Network Management Plan
MHSS	Military Health Service System
Mil	Military
NOC	Network Operations Center
OA	Office Automation
O/ATIC	Operations/Advanced Technology Innovation Center
OASD	Office of Assistant Secretary of Defense
OEM	Original Equipment Manufacturer
OMMP	Operations & Maintenance Management Plan
OSD	Office of the Secretary of Defense
PC	Personal Computer
PCA	Physical Configuration Audit
PM	Program Manager, Project Manager
PMP	Program Management Plan
POC	Point-Of-Contact
PR	Problem Report
QA	Quality Assurance
RBA	Resource Business Area
RMP	Risk Management Plan
SCR	System Change Request
SOP	Standard Operating Procedure
SOW	Statement Of Work
SPC	Statistical Process Control
STD, Std	Standard
S/W	Software
TCP	Training Center Plan
TIMPO	Tri-Service Infrastructure Management Program Office
TIWG	Technical Integration Working Group
TMA	TRICARE Management Activity
TMI&S	Technology Management Integration & Standards

VA	Virginia
VIP	Very Important Person
VTC	Video TeleConferencing
WBS	Work Breakdown Structure
WWW	World Wide Web

APPENDIX B

ENABLER COMPLIANCE MATRIX

SPP-222 SPP for Risk Management Section	Grants.gov SI Risk Management Plan Section
1.3 Roles and Responsibilities	3.0 Organization
2.1 Concepts and Defiitions	5.0 SI Risk Log
2.2 Steps	4.0 Risk Management Methodology
2.2.1 Prepare for Risk Management	2.0 Risk Management Policy
2.2.2 Identify Risks	3.1 Identify Risks
2.2.3 Evaluate, Categorize and Prioritize Risks	4.2 Assessing Risks
2.2.3.1 Classify Risks	4.2.1 Determine Risk Category
2.2.3.2 Evaluate Risk Exposure	4.2.2 Determine Risk Impact and 4.2.3 Determine Risk Probability
2.2.3.3 Prioritize Risks	4.2.4 Determine Risk Severity
2.2.4 Mitigate Risks	4.2.5 Determine Mitigation Lead and 4.3 Risk Planning
2.2.4.1 Plan Risk Mitigation	4.3 Risk Planning
2.2.4.2 Implement Risk Mitigation Plans	4.3 Risk Planning
2.2.5 Manage Configuration of Risk Management Work Products	4.4 Risk Monitoring
2.2.6 Verify Activities and Work Products	4.4 Risk Monitoring
2.2.7 Review With Senior Management	4.5 Resolving Risks

APPENDIX C

Internal Review Board Charter

1.0 PURPOSE

This charter describes the responsibility, authority and functionality of Grants.gov Systems Integration Internal Review Board (IRB) and its role in the Configuration Management Program for Grants.gov "Storefront" project, its operations, functionality and associated information technology (IT) environment. The Systems Integration IRB is subordinate to the Grants.gov PMO Configuration Control Board (CCB); acting as a screening entity for issues requiring CCB decisions and every day problem solving ensuring an effective and reliable means to implement information technology (IT), "StoreFront" functionality and electronic WEB portal service requirements for the Grants.gov program. The IRB will determine the items to be subjected to configuration management including but not limited to configuration identification and baseline establishment, configuration control and change, standard operating procedures, process improvements, configuration status accounting and auditing. Items that affect the cost, schedule, performance envelope, or Grants.gov functional requirements shall be referred to the Grants.gov CCB for action along with a recommendation from the IRB. Issues requiring resolution capabilities beyond those of the Systems Integrator will be identified as Risks and submitted to the PMO CCB for action.

2.0 IRB FUNCTIONS

The System Integration IRB shall have responsibility for several functions affecting the Grants.gov "Storefront" life cycle development, operation, and maintenance. The Grants.gov Deputy Program Manager shall exercise oversight review of all IRB actions.

The System Integration IRB shall be responsible for reviewing and revising all Northrop Grumman (NG) System Integration team prepared Configuration Change Proposals (both Class I and Class II), Requests for Waiver/Deviation, program Risks beyond SI capabilities or other issues affecting the integrity and performance envelope of the Grants.gov "Storefront", its operations or IT environment. This evaluation shall include all technical aspects of program and system interface problems, and ensuring that all information presented is accurate and complete. All Class I Configuration Change Proposals, Program Risks and Requests for Waiver/Deviation of Storefront requirements, functionality and other issues affecting the integrity, security or performance of the Grants.gov "Storefront" must be forwarded to the Grants.gov CCB for approval.

