Achieving CMMI-Dev + IPPD Version 1.2 Maturity Level *3* in a Small Organization – Planning/Implementing/Appraising

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November 20, 2008

United Space Alliance

Agenda

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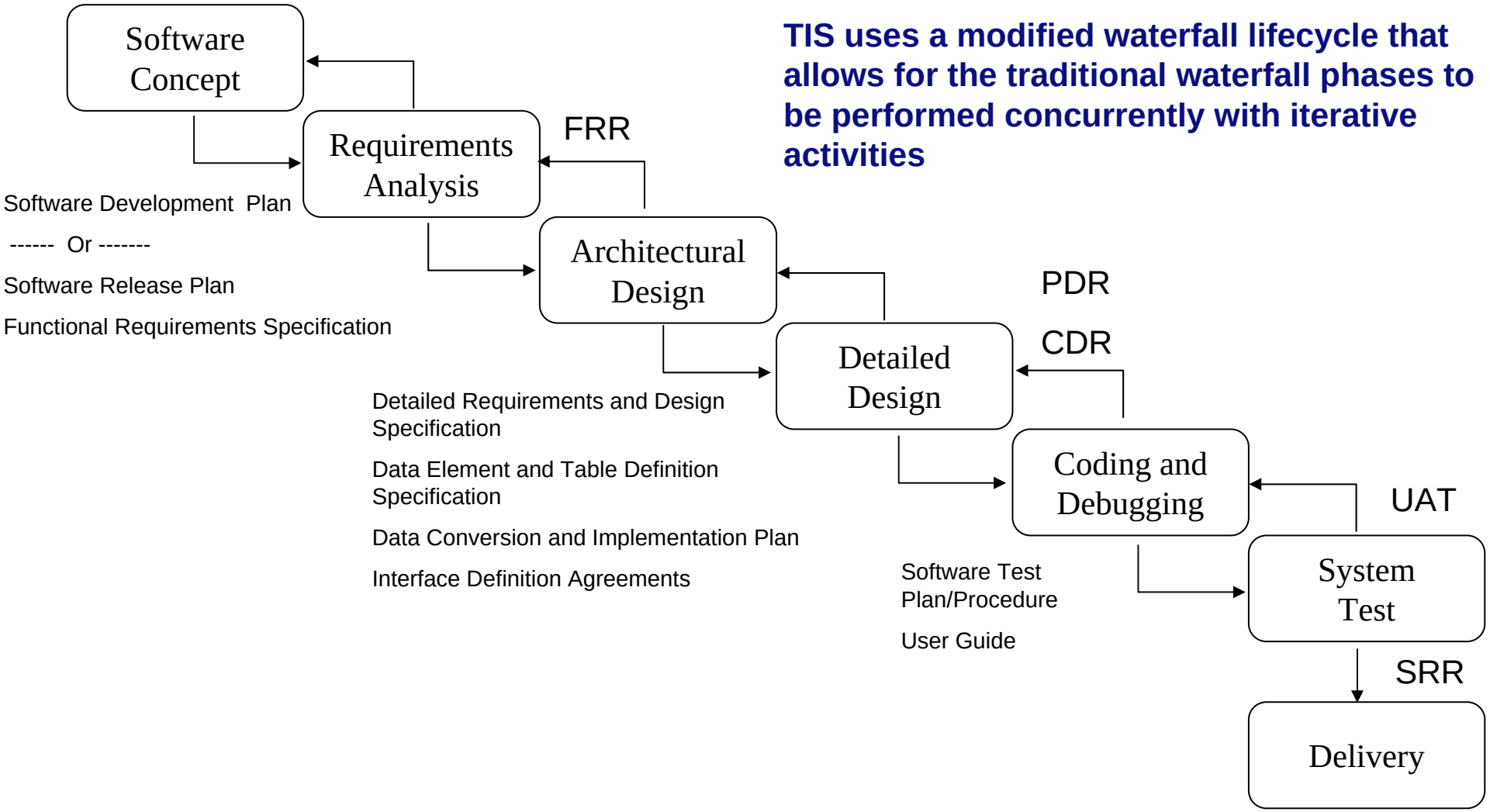
Background

- United Space Alliance is headquartered in Houston, Texas and is one of the world's leading space operations companies. Established in 1995 as a Limited Liability Company (LLC), USA is equally owned by The Boeing Company (NYSE:BA) and Lockheed Martin Corporation (NYSE:LMT) and has employees working in Florida, Alabama, California, Washington, D.C. and Russia.
- The TIS department is a small organization (23 personnel) that performs software development and maintenance.
- Support functions such as Software Configuration Management and Software Quality Assurance are normally provided in-house by a single primary person with designated back-ups available and used as needed.
- All projects are subject to the TIS Defined Software Process.
- All project use a modified waterfall lifecycle
- The TIS department achieved a CMM Version 1.1 Maturity Level 3 in November 2005 and a CMMI DEV + IPPD Version 1.2 (Staged) Maturity Level 3 in November 2007.

Modified Waterfall Lifecycle Process Overview

Project Web Site



TIS uses a modified waterfall lifecycle that allows for the traditional waterfall phases to be performed concurrently with iterative activities

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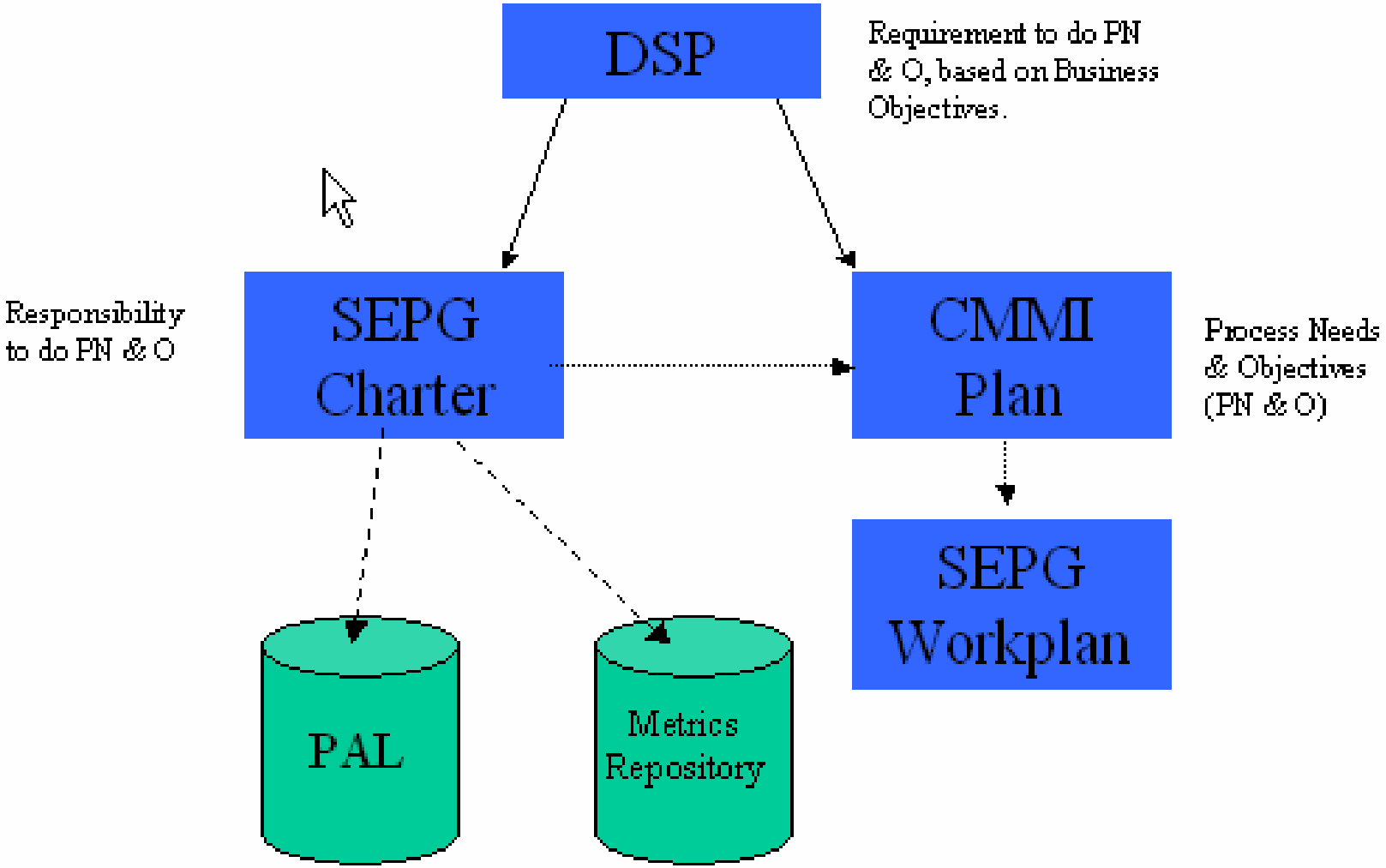
Implementation Strategy

- Balancing among structure and flexibility ensures a roadmap that can tolerate bumps along the way.
  - Develop a strategy and plan - Treat like any project
    - Create a Project Plan
    - Create a Vision
      - Achieve CMMI Dev + IPPD Maturity Level 3
    - Monitor and Control
      - Report monthly to Senior Management on progress, schedule, hours expended, risks, etc.
    - Use breakout of CMMI (Project Management, Engineering, Support and Process Management) for assignment to personnel
      - Responsible for gap analysis between CMM and CMMI
      - Augmentation and update of documented process and training material
- Balancing between business needs, model compliance, and roles assists in developing the right evidence.
  - Know your Needs, Goals and Objectives
- Establishing a goal and providing a vision from beginning to end ensures forward movement.

Organizational Focus



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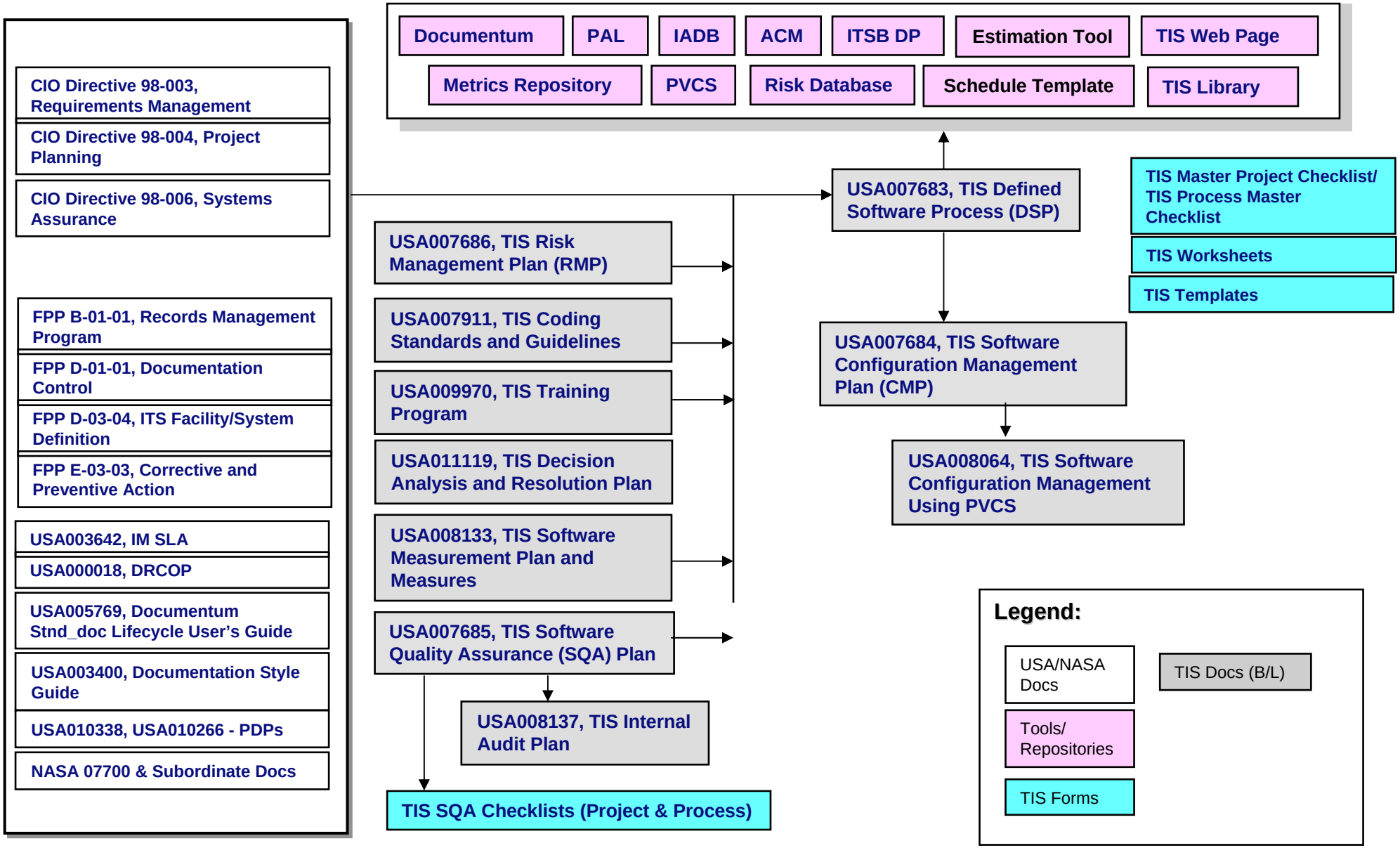
CMMI Project Plan Content

- INTRODUCTION
- PROJECT DESCRIPTION
  - Business Objectives, Project Objectives, Project Implementation Overview, Assumptions and Constraints
- TECHNICAL APPROACH
  - Appraisal Methodology, Appraisal Approach, Verification and Validation, Project Dependencies, Communication Plan
- PROJECT ORGANIZATION
  - Project Managers, Project Team Structure, Stakeholders, SEPG, Project Reporting Structure
- PROJECT SCHEDULES
  - Top-Level Schedule, Milestone Reviews, Deliverables List (Practice Implementation Indicator Descriptions, Appraisal Reports, Action Plans, etc)
- PROJECT WORK DEFINITION
  - Work Breakdown Structure, WBS Dictionary, Responsibility Assignment/Authority Matrix
- PROJECT BUDGET AND COST ESTIMATES (Earned Value)
- SUPPORTING MANAGEMENT PLANS
  - Risk Management Plan, Staffing Plan, Training Plan, Performance Measurement Plan (Project Baseline Control Process Description, Management Reviews, Management Metrics), Process Improvement Data Management Plan
- LESSONS LEARNED

TIS Defined Software Process Tree Overview



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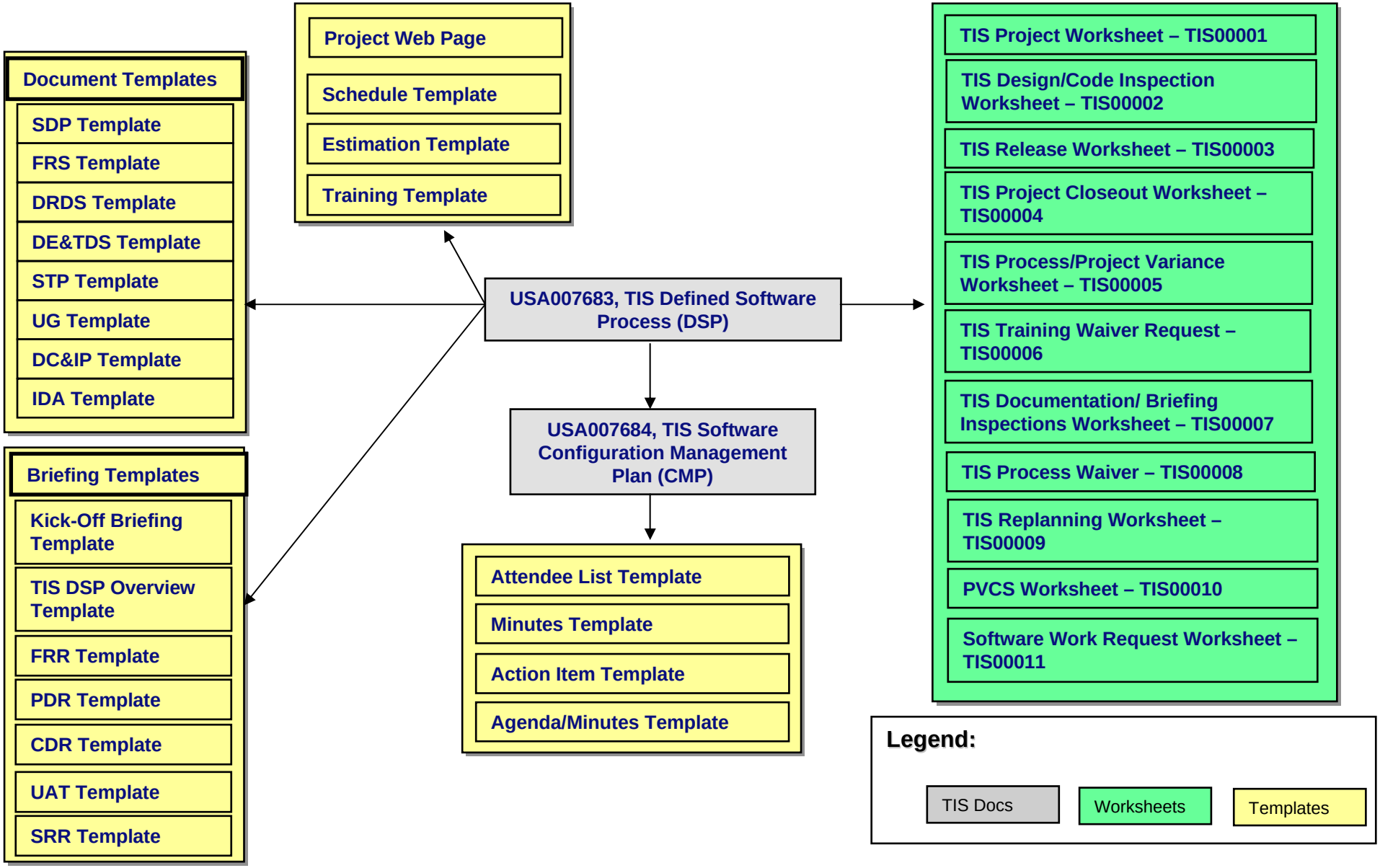
TIS Defined Software Process Tree Templates and Worksheets



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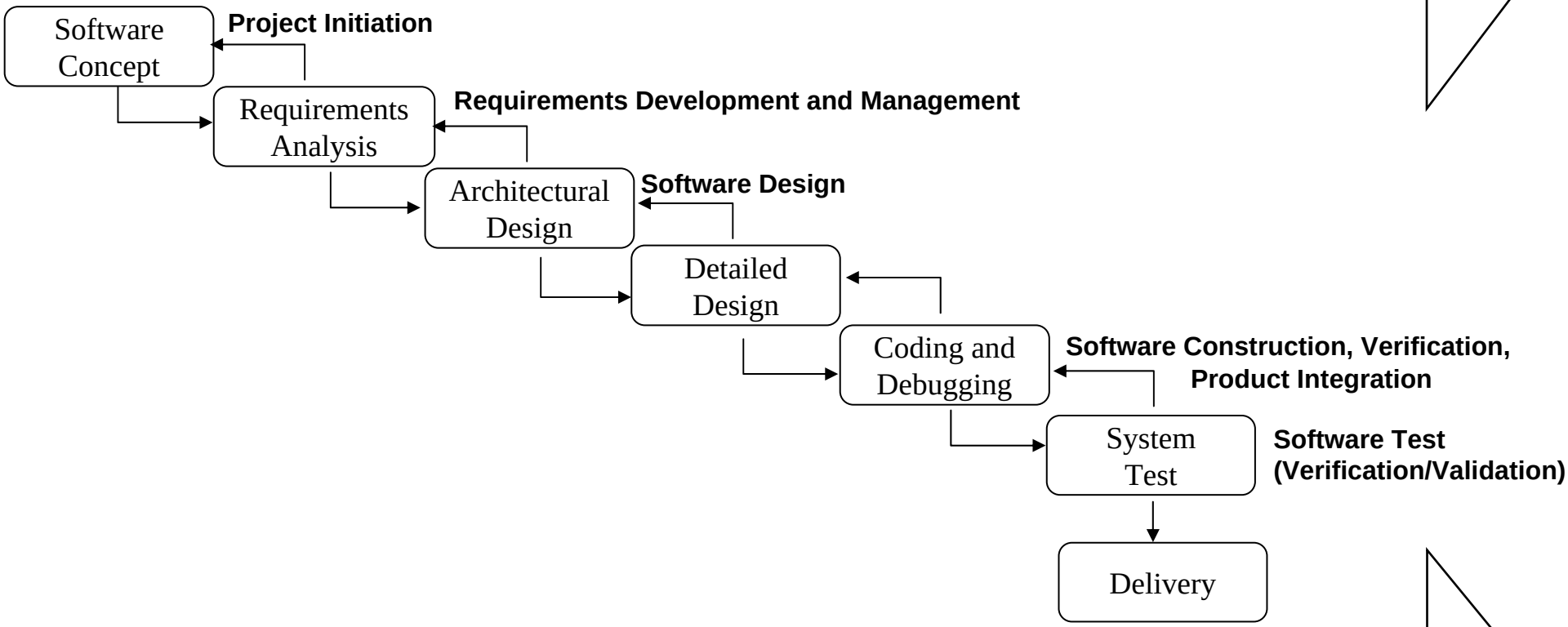
Implementing

- Process strategy and definition
  - Modeling the process and breaking it into sizable chunks allows for multiple authors to develop the process
    - Map the CMMI Practice Areas to the Lifecycle
    - Generate process documentation based on document tree with process assets
    - Use standard document and briefing templates with pre-developed wording
    - Use worksheets where items could be checked versus requiring a narrative
    - Embed process in templates and worksheets
    - Include configuration management forms with templates and worksheets
    - Use SQA Chunking

Waterfall Lifecycle Process Overview

Software Project Planning
Software Project Management (Monitor and Control, Risk Management, Measurements)
Software Configuration Management
Software Quality Assurance (SQA) Auditing and Reporting
Decision Analysis and Resolution (as needed)



Technical Review(s) - Verification
Milestone Review(s) - Validation

The materials presented have demonstrated the expected progress.
The demonstrated products satisfy the business needs of the requestor in the intended environment. Identified discrepancies have been dispositioned and the application is ready to be deployed.

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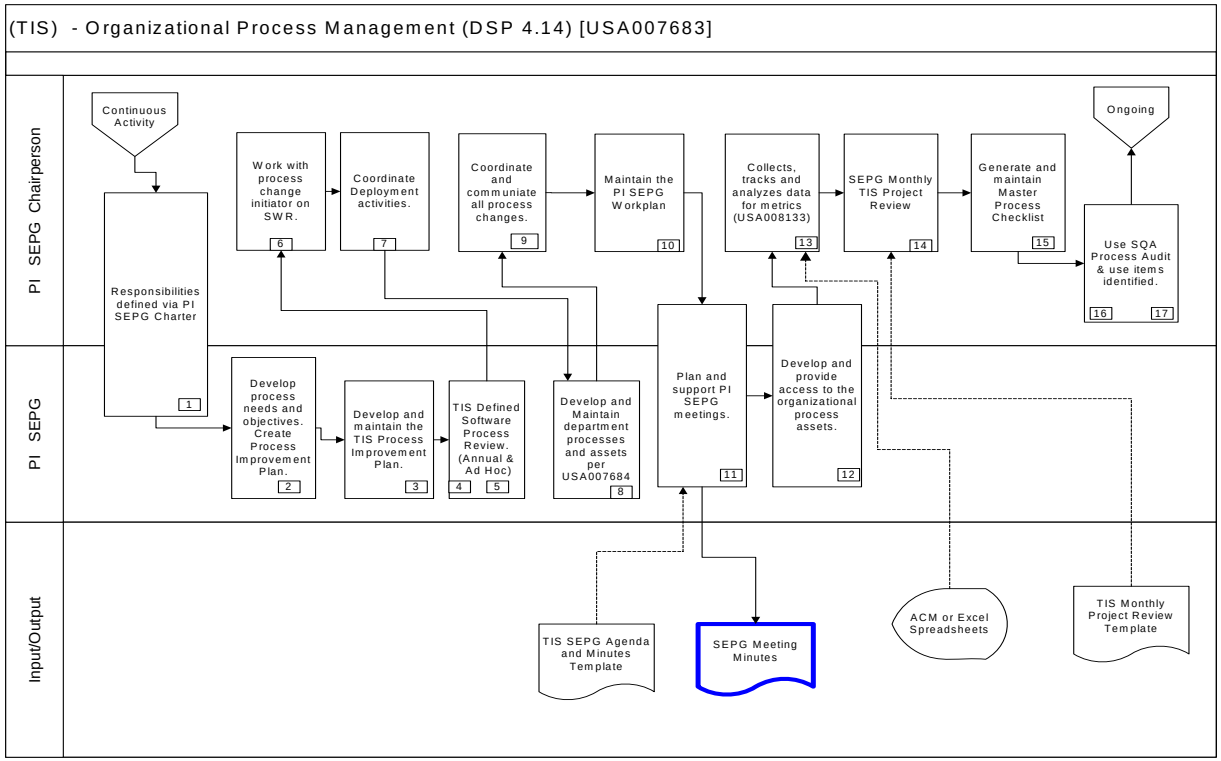
Ensure Understanding of Organizational Process



- **Processes are defined in both graphic and narrative format**
- **Narrative numbering is cross referenced on the graphic**
- **Processes should be clear, succinct and easy to follow**

1. The PI SEPG Charter (sponsored by the TIS Director) defines the responsibilities for providing guidance and oversight for:
   a. The process needs and objectives based on business objectives defined in the VSP Goals.
   b. Process improvement planning.
   c. Improvements in software development processes.
   d. Process standardization/Best practices
   e. Process improvement management.
2. The PI SEPG develops the process needs and objectives based on business objectives; and documents them in the TIS Process Improvement Plan as stated in the PI SEPG Charter.
3. The PI SEPG develops and maintains the TIS Process Improvement Plan, using the TIS SDP Template.
4. At a minimum, an annual review of the TIS Defined Software Process and supporting TIS process documents will be performed to determine any changes required to improve the process. The review may will be performed by the PI SEPG and will have the following possible actions:
   a. If process is out of date, process shall be updated.
   b. If process is obsolete, process shall be "Retired".
   c. If process is still applicable and no updates are required, the document change log will be updated to reflect the next planned annual review date and add a comment to denote that a review has been performed and no updates are required.