The IRB shall also review and approve the following:

- All configuration identification items subject to System Integration (SI) configuration management (CM), including the contents of the CM library
- Functional, allocated, and product configuration baselines
- All SI program plans such as the Project Management Plan (PMP), Configuration Management Plan (CMP), Risk Management Plan (RSKMP), Quality Assurance Plan (QAP), etc.
- Standard Operating Procedures (SOPs)
- Selection or replacement of vendors and subcontractors
- Engineering drawings and other technical documentation defining the Grants.gov "StoreFront" IT environment architecture, design, and operational characteristics
- WEB Site technical documentation defining architecture and operational characteristics
- Class II Configuration Change Proposals
- Class I Configuration Change Proposal recommendations
- Requests for Waiver from StoreFront requirements and functionality recommendations
- Issues beyond SI capabilities will be identified as Risks and submitted to PMO CCB for action
- Other items may be added from time to time

3.0 IRB MEMBER RESPONSIBILITIES AND AUTHORITY

This section defines overall IRB operation by specifying the roles and responsibilities of the SI Chairperson, IRB Members, and Configuration Manager. In general, all members serve as advisors to the Chairperson. IRB membership, as specified in the attachment to this charter, uses an integrated product team approach by including all SI Team employees having potential impact on IRB decisions. The membership at each IRB will be limited to those members having relevant information on the issues being considered by the Board. Each member will have a single vote on each item being considered. This vote will be recorded in the minutes of the IRB. The Chairperson's vote, however, represents 51 percent of the voting population.

3.1 IRB Chairperson

Northrop Grumman's Program Manager (PM) or a designated alternate will chair each IRB session. Since the Northrop Grumman PM has the contractual authority and responsibility for the actions of all SI Team employees in the execution of the Grants.gov Systems Integration contract, decision authority or the delegation of that authority remains with the Program Manager and can not be usurped.

The Chairperson will approve the IRB agenda and scheduling. In the event the Chairperson is unavailable for a scheduled IRB and an alternate is not chosen, the Configuration Manager will assume the IRB Chairperson's responsibilities for conducting the IRB proceedings and obtain the Chairperson's approval of the proceedings after the meeting.

The Chairperson has authority to direct implementation of all Standard Operating Procedures, completion of Configuration Change Proposals and Problem Report corrective actions within contract scope, selection of items for CM along with changes to existing configurations, and the selection of vendors or subcontractors for which the contract has not specified direct purchase.

3.2 IRB Members

Each member or designated alternate of the IRB has authority to make decisions for his or her area of corporate responsibility. Each member is responsible for reviewing and researching each item on the IRB agenda before the IRB meeting. This review should include the following:

- Ensure accuracy, completeness and consideration of feasible alternatives
- Determine validity of the identified problem and proposed change
- Assess the technical, schedule, cost, and benefit impact
- Identify the impact on form, fit, and function, other configured items, interfaces, technical documentation, and deliverables
- Determine the approach to implementation

3.3 IRB Secretariat/Configuration Manager

The IRB Secretariat is the SI Configuration Manager who gathers, organizes, presents, tracks, and reports all CM changes. This includes, but is not limited to, agenda preparation, IRB scheduling, IRB membership, distribution of IRB review materials, conduct of IRB proceedings, preparation and distribution of IRB minutes, and follow-up tracking of implementation actions. The Secretariat is a non-voting member of the IRB.

All members should be prepared to discuss all agenda items, providing additional information and recommendations for implementing actions. Members are expected to participate in follow up actions for release planning and analysis sessions. A current listing of IRB Members is maintained by CM, an example is contained in the Attachment to this Charter.

4.0 CRITICAL CHANGE PROCESS

It is recognized that critical system issues will occasionally arise that warrant an emergency system change. CM has tailored the system change management, review and implementation process to accommodate those critical situations. A Configuration Change Proposal may be classified as critical only if averts immediate adverse system impacts such as major degradation or operations disruptions of Grants.gov "Storefront" operations. In other words, the changes must be implemented to prevent mission failure and keep the Grants.gov "Storefront" operating effectively. Only the Grants.gov PM or his Deputy PM has authority to approve the classification and implementation of a critical change outside of the normal change control process. For Critical Change Proposals, the Northrop Grumman PM will seek direct approval from either the Grants.gov PM or Deputy PM to implement the critical change.