Expedite Generation/Review of Project Documentation by using Standard Briefing and Documentation Templates

Goals, Objectives, Risks and Metrics

- **Goals and Objectives**
  - *VSP Goals Supported*
  - *List Goals and Objectives*
- ***Risks***
  - *List Risks*
- ***Metrics***
  - *List Metrics*

Template Usage

This template is provided to facilitate standardization of the Program Integration (PI) Technical Information Systems (TIS) Kick-Off Briefings . These instructions provide steps on how to use the template appropriately.

A. Prior to delivery of an actual Kick-Off Briefing, the lead-in pages of this template (all pages prior to the Kick-Off Briefing cover sheet) shall be removed.

B. All italicized data are template information items that must be addressed before Kick-Off Briefing is delivered. This information provides direction on the type of data that is required for the associated section. Once addressed, the italics should be removed.

C. Data in a normal font provide common information that can be used for the Kick-Off Briefing, if appropriate to the project. All slides identified in the template must be present in the Kick-Off Briefing – do not delete any template slides.

1. It is permissible to add new slides
2. If a required slide is not applicable to a project, annotate the slide as "Not Applicable." All required slides must be included in the delivered Kick-Off

Template Revision History

Rev. Letter	Change No.	Description	Date
Basic		Initial Baseline	02/23/2004
A		Add Team Orientation	04/30/2005
B		Add template information for configuration management to the front of the briefing template and Release No. (SWR 2006-000025) . Updated to meet CMMI Model Requirements.	02/15/2007
C		Added additional information in "Team Orientation' page on IPT shared vision. SWR: 2007-000131	08/20/2007
D		Correction (from SWR 2007-000131) to location identifier on the "shared vision". DSP section was 1.3. i, should have been 1.3.	10/19/2007

5.6 SCHEDULE

The completion date for this project is *(Completion Date)*. A detailed schedule shall be maintained on the *(Application Name)* project web site.

Attach hyperlink for project web page to "(Application Name) project web site" words

5.7 CONFIGURATION MANAGEMENT

Configuration management shall be an integral part of the project life cycle. The USA007684, Technical Information Systems (TIS) Configuration Management Plan (CMP) is a single plan used for all TIS projects. The project TIS Master Project Checklist identifies the work products needed to manage the project.

Note any deviations to USA007684

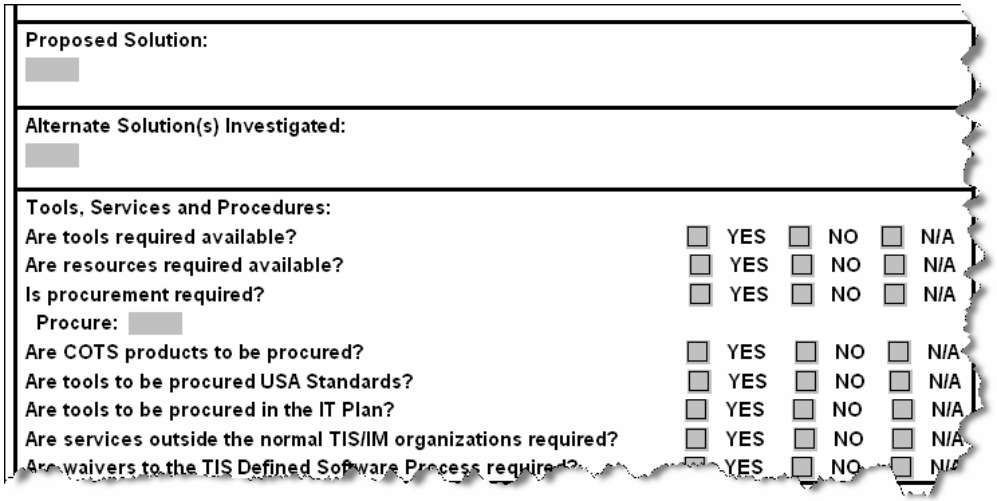
5.8 SOFTWARE QUALITY ASSURANCE

Software audits shall be performed throughout the project lifecycle. TheUSA007685, Technical Information Systems (TIS) Software Quality Assurance (SQA) Plan is a single plan used for all TIS projects. The Project Lead will identify and monitor the work products specified in the project TIS Master Project Checklist.

Note any deviations to US[illegible]7685

- **Briefing Templates and Documentation is pre-defined with embedded instructions and highlights for ease of completion**
- **Standard Briefing and Documentation eases internal peer reviews, SQA inspections, and customer meetings**

Say A Lot with a Single Mark by using Forms

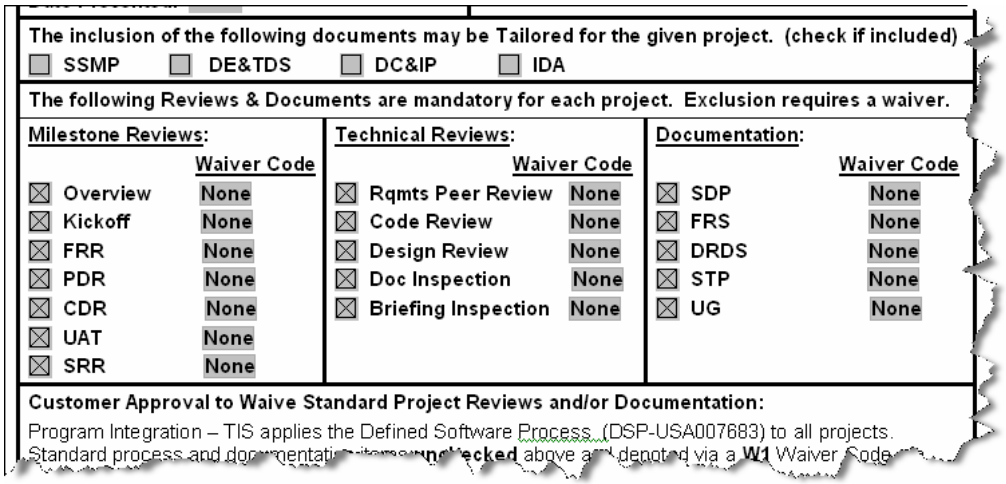


Proposed Solution:

Alternate Solution(s) Investigated:

Tools, Services and Procedures:

Are tools required available?	☐ YES	☐ NO	☐ N/A
Are resources required available?	☐ YES	☐ NO	☐ N/A
Is procurement required?	☐ YES	☐ NO	☐ N/A
Procure:			
Are COTS products to be procured?	☐ YES	☐ NO	☐ N/A
Are tools to be procured USA Standards?	☐ YES	☐ NO	☐ N/A
Are tools to be procured in the IT Plan?	☐ YES	☐ NO	☐ N/A
Are services outside the normal TIS/IM organizations required?	☐ YES	☐ NO	☐ N/A
Are waivers to the TIS Defined Software Process required?	☐ YES	☐ NO	☐ N/A



The inclusion of the following documents may be Tailored for the given project. (check if included)

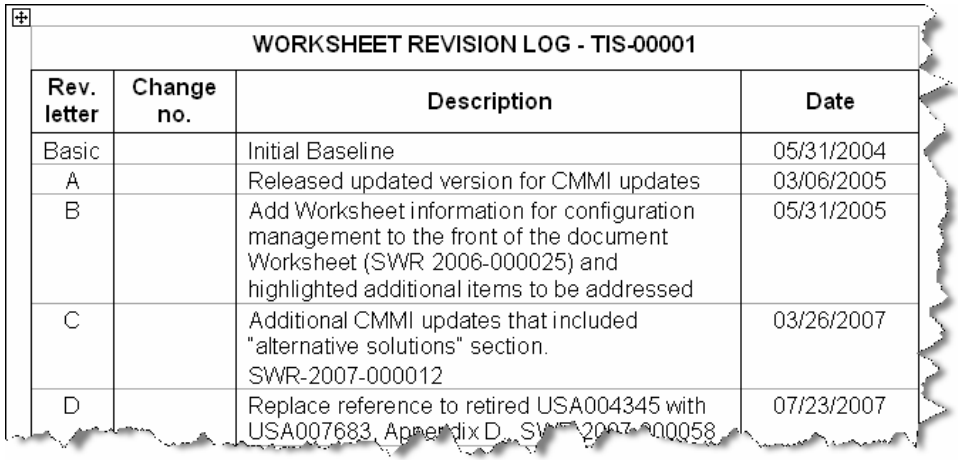
☐ SSMP ☐ DE&TDS ☐ DC&IP ☐ IDA

The following Reviews & Documents are mandatory for each project. Exclusion requires a waiver.

Milestone Reviews:	Waiver Code	Technical Reviews:	Waiver Code	Documentation:	Waiver Code
☒ Overview	None	☒ Rqmts Peer Review	None	☒ SDP	None
☒ Kickoff	None	☒ Code Review	None	☒ FRS	None
☒ FRR	None	☒ Design Review	None	☒ DRDS	None
☒ PDR	None	☒ Doc Inspection	None	☒ STP	None
☒ CDR	None	☒ Briefing Inspection	None	☒ UG	None
☒ UAT	None				
☒ SRR	None				

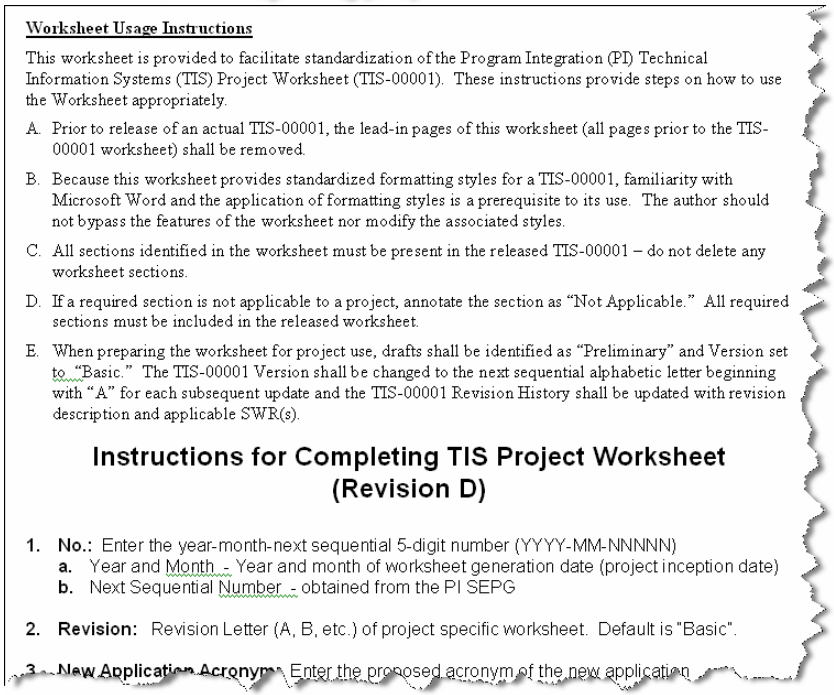
Customer Approval to Waive Standard Project Reviews and/or Documentation:

Program Integration – TIS applies the Defined Software Process (DSP-USA007683) to all projects. Standard process and documentation items unchecked above are denoted via a W1 Waiver Code.



WORKSHEET REVISION LOG - TIS-00001

Rev. letter	Change no.	Description	Date
Basic		Initial Baseline	05/31/2004
A		Released updated version for CMMI updates	03/06/2005
B		Add Worksheet information for configuration management to the front of the document Worksheet (SWR 2006-000025) and highlighted additional items to be addressed	05/31/2005
C		Additional CMMI updates that included "alternative solutions" section. SWR-2007-000012	03/26/2007
D		Replace reference to retired USA004345 with USA007683, Appendix D, SWR 2007-000058	07/23/2007



Worksheet Usage Instructions

This worksheet is provided to facilitate standardization of the Program Integration (PI) Technical Information Systems (TIS) Project Worksheet (TIS-00001). These instructions provide steps on how to use the Worksheet appropriately.

A. Prior to release of an actual TIS-00001, the lead-in pages of this worksheet (all pages prior to the TIS-00001 worksheet) shall be removed.

B. Because this worksheet provides standardized formatting styles for a TIS-00001, familiarity with Microsoft Word and the application of formatting styles is a prerequisite to its use. The author should not bypass the features of the worksheet nor modify the associated styles.

C. All sections identified in the worksheet must be present in the released TIS-00001 – do not delete any worksheet sections.

D. If a required section is not applicable to a project, annotate the section as "Not Applicable." All required sections must be included in the released worksheet.

E. When preparing the worksheet for project use, drafts shall be identified as "Preliminary" and Version set to "Basic." The TIS-00001 Version shall be changed to the next sequential alphabetic letter beginning with "A" for each subsequent update and the TIS-00001 Revision History shall be updated with revision description and applicable SWR(s).

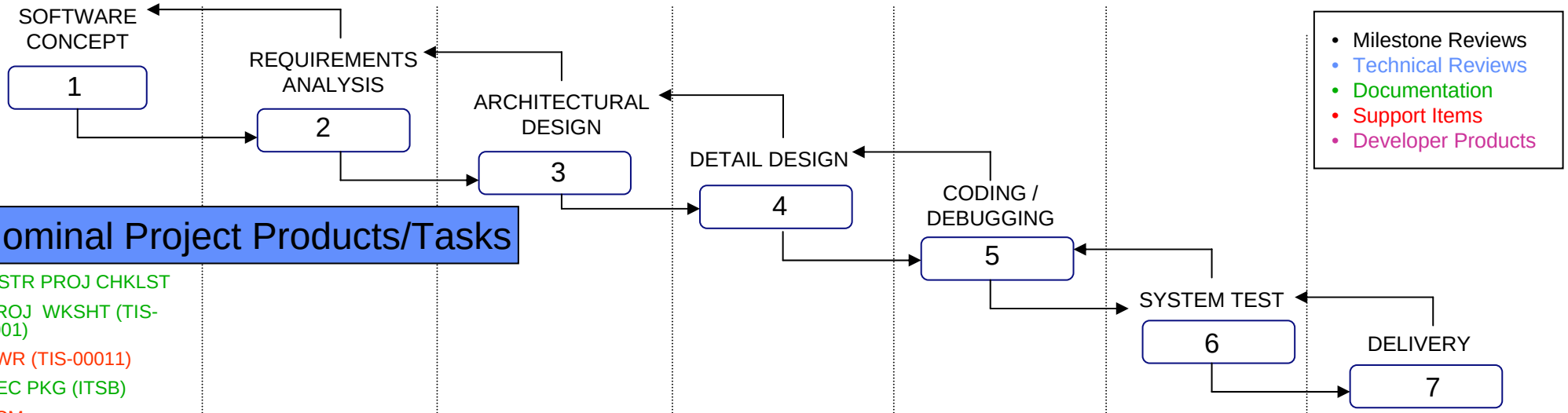
Instructions for Completing TIS Project Worksheet (Revision D)

1. **No.:** Enter the year-month-next sequential 5-digit number (YYYY-MM-NNNNN)
   a. Year and Month - Year and month of worksheet generation date (project inception date)
   b. Next Sequential Number - obtained from the PI SEPG
2. **Revision:** Revision Letter (A, B, etc.) of project specific worksheet. Default is "Basic".
3. **New Application Acronym:** Enter the proposed acronym of the new application

- **Provide an easy method for saying a lot of words**
- **Ease completion with embedded instructions**

Combining ("Chunking") SQA Audits by Lifecycle Phases Reduces Time and Effort

Project Lifecycle



- Milestone Reviews
- Technical Reviews
- Documentation
- Support Items
- Developer Products

Nominal Project Products/Tasks

- MSTR PROJ CHKLST
- PROJ WKSHT (TIS-00001)
- SWR (TIS-00011)
- DEC PKG (ITSB)
- ACM
- IADB
- WEB PAGE
- EST (Est. Tool)
- SCHED (MSProject Template)
- K/O BFG (TIS-TMPL-KO)
- SDP (TIS-TMPL-SDP)
- RMP (TIS Risk Database)
- PROJ FILES

- MR - FRR
- FRS (TIS-TMPL-FRS)
- RTVM (RTVM TMPL)
- RMP
- BFGs (TIS-TMPL-FRR)
- TR-REQUIREMENTS (TIS-00002)

- MR - PDR
- DRDS (TIS-TMPL-DRDS)
- IDA (TIS-TMPL-IDA)
- DCIP (TIS-TMPL-DCIP)
- BFGs (TIS-TMPL-PDR)
- TR-DESIGN (TIS-00002)

- MR - CDR
- DETD (auto generated)
- STP (TIS-TMPL-STP)
- BFGs (TIS-TMPL-CDR)

- UNIT TEST
- INTEG TEST
- RTVM
- PVCS WKSHT (TIS-00010)
- UG (TIS-TMPL-UG)
- TR-CODE (TIS-00002)

- MR - UAT / CERT
- UG
- STP
- INTEG TEST
- RTVM

- MR - SRR (TIS-TMPL-SRR)

- PROJ C/O WKSHT (TIS-00004)
- RELEASE WKSHT (TIS-00003)
- PVCS

SQA Checklists and Worksheets

- ACM SQA Checklist
- Inspection Worksheets

- 100 SQA-PM
- 101 SQA-PP
- 106 SQA-TR
- 107 SQA-MR
- 110 SQA-SSM
- 111 SQA-STR
- TIS-00007

- 102 SQA-RR
- 106 SQA-TR
- 107 SQA-MR
- TIS-00002
- TIS-00007

- 103 SQA-DR
- 106 SQA-TR
- TIS-00002
- TIS-00007

- 103 SQA-DR
- 106 SQA-TR
- 107 SQA-MR
- TIS-00007

- 104 SQA-SC
- 105 SQA-TP
- 106 SQA-TR
- TIS-00002
- TIS-00007

- 104 SQA-SC
- 105 SQA-TP
- 106 SQA-TR
- 107 SQA-MR
- TIS-00007

- 108 SQA-SCM
- 109 SQA-SQA
- 110 SQA-SSM
- SBA – DOC
- SBA – S/W

- 107 SQA-MR
- TIS-00007

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Tools

- Embedding tools, both simple and complex, throughout the process provides consistency and institutionalization of the process as well as sufficient evidence
  - Process Component Table
  - Estimation Tool
  - Application Change Management
  - Risk Radar
  - Requirements Traceability and Verification Matrix
  - Work Environment
  - Master Project Checklist and Process Master Checklist including Data Management Plan
  - Stakeholder Management
  - Measurement
  - Project Review Charts

Process Component Tables Summarize the Process Area

Process Component Summary Table	
Project Management	
Policy	FPP S-01-01, USA Software Engineering Policy, Section 1.3.1 and 1.4.1
Plan	• DSP Section 4.3. • SDP Section 5.9
Role	• Software Development Team • Sponsor/Customer
Relevant Stakeholders	• TIS Director • Roles identifed above
Tasks	• Update TIS Master Project Checklist • Process overview and Kick-off Briefing • Monitor and Control • Reporting • Maintenance of project documentation, web pages and metric information
Tailoring	None
Inputs	• TIS Project Worksheet • TIS Estimation Tool • TIS Project Schedule Template • TIS Master Project Checklist Template • Software Development Plan Template • Project Requirements • Meeting Minutes Templates • TIS Monthly Project Review Chart Templates • Kickoff Briefing Template • DSP overview • PV Template (if required) • Approved SWR • Replanning Worksheet Template (if required) • Organizational plans (SQA, CMP, Risk ,etc) • Monthly Activity Report Template
Outputs	• Project Schedule • Project Effort Estimates • TIS Master Project Checklist • Software Development Plan • Meeting Minutes • TIS Monthly Project Review Charts • Kickoff Briefing • PV (if required) • SWR (if required) • Replanning Worksheet (if required) • Monthly Activity Report

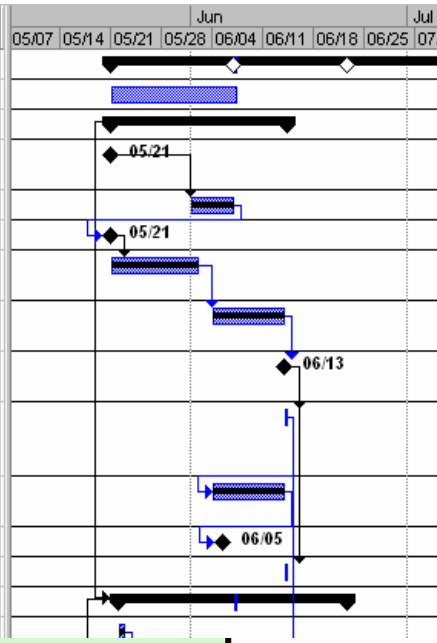
Process Component Summary Table	
Project Management	
Data Management (Defined in MPC/PMC)	• Project Schedule • Project Effort Estimates • TIS Master Project Checklist • Software Development Plan • Meeting Minutes • TIS Monthly Project Review Charts • Kickoff Briefing • PV (if required) • SWR (if required) • Replanning Worksheet (if required) • Monthly Activity Report
Tools (Defined in USA007683, Appendix C)	• ACM • Web Page • Homesite or Front Page • Estimation Tool • MS Project • Documentum
Training *(Defined in USA000070, Section 9.0)*	Project Lead role training requirements
Measurements *(Defined in USA008133)*	• 00001 Schedule Variance • 00002 Milestone Variance • 00003 Effort Variance
Process Monitoring And Control	• 00001 & 00003 show status of the project management activities • 00002 Shows variance on milestone activities
Senior Management Oversight	TIS Director is statused on Project Management Process items at the TIS Monthly Project Review meeting
Process Verification	Project Management Process Audits using the USA007685
Improvement Information	• Work Products identified in Data Management (above) • Metrics identified in Measurements (above) • Reports as identified in Senior Management Oversight (above) • Lessons Learned from lessons learned sessions in conjunction with SQA process audit and from Project Closeout

Estimation

	A	B	C	D	E	F
1	**Project Name:**	**Project Size**				**Date:**
2	**Task**	**SM**	**MED**	**LG**	**Estimated Work hours**	**Number of People**
3	**Planning**					
4	Dev Proj Work Space	0	0	0	0.0	1
5	Dev Proj Web Site	0	0	0	0.0	1
6	Enter/Update IADB	0	0	0	0.0	1
7	Generate Software Release Plan (SRP)	0	0	0	0.0	1
8						
9						
10						
11						
12	Generate PI Initiative	0	0	0	0.0	1
13	SQA/SCM (.1% of total)					
14	**Requirements**					
15	Define Functional Requirements Specification	0	0			
16	Review of FRS	0	0			
17	Update FRS		0			
18	Functional Requirements Review Preparation					
19	Coordinate/	0	0			
20	Prepare	0	0			