ATTACHMENT

Grants.gov Storefront IRB Membership

Organization or Title	Representative
SI Program Manager (Chairperson)	
Deputy PM/ Chief Architect	
InFlow Suite Advisor	
Analysis, Design & Agency Integration Team Lead	
System Architecture, HW/SW Deployment Team Lead	
Systems Development Team Lead	
QA/CM/RSKM/CMMI/ENABLER	
Project Control	
Agency Integration/Development Team – AT&T	
Agency Integration Team - Ekagra	
Documentation and Training	
Deployment Hosting Team - AT&T	
Deployment Hosting Team – System Administrator	
Deployment SW Configuration Management	
Deployment SW Quality Assurance	
Development Team	
Development Team	
Development Team	
Development Team	
System Security	
WEB Development	
Configuration Manager/Secretariat (Non-Voting)	

APPENDIX D

Request For Waiver (RFW)

Form

1.1 

.1.3.1.1.2 REQUEST FOR WAIVER (RFW)

3.3.1.3.1.1.3 ☐ **Instructions:** Please fill in the items you can and return form to Configuration Manager (CM) via email or printout.				
1. Date (MMDDYYYY):		**2. RFW Number:**		
3. Originator's Name:		**4. Originator's Address:** 3.3.1.3.1.1.5		**5. Priority:** ☐ Critical ☐ Major ☐ Minor
6. Model/Type:	**7. Part No.:**	**8. System Designation:**	**9. Release/Version:**	**10. Baseline Affected:** ☐Functional; ☐Allocated; ☐Product
11. Title of Waiver:				
12. Contract Number and Line Item:		**13. Procuring Contracting Officer Name:**		
		14. Telephone No.:		
15. Configuration Item Nomenclature:		**16. Reference Documentation:**		
17. Other CIs/ Interfaces Affected:				**18. Recurring Waiver:** ☐ **Yes** ☐ **No**
19. Effect on Cost/Price:		**20. Effect on Delivery Schedule:**		
21. Effect on Integrated Systems Support, Interface or Software:				
22. Description of Waiver:				
23. Need for Waiver:				
24. Corrective Action Taken:				
25. Submitting Activity: a. Typed name (first, middle initial, last):		b. Title:		c. Signature:
The remaining items on this form are reserved for authorized signatories: **26. Approval / Disapproval:**				

a. Recommendation: ☐ Approval recommended; ☐ Disapproval recommended		
b. Approval: ☐ Approved; ☐ Disapproved	c. Government Activity:	
d. Typed name (First, Middle initial, Last):	e. Signature:	f. Date signed (YYYYMMDD):
b. Approval #2 *(if required)*: 3.3.1.3.1.1.6 ☐ Approved; ☐ Disapproved	c. Government Activity: 3.3.1.3.1.1.7	
a. Typed Name (First, Middle Initial, Last): 3.3.1.3.1.1.8	b. Signature: 3.3.1.3.1.1.9	c. Date signed (MMDDYYYY): 3.3.1.3.1.1.10

NG SI Grants.gov DEVIATION/WAIVER AMENDED DD FORM 1694, AUG 2003

APPENDIX E

CONFIGURATION CHANGE PROPOSAL (CCP)

FORM

Configuration Change Proposal

NG SI Grants.gov AMENDED DD FORM 1692, AUG.2003

Date:	CCP Number:	Ref Problem No.:	Subsystem /System/Project:

Originator:	Telephone:	Location:

Organization:	POC Name and Telephone:

Change Title:

Type of Change: PPPR ICR SCR DCR	Justification Code:	Class:
		I II

Priority: (1) Catastrophic (2) Critical (3) Major (4) Minor (5) Other

Nomenclature:	

Model No.:	Part No.:	Serial Nos.:	Quantity:

Configuration Item No.:	Revision/Version:	Category:

All Other or Lower Level CIs Affected:

Need for Change:

Description of Change:

DAR Impact Analysis/Trade Offs/Alternate Solutions/Cost Benefit:		
Implementation Schedule:		
IRB Action:	CCB Action:	Close Date:
Date:	Date:	