TIS Estimation Tool

	PDS	PDF	Status	Task Name	Dur	Start	Finish
1				**DCMS/IRDB 1.1.0 Schedule**	**319.2 hrs**	**05/21/07**	**07/13/07**
2				Project Management	106.5 hrs	05/21/07	06/07/07
3				**Software Project Planning**	**145 hrs**	**05/21/07**	**06/14/07**
4				Develop/Update Project Work Space, Project Notebook and TIS Library	0 hrs	05/21/07	05/21/07
5				Develop/Update Project Web Page	32 hrs	06/01/07	06/06/07
6				Enter/Update IADB	0 hrs	05/21/07	05/21/07
7				Develop Software Development Plan/Software Release Plan	80 hrs	05/21/07	06/01/07
8				Review Softare Development Plan/Software Release Plan	64 hrs	06/04/07	06/13/07
9				Update Software Development Plan/Software Release Plan	0 hrs	06/13/07	06/13/07
10				Submit Software Development Plan/Software Release Plan for Signature	1 hr	06/14/07	06/14/07
11				Prepare and hold Overivew and/or Kick-Off	64 hrs	06/04/07	06/13/07
12				Generate PI Initiative	0 hrs	06/05/07	06/05/07
13				SQA/SCM for Planning	0.7 hrs	06/14/07	06/14/07
14				**Requirements Analysis**	**190.6 hrs**	**05/22/07**	**06/22/07**
15				Develop Functional Requirements	hrs	05/22/07	05/22/07



	A
	Project Name: DCMS/IRDB
	Version 1.1.0

Task	SM	MED	LG	Estimated Work hours	Number of People	Calculated Duration (hrs/people)			Mgmt	Req	Dev	UAT
Planning												
Dev Proj Work Space	0	0	0	0.0	1	0.0	50					
Dev Proj Web Site	0	1	0	1.0	1	1.0	100		1.0			
Enter/Update IADB	0	1	0	1.0	1	1.0	150		1.0			
Generate Software Release Plan (SRP)	1	0	0	2.0	1	2.0	200		2.			
Review of SRP	1	0	0	1.0	1	1.0	250		1.			
Update SRP	0	0	0	0.0	1	0.0	300		0.			
Submit SRP for signature	1	0	0	1.0	1	1.0	350		1.			
Prepare and hold Kick-Off	1	0	0	1.0	1	1.0	400		1.			
Generate PI Initiative	0	0	0	0.0	1	0.0	450		0.			
SQA						.7	900					
Req												
D												
F						.0	1000					
F						.0	1050		4.0			
U						.0	1100		2.0			
Functional Requirements Review Preparation												
Coordinate/Schedule FRR	1	0	0	4.0	1	4.0	1140		4.0			

TIS Estimation Worksheet

Duration calculated from TIS Estimation Tool, stored in Worksheet, entered in the Schedule Template.

Tool is used to create project-specific Worksheet

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Estimation Tool (Excel)

Project Name:	Project Size					Date:	Task ID	BOE No.	Resource Hours/Days Breakout								Estimation Parameter Hours		
Task	SM	MED	LG	Estimated Work hours	Number of People	Calculated Duration (hrs/people)			Mgmt	Req	Dev	UAT	SQA	SCM	Hours	Days	SM	MED	LG
Planning																			
Dev Proj Work Space	0	0	0	0.0	1	0.0	50		0.0								1	1	1
Dev Proj Web Site	0	0	0	0.0	1	0.0	100		0.0								1	1	1
Enter/Update IADB	0	0	0	0.0	1	0.0	150		0.0								1	1	1
Develop Software Development Plan	0	0	0	0.0	1	0.0	200		0.0								4	8	12
Review SDP	0	0	0	0.0	1	0.0	250		0.0										
Update SDP	0	0	0	0.0	1	0.0	300		0.0										
Submit SDP for signature	0	0	0	0.0	1	0.0	350		0.0										
Prepare and hold Kick-Off	0	0	0	0.0	1	0.0	400		0.0										
Generate PI Initiative	0	0	0	0.0	1	0.0	450		0.0										
SQA/SCM (.1% of total)						0.0	900												
Requirements																			
Develop Functional Requirements Specification	0	0	0	0.0	1	0.0	1000		0.0										
Review FRS	0	0	0	0.0	1	0.0	1050		0.0										
Update FRS	0	0	0	0.0	1	0.0	1100		0.0										
Functional Requirements Review Preparation																			
Coordinate/Schedule FRR	0	0	0	0.0	1	0.0	1140		0.0										
Prepare FRR Package	0	0	0	0.0	1	0.0	1160		0.0										
Post FRR Package	0	0	0	0.0	1	0.0	1180		0.0										
FRR	0	0	0	0.0	1	0.0	1200		0.0										
Prepare FRR Minutes/ Action Items	0	0	0	0.0	1	0.0	1220		0.0										
Review FRR Minutes/																			

Input to Schedule Template

Task # Maps to TIS Schedule Template

5.4 STAFFING REQUIREMENTS/PLAN

Project Management for the *Application Name* project shall be under PI/TIS and include day-to-day project management responsibility. For further detail on staffing roles reference Section 5.2, Roles and Responsibilities and Section 5.3, Primary Points of Contact.

The resource requirement estimates for this project are depicted in the following table and shall be tracked in the TIS ACM system:

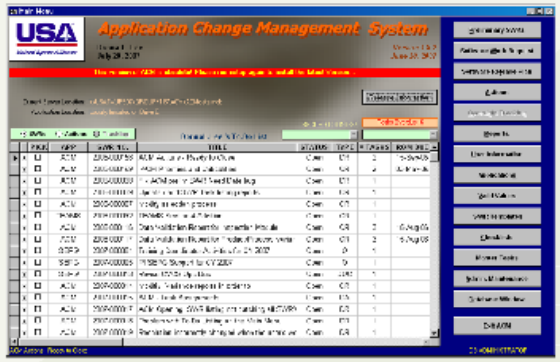
Table 5.4 Resource Requirement Estimates

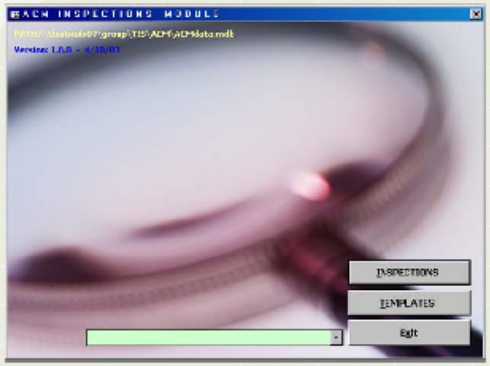
Resource	Funding *	Est.(hrs)	Comments
Management			
Requirements			
Development			
UAT			
User Support			
SQA			
SCM			

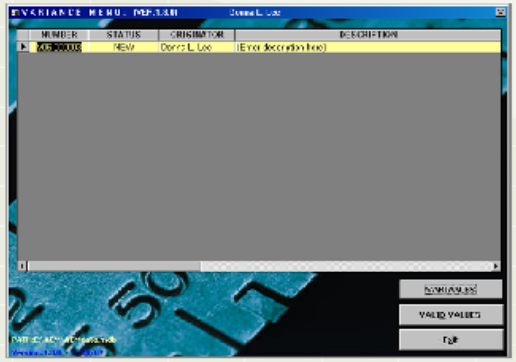
** If resource funding is via normal TIS Annual Budget Plan, then state "Funding" as TIS, otherwise state unique funding source.*

Application Change Management (ACM) Integrates Configuration Management, Inspections, Variances with Metric Reporting

Application Change Management







Draft SWRs

Release SWR

DSWR → SWR → RSWR

DSWR → SWR → DAR Charter/ SOW

DSWR → SWR → SWR → RSWR

SWR

General Data – Application, SWR Type, SWR Crit, SWR Priority, Status

Estimation Tool → Tasks – Responsible Role/Person, Lifecycle Phase, Estimated/Actual Effort, Planned/Actual Schedule

SQA Audit Checklist

Inspections

General Data – Application, Estimated/Actual Size, Estimated/Actual Effort, Planned/Actual Schedule, Status

Findings

Observations

SQA Audits

General Data – Application, Estimated/Actual Size, Estimated/Actual Effort, Planned/Actual Schedule, Status

Findings

Observations

Product and Process Variances

General Data – Application, Process, Root Cause, Action Type, Description, Actions, Status, Non-Conformance

Metrics

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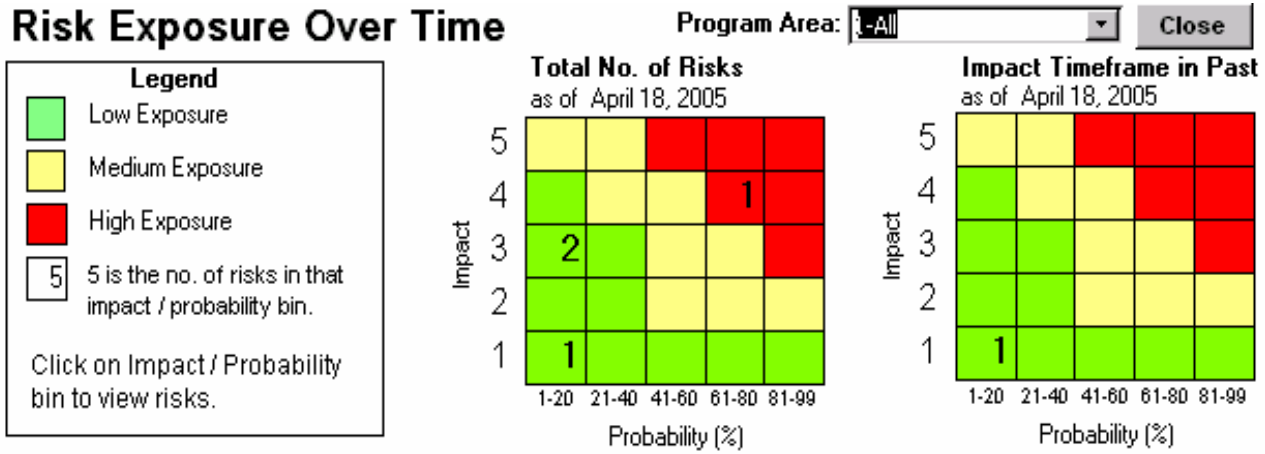
Project Risk Assessment Shows Total and Past Risks Which Aids in Monitoring and Control



Class	Impact	Element	Description
Red	4	CV	Interfaces Design, Development, Test & Validation
Green	3	GO	Requirements Completeness
Green	3	GO	CV Data Validation
Green	1	GO	Programmer Availability

United Space Alliance

Requirement Traceability and Verification Matrix (RTVM)

- Shows traceability of between the Functional Requirements Specification, Detailed Requirements and Design Specification, code module and Software Test Plan
- Shows verification method (Test, Analysis, Demonstration, Inspection)
- SCM Codes used to annotate requirement configuration (B – Baseline, M – Modified/Changed, A – Add, D – Deleted)

FRS Rqmnt Number	FRS Requirement Description	SCM Code	DRDS Rqmnt Number	SCM Code	Verification Method	Application Code Identification	Release Number	STP Test Number	SCM Code	Comments
4.1.l, 4.1.m, 4.1.r	The proposed system shall be WEB enabled. The proposed system shall provide a secure environment, which shall include a sanctioned Web site with visibility (view/print only) of authenticated reports. The proposed system shall make IRN, waiver, Drawing Departure Authorization (DDA), and meeting support attachments available to the web.	B,B,A	Section 3.1 Step(s) 15; Section 3.3.2.4 Step(s) 3; Section 3.3.5.6.3 Step(s) 3; Section 3.3.7.3; Section 3.3.7.3.1 Step(s) 1-4; Section 3.3.7.3.2 Step(s) 1-3	B;A;A;B;A;B	Test	AssembleIrn	1.1.0	PCD30, AE1-AE54	B,A	
4.1.b, 4.1.j, 4.1.1.k, 4.2.5.a	The proposed system shall provide configuration management functionality to monitor and track proposed and dispositioned changes. The proposed system shall provide a graphics package, word processing package and workflow package. The proposed system shall provide statuses for tracking IRNs. The proposed system shall provide a standard workflow and allow one-time modifications based on document process.	B	Section 3.1 Step(s) 4, 12; Section 3.3 Step(s) 6; Section 3.3.4 Step(s) 1-4; Section 3.3.4.5 Step(s) 1-4	B	Test	frmIrdbMain	1.0.0	PCD31	B	
4.2.6.e	The proposed system shall add the PRCBD Number and date to each page of the approved IRN.	B	Section 3.3.4.6 Step(s) 1-5; Section 3.3.5.10 Step(s) 1-6	B	Test	frmApprovalPackage	1.1.0	++CMO2	M	
4.1.1.c	The proposed system shall provide validation of appropriate data fields upon data entry or specified data seldections on appropriate data fields.	B	Section 3.2 Step(s) 9; Section 3.3.4.6 Step(s) 1-5; Section 3.3.5.10 Step(s) 1-6	B	Test	frmApprovalPackage, dlgSelectIRNs	1.1.0, 1.0.0	++CMO3	M	

Work Environment

- An annual Information Technology Plan is developed and approved based on Information Technology Standards
- SDP Table 5.5-1 has columns "Platform", Environment", "Tool(s)", "Project Resources Req'd". The SDP Template lists the standard Platforms, Environments, and Tools. Project Leads enter any project-specific resource needs for a given platform in the "Project Resources Req'd" column. This would be for any non-standard configuration of the platform needed for this project. If nothing project-specific is required, this is N/A.
- SDP Table 5.5-2 provides the template for any new software tools required for the project
- SDP Table 5.5-3 provides the template for any new hardware required for the project

Table 5.5.1 Planned utilization of existing information technology tools

Platform	Environment	Tool(s)	Project resources req'd
USATXADS07	Development	Access 2000, ACM, Safe Source	N/A
USATXADS07	Test/Validation	Access 2000, ACM, Safe Source	N/A
USATXADS07	Production	Access 2000, ACM, Safe Source	N/A

* Includes software languages and support tools.

There are no specific new software tools requirements identified for this project.

There are no specific new hardware requirements identified for this project.

Table 5.5.2 New software tools required

Product	Version	Number of licenses	Estimated cost * (in $)
N/A			

Total new software cost $___None_____

* Estimated Costs are Vendor-published prices.

There are no specific new hardware requirements identified for this project.

Table 5.5.3 New hardware required

Product	Version	Quantity	Estimated Cost * (in $)
N/A			

Total new software cost $____ None _____

* Estimated Costs are Vendor-published prices.

Data Management Plan added to Standard Checklists

- **The Master Project Checklist is used as the Project Data Management Plan and is maintained throughout the project lifecycle**

Product	Status	What Used	What Released	Resources	Format	Data Content	Provided By	How Provided	Managed By	Method Data Retrieved, Reproduced, Distributed	Configuration Control	Collection Frequency	Repository	Retention Period	Access Control	Last Review Date	Reviewed By
Project Worksheet/ Minutes	Complete	Template	Rev C	Web	Word	Resource Info	Lead	Electronic	Spencer Beard	Elec-H/C upon Req	Formal	Once	Documentum		BTI	09/09/2007	Donna Lee
ITSB DP (if reqd)	Not Req'd	N/R	N/R	Web	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R
SWR / S.O.W.	Complete	Template	Basic	ACM, Web, PF	Access	Information fo	Lead,Dev	Database	Spencer Beard	Elec upon Req.	Formal	Monthly	ACM		BTI	08/16/2007	Spencer Beard
IADB	Complete	Application	5.1	IADB	SilverStream	Software inver	Lead	Database	Spencer Beard	H/C upon Req	Formal	Yearly	Iusatwas6e		BTI	05/21/2007	Spencer Beard
WEB PAGE	Complete	Template	N/A	Web, PF	ColdFusion	Communicate	Lead	Electronic	Spencer Beard	Elec upon Req.	Informal	Monthly	extranet		BTI	09/18/2007	Steve Keese
ESTIMATION TOOL	Complete	Est. Tool	Rev E	EST, ACM	Excel	Product sizing	Lead,Dev	Electronic	Spencer Beard	Elec-H/C upon Req	Informal	(Re)Baseline	Documentum		BTI	06/06/2007	Spencer Beard
SCHEDULE	Complete	Template	Rev B	ACM, Web, PF	Project	Delivery schec	Lead	Electronic	Spencer Beard	Elec-H/C upon Req	Informal	Monthly	Documentum		BTI	09/09/2007	Spencer Beard
SDP	Complete	Template	Rev A	ACM, Web, PF	Word	Detailed plann	Lead,Dev	Electronic	Spencer Beard	Elec-H/C upon Req	Formal	Once	Documentum		BTI	09/18/2007	Dan Bly
TIS LIB / DOCMTM	Complete	Documentur	5.3	ACM, Web, PF	Web	All	USA DM	Electronic	Spencer Beard	Webtop GUI	Formal	On Demand	Iusatwas04		BTI	09/21/2007	Spencer Beard
DAR (optional task)	Complete	Template	Basic	ACM, Web	Word	Website desig	Lead	Electronic	Spencer Beard	Elec-H/C upon Req	Formal	On Demand	Documentum	N/R	BTI	09/21/2007	Shawn Pifer

- **The Process Master Checklist is used as the Organizational Data Management Plan and is maintained as needed**

Document Number	Description	Version	Version Date	Format	Data Content & How Issued	Provided By	How Provided	Managed By	Method Data Retrieved, Reproduced, Distributed	Configuration Control	Collection Frequency	Repository	Retention Period	Access Control	Last Review Date	Reviewed By
TIS-00001	Project Worksheet	Revision D	07/23/07	Word	Worksheet/Web	PI SEPG	Electronic	PI SEPG	TIS Web Page	Informal - TIS PAL	As needed	Documentum	Until Outdated	Bus/Tech Info	07/23/07	D. Lee
TIS-00002	Requirements/Design/Code Inspection Wo	Revision A	03/26/07	Word	Worksheet/Web	PI SEPG	Electronic	PI SEPG	TIS Web Page	Informal - TIS PAL	As needed	Documentum	Until Outdated	Bus/Tech Info	03/26/07	C. Rose
TIS-00003	Release Worksheet	Revision C	07/23/07	Word	Worksheet/Web	PI SEPG	Electronic	PI SEPG	TIS Web Page	Informal - TIS PAL	As needed	Documentum	Until Outdated	Bus/Tech Info	07/23/07	D. Lee
TIS-TMPL-PR	Project Review Template	Revision E	08/14/07	Excel	Template/Web	PI SEPG	Electronic	PI SEPG	TIS Web Page	Informal - TIS PAL	As needed	Documentum	Until Outdated	Bus/Tech Info	08/14/07	C. Rose
TIS-TMPL-PRM	Project Review Minute Template	Basic	03/06/07	Word	Template/Web	PI SEPG	Electronic	PI SEPG	TIS Web Page	Informal - TIS PAL	As needed	Documentum	Until Outdated	Bus/Tech Info	03/06/07	C. Rose
TIS-TRAIN-CM	TIS Configuration Management Training	Revision A	03/02/07	PowerPoint	Training/Web	PI SEPG	Electronic	PI SEPG	TIS Web Page	Informal - TIS PAL	As needed	Documentum	Until Outdated	Bus/Tech Info	03/02/07	C. Rose
TIS-TRAIN-PPQA	TIS Process and Product Quality Assuran	Revision A	02/22/07	PowerPoint	Training/Web	PI SEPG	Electronic	PI SEPG	TIS Web Page	Informal - TIS PAL	As needed	Documentum	Until Outdated	Bus/Tech Info	02/22/07	C. Rose
TIS-TMPL-KO	Kick-off Briefing Template	Revision C	08/20/07	PowerPoint	Template/Web	PI SEPG	Electronic	PI SEPG	TIS Web Page	Informal - TIS PAL	As needed	Documentum	Until Outdated	Bus/Tech Info	08/20/07	C. Rose
TIS-TMPL-CDR	Critical Design Review (CDR) Template	Revision B	09/14/07	PowerPoint	Template/Web	PI SEPG	Electronic	PI SEPG	TIS Web Page	Informal - TIS PAL	As needed	Documentum	Until Outdated	Bus/Tech Info	09/14/07	C. Rose
Excel Page	Estimation Tool	Revision E		Excel	Tool/Web	PI SEPG	Electronic	PI SEPG	TIS Web Page	Informal - TIS PAL	As needed	Documentum	Until Outdated	Bus/Tech Info	07/12/07	C. Rose
Excel Page	Requirement Traceability Verification Matri	Basic		Excel	Tool/Web	PI SEPG	Electronic	PI SEPG	TIS Web Page	Informal - TIS PAL	As needed	Documentum	Until Outdated	Bus/Tech Info	07/12/07	C. Rose
MSProject Page	Schedule Template	Basic		MSProject	Tool/Web	PI SEPG	Electronic	PI SEPG	TIS Web Page	Informal - TIS PAL	As needed	Documentum	Until Outdated	Bus/Tech Info	07/12/07	C. Rose
Directory Page	TIS Risk Database	Basic		Access	Tool/Web	PI SEPG	Electronic	PI SEPG	TIS Web Page	Informal - TIS PAL	As needed	Documentum	Until Outdated	Bus/Tech Info	07/12/07	C. Rose
N/A	TIS Master Project Checklist	A		Excel	Tool/Web	PI SEPG	Electronic	PI SEPG	TIS Web Page	Informal - TIS PAL	As needed	Documentum	Until Outdated	Bus/Tech Info	07/12/07	C. Rose
N/A	TIS Process Master Checklist	Basic		Excel	Tool/Web	PI SEPG	Electronic	PI SEPG	TIS Web Page	Informal - TIS PAL	As needed	Documentum	Until Outdated	Bus/Tech Info	07/12/07	C. Rose
N/A	TIS Monthly Project Review Charts	N/A	N/A	pdf	Document/Web	Department	Electronic	PI SEPG	TIS Web Page	Informal - TIS PAL	As needed	Documentum	Until Outdated	Bus/Tech Info	09/08/07	C. Rose
USA007683	TIS Defined Software Process	Revision E	08/10/07	Word	Document/Web	PI SEPG	Electronic	PI SEPG	TIS Web Page	Informal - TIS PAL	As needed	Documentum	Until Outdated	Bus/Tech Info	08/10/07	C. Rose
USA007684	TIS Configuration Management Plan	Revision F	09/14/07	Word	Document/Web	PI SEPG	Electronic	PI SEPG	TIS Web Page	Informal - TIS PAL	As needed	Documentum	Until Outdated	Bus/Tech Info	09/14/07	C. Rose

Stakeholder Management Clearly Defined and Involved

Table 5.9.3 Stakeholder Involvement in Reviews

Stakeholder Role	Design/ Code Inspection	Document/ Briefing Inspection	Over View	Kick Off	FRR	PDR	CDR	UAT	SRR
Project Sponsor			R				R		R
Senior Manager			R	R			R		R
Project Manager				R	R	R	R	R	R
Project Software Manager				R	R	R	R	R	R
Software Quality Assurance Analyst	R	R	R	R	R	R	R	R	R
Configuration Control Analyst	R	R		R	R	R	R	R	R
Requirements Analyst	R	R		R	R				
Developers	R	R		R	R	R	R	R	R
Measurement Analyst	O	O	O		O	O	O		O
Primary User(s)/ Customers				R	R	R	R	R	R
Platform Engineering Rep.			O	O	O	O	O	O	O
PI SEPG			O	O	O	O	O	O	O

R - Required O - Optional

Table 5.2-1 Roles and Responsibilities

Role	Required (Y or N)	Contact Name/ Organization- Mailcode	Level of Authority	Contact Phone/ Fax	Contact Email
Project Sponsor	Y	Greg Katnik NASA MK-SIO	Controls total project funding. Top Level Authority	321-867-4744 321-867-9129	gregory.n.katnik@nasa.gov
Senior Manager	Y	Shawn Pifer USA-TIS USH-701A	Controls organizational budget. Controls functional resources applied to project. Reports to Sponsor.	281-212-6039 281-212-6045	Shawn.r.pifer@usa-spaceops.com
Project Manager	Y	Spencer Beard USA-TIS USH-701A	Make decisions on the project. Answers to Sr Manager & Project Sponsor	281-280-6845 281-212-6045	spencer.d.beard@usa-spaceops.com
		USA-TIS USH-701A	activities on project. Reports to SW Manager.	281-212-6045	spaceops.com
Requirements Analyst	Y	Spencer Beard USA-TIS USH-701A	Determines Requirements activities on project. Reports to SW Manager.	281-280-6845 281-212-6045	spencer.d.beard@usa-spaceops.com
Developers	Y	Suzanne Caillouet USA-TIS USH-701A	Makes decisions on software development activities on project. Reports to SW Manager.	281-280-6922 281-212-6045	suzanne.r.caillouet@usa-spaceops.com
Measurement Analyst	Y	Spencer Beard USA-TIS USH-701A	Reports to Project Manager.	281-280-6845 281-212-6045	spencer.d.beard@usa-spaceops.com
Level 2 Primary Customer Manager	Y	Al Fazio Boeing RI 721Z-HD46	Makes decisions on user-generated tests. Reports to IWG chairman	321-861-4630 321-861-6070	albert.a.fazio@boeing.com
Level 2 Primary Customer	Y	Lew Adam Boeing RI 721Z-HD46	Makes decisions on user-generated tests. Reports to Project Manager	321-861-3859 321-861-6070	Lewis.w.adam

Stakeholders are identified in the project Software Development Plan

Stakeholders are primarily involved in the milestone reviews and participation is documented in the minutes

To: IWG Distribution

From: Robert Westerman

Subject: IWG Minutes

The IWG met on Wednesday, July 18, 2007 at 10:20 a.m.

Administration

Roll Call

L. Adam, G. Bauch, S. Beard, D. Bly, J. Cooper, B. Diller, C. DuLac, B. Giblin, J. Gray, G. Katnik, R. Kessler, L. Krebs, T. Marren, W. Pietruk, J. Richardson, G. Roule, J. Vayda, A. Webber, R. Westerman, C. White

Agenda Items

1. DCMS/IRDB FRR-PDR-CDR

Spencer Beard reviewed the Functional Requirements Review/Preliminary Design Review/Critical Design Review (FRR/PDR/CDR) presentation without any issues. Each required signatory gave verbal approval for the Authority To Proceed (ATP). Signatures and closure of the FRR/PDR/CDR ATP will be obtained after scheduling of User Acceptance Testing (UAT) and release of the Software Test Plan (STP). A meeting will be tentatively scheduled for Friday, July 20th, to review the STP and schedule UAT.

Base Measure and Measurement Specification Templates Ensure Standard Metrics

Base Measure	*Name of Base Measure*
Relevant Entities	*Identify what is to be measured*
Attributes	*Identify properties or characteristics of the base measure*
Units of Measurement	*Identify the standard unit*
Measurement Method (How)	*Identify the counting rules to calculate the base measure*
Implementation Approach	
- Who	*Identify the tools, personnel, or other mechanisms that gather the measure*
- When/How Often	*Identify When/How Often the information is obtained*
- Reporting	*Identify Metrics that information is reported on*
- Stored	*Identify where the information will be stored*

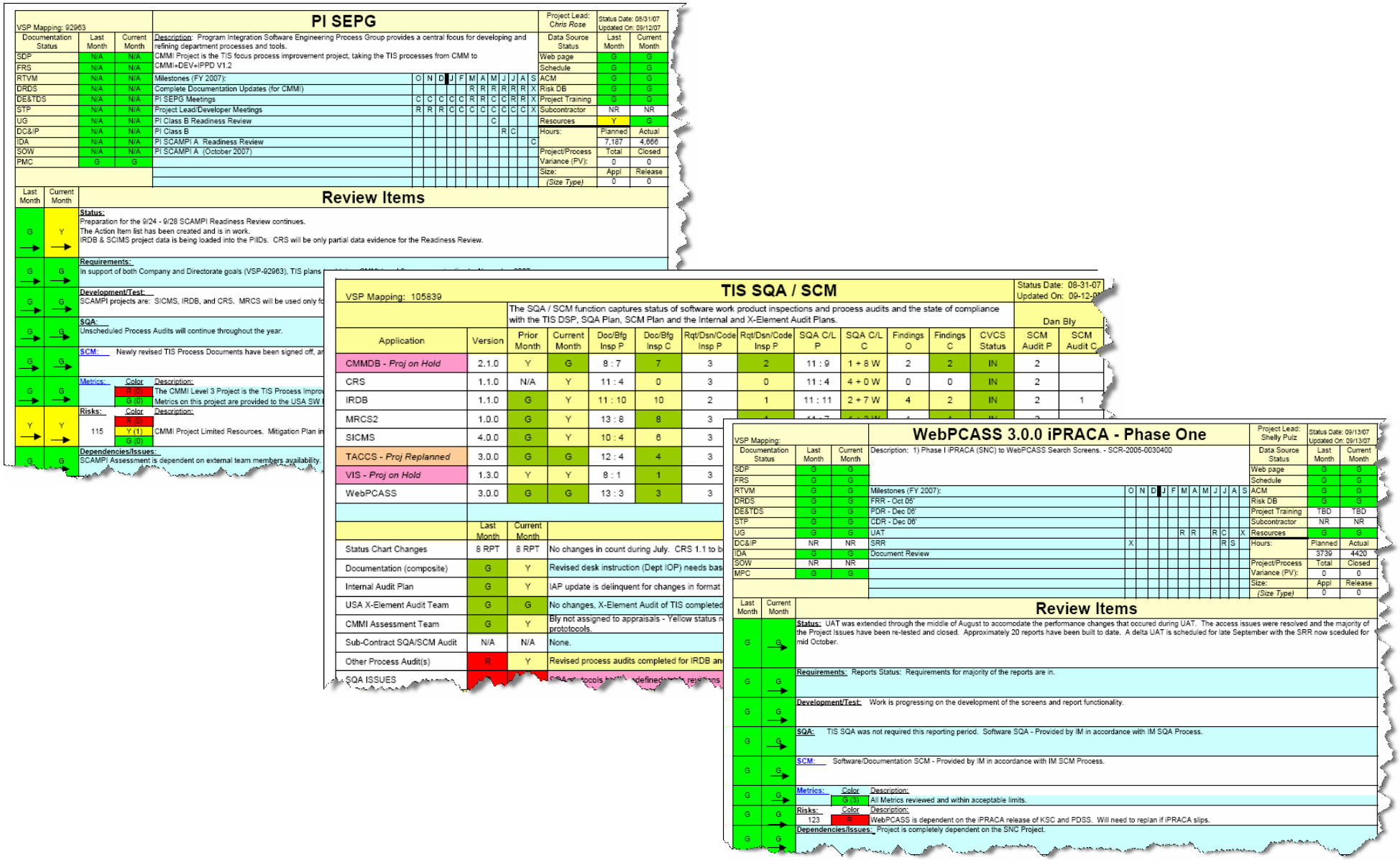
Base Measure – a distinct property or characteristic of an entity and the method for quantifying it

The raw data such as start/end dates, hours, counts, etc. used for deriving measurable data such as variances, trends, etc.

Derived Measure – data resulting from the mathematical function of 2 or more base measures

Metrics Specification Date	*Date the metric was approved*
Metric Number - Title	*Unique number assigned to the metric and short title*
Metric Description/Purpose	*Describes the metric and why/how the metric is used*
Metric Sample	*Depicts the representation output of the metric*
Analysis Model	*Describe the analysis approach and how to interpret the data. Document any data manipulation performed.*
Decision Criteria	*Describe thresholds, limits, or targets to trigger action or further investigation*
Derived Measures	*List Derived Measures from Section 6.0*
Base Measures	*List Base Measures from Section 6.0*
Implementation Approach	*Describe the tools, how gathered, frequency, provided by, reviewed by, and storage*
- Who	*Describe the tools, personnel, or other mechanisms that gather the measure, who provided to and who reviewed by*
- When/How Often	*Describe When/How Often the measure is gathered*
- Reporting	*Describe to who and frequency that metric is reported*
- Stored	*Describe the storage of the measure*
Associated Metrics	*List other metrics that are related and that should be reviewed in association with this one*
Measurement Objective(s)	*See section 3.2*
Required List	*Specify whether or not metric is required for projects, processes or both.*

Project Review Charts Summarize Project Status and Process Areas



PI SEPG

VSP Mapping: 92963

Project Lead: *Chris Rose*

Status Date: 08/31/07
Updated On: 09/12/07

Documentation Status	Last Month	Current Month
SDP	N/A	N/A
FRS	N/A	N/A
RTVM	N/A	N/A
DRDS	N/A	N/A
DE&TDS	N/A	N/A
STP	N/A	N/A
UG	N/A	N/A
DC&IP	N/A	N/A
IDA	N/A	N/A
SOW	N/A	N/A
PMC	G	G

Description: Program Integration Software Engineering Process Group provides a central focus for developing and refining department processes and tools.

CMMI Project is the TIS focus process improvement project, taking the TIS processes from CMM to CMMI+DEV+IPPD V1.2

Milestones (FY 2007):	O	N	D	J	F	M	A	M	J	J	A	S
Complete Documentation Updates (for CMMI)					R	R	R	R	R	R	X	
PI SEPG Meetings	C	C	C	C	C	R	R	C	C	R	R	X
Project Lead/Developer Meetings	R	R	R	C	C	C	C	C	C	C	C	X
PI Class B Readiness Review								C				
PI Class B										R	C	
PI SCAMPI A Readiness Review												C
PI SCAMPI A (October 2007)												

Data Source Status	Last Month	Current Month
Web page	G	G
Schedule	G	G
ACM	G	G
Risk DB	G	G
Project Training	G	G
Subcontractor	NR	NR
Resources	Y	G
Hours:	Planned	Actual
	7,187	4,666
Project/Process	Total	Closed
Variance (PV):	0	0
Size:	Appl	Release
(Size Type)	0	0

Review Items

Last Month	Current Month	
G	Y	**Status:** Preparation for the 9/24 - 9/28 SCAMPI Readiness Review continues. The Action Item list has been created and is in work. IRDB & SCIMS project data is being loaded into the PIIDs. CRS will be only partial data evidence for the Readiness Review.
G	G	**Requirements:** In support of both Company and Directorate goals (VSP-92963), TIS plans
G	G	**Development/Test:** SCAMPI projects are: SICMS, IRDB, and CRS. MRCS will be used only fo
G	G	**SQA:** Unscheduled Process Audits will continue throughout the year.
G	G	**SCM:** Newly revised TIS Process Documents have been signed off, ar
G	G	**Metrics:** R (0) The CMMI Level 3 Project is the TIS Process Improv; G (0) Metrics on this project are provided to the USA SW
Y	Y	**Risks:** 115 R (0); Y (1) CMMI Project Limited Resources. Mitigation Plan in; G (0)
G	G	**Dependencies/Issues:** SCAMPI Assessment is dependent on external team members availability

TIS SQA / SCM

VSP Mapping: 105839

Status Date: 08-31-07
Updated On: 09-12-0

Dan Bly

The SQA / SCM function captures status of software work product inspections and process audits and the state of compliance with the TIS DSP, SQA Plan, SCM Plan and the Internal and X-Element Audit Plans.

Application	Version	Prior Month	Current Month	Doc/Bfg Insp P	Doc/Bfg Insp C	Rqt/Dsn/Code Insp P	Rqt/Dsn/Code Insp P	SQA C/L P	SQA C/L C	Findings O	Findings C	CVCS Status	SCM Audit P	SCM Audit C
CMMDB - *Proj on Hold*	2.1.0	Y	G	8 : 7	7	3	2	11 : 9	1 + 8 W	2	2	IN	2	
CRS	1.1.0	N/A	Y	11 : 4	0	3	0	11 : 4	4 + 0 W	0	0	IN	2	
IRDB	1.1.0	G	Y	11 : 10	10	2	1	11 : 11	2 + 7 W	4	2	IN	2	1
MRCS2	1.0.0	G	Y	13 : 8	8	3								
SICMS	4.0.0	G	Y	10 : 4	6	3								
TACCS - *Proj Replanned*	3.0.0	G	G	12 : 4	4	3								
VIS - *Proj on Hold*	1.3.0	Y	Y	8 : 1	1	3								
WebPCASS	3.0.0	G	G	13 : 3	3	3								

	Last Month	Current Month	
Status Chart Changes	8 RPT	8 RPT	No changes in count during July. CRS 1.1 to b
Documentation (composite)	G	Y	Revised desk instruction (Dept IOP) needs bas
Internal Audit Plan	G	Y	IAP update is delinquent for changes in format
USA X-Element Audit Team	G	G	No changes, X-Element Audit of TIS completed
CMMI Assessment Team	G	Y	Bly not assigned to appraisals - Yellow status r prototocols.
Sub-Contract SQA/SCM Audit	N/A	N/A	None.
Other Process Audit(s)	R	Y	Revised process audits completed for IRDB an
SQA ISSUES			SQA protocols h defined rev ns

WebPCASS 3.0.0 iPRACA - Phase One

VSP Mapping:

Project Lead: Shelly Pulz

Status Date: 09/13/07
Updated On: 09/13/07

Documentation Status	Last Month	Current Month
SDP	G	G
FRS	G	G
RTVM	G	G
DRDS	G	G
DE&TDS	G	G
STP	G	G
UG	G	G
DC&IP	NR	NR
IDA	G	G
SOW	NR	NR
MPC	G	G

Description: 1) Phase I iPRACA (SNC) to WebPCASS Search Screens. - SCR-2005-0030400

Milestones (FY 2007):	O	N	D	J	F	M	A	M	J	J	A	S
FRR - Oct 05'												
PDR - Dec 06'												
CDR - Dec 06'												
UAT						R	R		R	C		X
SRR	X								R	S		
Document Review												

Data Source Status	Last Month	Current Month
Web page	G	G
Schedule	G	G
ACM	G	G
Risk DB	G	G
Project Training	TBD	TBD
Subcontractor	NR	NR
Resources	G	G
Hours:	Planned	Actual
	3739	4420
Project/Process	Total	Closed
Variance (PV):	0	0
Size:	Appl	Release
(Size Type)	0	0

Review Items

Last Month	Current Month	
G	G	**Status:** UAT was extended through the middle of August to accomodate the performance changes that occured during UAT. The access issues were resolved and the majority of the Project Issues have been re-tested and closed. Approximately 20 reports have been built to date. A delta UAT is scheduled for late September with the SRR now sceduled for mid October.
G	G	**Requirements:** Reports Status: Requirements for majority of the reports are in.
G	G	**Development/Test:** Work is progressing on the development of the screens and report functionality.
G	G	**SQA:** TIS SQA was not required this reporting period. Software SQA - Provided by IM in accordance with IM SQA Process.
G	G	**SCM:** Software/Documentation SCM - Provided by IM in accordance with IM SCM Process.
G	G	**Metrics:** G (3) All Metrics reviewed and within acceptable limits.
G	G	**Risks:** 123 R WebPCASS is dependent on the iPRACA release of KSC and PDSS. Will need to replan if iPRACA slips.
G	G	**Dependencies/Issues:** Project is completely dependent on the SNC Project.

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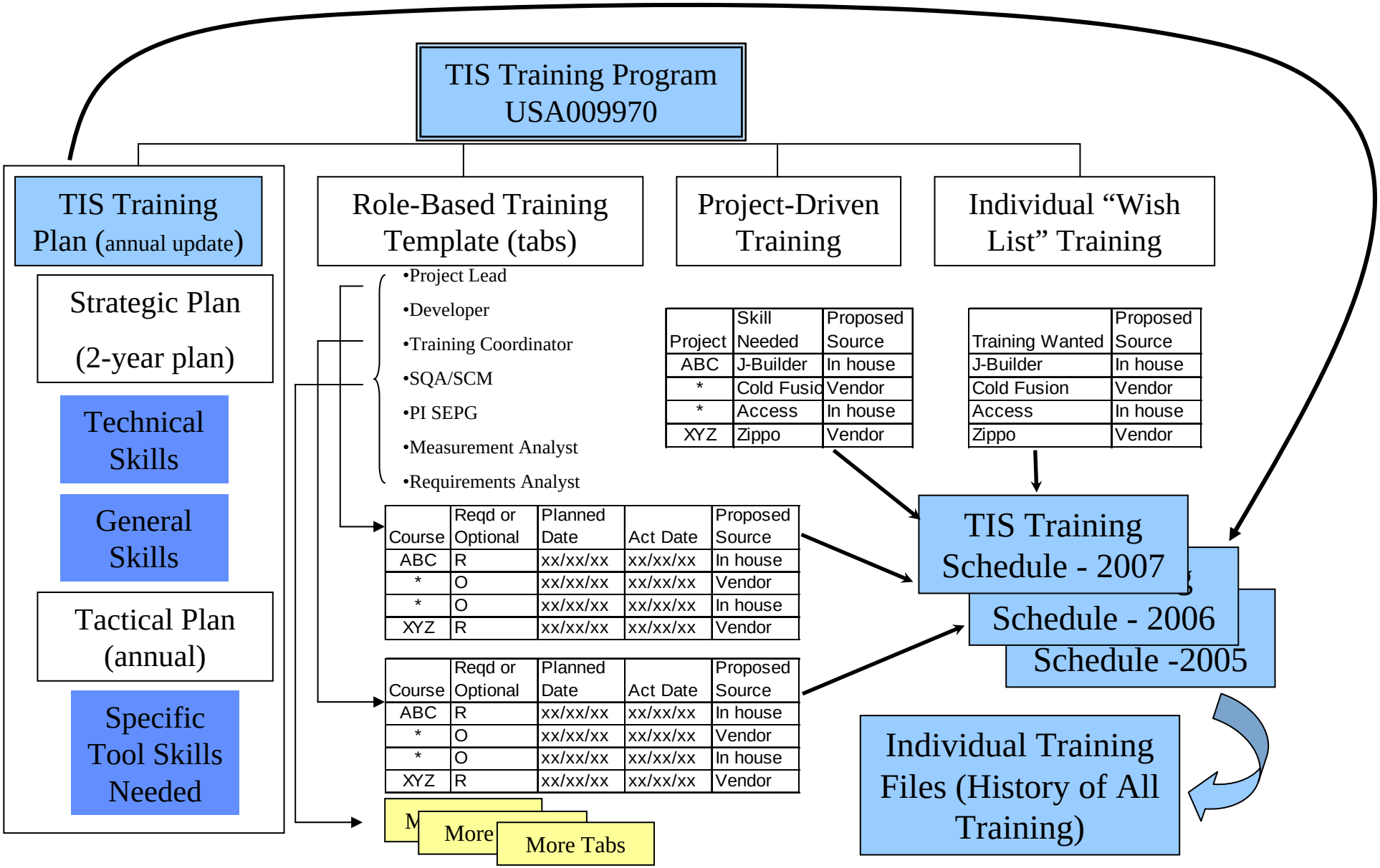
Training

- Training is necessary to ensure understanding and can provide confirmation of the documented process
  - Training Program
  - Training Status
  - Training Effectiveness

Training Plan Integrates Near Term and Long Term Needs of Roles, Projects and Individuals



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Training Plans, Schedules and Status

TIS General <Name>

SKILL NAME	PRIORITY	NEED THIS YEAR	DATE COMP	REFRESHER	TRAINING RESPONSIBILITY	TRAINING METHOD (X) 1	2	3	4	5	6	COMMENTS
USA MANDATORY REQUIRED TRAINING												
2007 Annual Ethics	1											
Module I - Technology Protection For USA Employees	1											RM160USA
Procurement Integrity & TINA (CP104USA)	1											
Organizational Conflicts Of Interest	2											RM167USA
Control Of Sensitive Information	2											RM168USA
T Security Awareness: All Users (Annually)	1											
T Security Priviledged Users	2											Required for Personnel with priviledged access to USA managed IT resources
T Security For Management	2											
TimeKeeping Awareness (CP106USA)	1											
Risk Management (Annually For Mgrs/selected others)	2											
Risk Associated Trouble Spots-RATS (Annually)	1											
USA HAZCOM (Annually)	1											
Voluntary Protection Program (One Time Only)	1											
Safety Awareness (One Time Only)	1											
Safety Computer Ergonomics (Every 3 Years)	1											
Emergency Preparedness (Annually)	2											
COMPANY												
Intranet Curator Training	1											
Intranet Responsible Data Manager (RDM) Training	1											
HR Orientation	2											

Defined per individual by role and maintained with history

X = Mandatory, O = Optional
Date: Planned (P) Completed (C) Blank Cell = Not Required

	Emp #1	Date	Emp #2	Date	Emp #3	Date	Emp #4	Da
* Module II - Technology Protection for USA Export	O	2/26	O		O		O	
* Procurement Integrity & Truth In Negotiations Act	X	2/26	X	3/16	X	9/11	X	10
* IT Security Awareness (X, annual)	X	2/26	X	3/13	X	9/11	X	10/3
* IT Security Privileged Users (X, annual)	X	6/1	X	3/15	X	9/11		
* IT Security For Management (X, annual)								
* USA Hazard Communications (HAZCOM) (X, annual)	X	6/1	X	3/16	X	9/26	X	10/3
Risk Management (X, annual for Mgmt.)	O	2/26						
Mishap Reporting (QG265USA)								
* Risk Associated Trouble Spots (RATS) (X, annual)								
Personal Warranty (QG122USA)								
* USA Office Ergonomics (Once every 3 years)								
Control Of Sensitive Information								
Organizational Conflicts Of Interest								
Records Management (SG102USA)								
CMM Required Training								
CMMI: Introduction To CMMI Combined								
CMMI Measurement & Analysis Workshop								
TIS Training Program (TIS001)								
Other Training								
Lean Six Sigma (L6S) Familiarization for Managers								
Using JBuilder								
How To Get More Organized								
MS Outlook (Introduction)								
MS Word For Windows Level 1								
Adult CPR/AED Review								
MS Outlook Level 2								

Roll up of annual training

TIS Training Status – August 2007

- **Individual Training Plan Review/Updates** – In Work (manually incorporating new format into each individual training file - 90% complete)
- **Department Rollup Training** – Current
- **Company Mandatory Training Status** – 18 out of 25 employees complete (75% overall complete for CY'07)
- **Training Coordinator Hours** - Planned: 1100 Used to Date: 466
- **July Training**:
  - MS Outlook Level 1 — 1 employee *(complete 07/11/07)*
  - NMA – Interpersonal Communication Skills — 1 employee *(complete 07/25/07)*
  - Effective Change Management — 2 employees *(complete 07/25/07)*
  - NMA Live! Online – Moving Beyond Metrics — 1 employee *(complete 07/26/07)*
  - NMA Certified Manager — 1 employee *(complete 07/31/07)*
- **August Training**:
  - NMA Live! Online – So That's How You Do That! MS PP — 1 employee *(complete 08/09/07)*
  - NMA – How To Become More Active With Multiple Priorities — 1 employee *(complete 08/16/07)*

Monthly Status

Training Effectiveness Surveys Support Training Usefulness and Future Prospects

TIS Training Effectiveness Form

Name:	
Date:	(ex. mm/dd/yyyy)
Course Title:	--Select Course--
Course Date:	(ex. mm/dd/yyyy)

Please rate each question by checking the appropriate box and adding comments.

		No	Some What			Yes
		1	2	3	4	5
1.	Was the training useful in fulfilling your current job requirements?	C	C	C	C	C
2.	Are you currently using skills obtained from the training course?	C	C	C	C	C
3.	Would you recommend this training course to others?	C	C	C	C	C
4.	Has the training allowed you to become more effective and/or efficient at your job?	C	C	C	C	C
5.	Has the training assisted you with taking on new or additional tasks and responsibilities?	C	C	C	C	C

Please respond to the following quest

en do you anticipate applying your new skills

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Preparing and Interpreting/Incorporating Results

- New source of energy is a must in order to get to the finish line
- Standardization, entry of evidence, and configuration management of PIIDs requires organization and discipline
- Team cooperation and collaboration are aids in ensuring success

PIID Sample

IPM_SCAMPI_A_9.xls

Goal	Practice	PRJ	Evidence			
			Direct	Direct Hyperlink	Indirect	Indirect Hyperlink
SG 1	SP 1.1 Establish and maintain the project's defined process from project startup through life of project.	Org	DSP - USA007683 *Section 4.2.1.4 identifies that the project lead will determine the process (describes how) for the project using the DSP and any applicable tailoring or*	DSP		
		All	SDP (Document) *Section 1.2 "Approach" describes the project's process and points to SDP section 8.0 for any applicable tailoring and any process waivers. Section 1.2 also specifies the project's defined software process as the TIS DSP with any tailoring or process waivers identified in Section 8.0.* *IPPD Note: There is no tailoring of the organization's defined process specific to IPPD.*		SDP Revision log and approval (formulate) *Sign off on the SDP shows approval of the project's defined process.*	
		All	Project Schedule (use) *The process requires the use of a project schedule. Link is to the TIS Schedule Template.*			
	SP 1.2 Use organizational process assets and measurement repository for estimating and planning the project's activities.	ORG	DSP - USA007683 *Section 4.2.1.9 directs the use of past actuals for estimation and the use organizational process assets in developing the plan and other work products.*	DSP		
		All	SDP (document) *Software Development Plan for the project is based on the SDP Template and previous projects.*		SDP approval (formulate) *Sign off on the SDP shows approval of the project's estimating and planning process. Summarized estimated effort in Section 5.4 "Staffing requirements/Plan".*	
		All	TIS Estimation Tool (use) *The estimation tool uses standard values calibrated using historical data. The SDP directs the use of the TIS Estimation Tool by the Project Lead to produce the project Estimation Worksheet (project specific effort estimate).* *Log shows updates to estimation values in the tool. When Project Leads modify values calculated in the TIS Estimation Tool, a reference number is entered in the "BOE" column in the Estimation worksheet, and a rationale is placed in the BOE Tab worksheet.*			

PIID Summary Visual Shows Where Work is Required

Who's Resp	Chris	Chris	Chris	Chris	Donna	Donna	Donna	Chris	Chris	Chris	Chris	Chris	Chris	Chris	Chris	Chris	Chris	Chris	Chris
Process Areas	Engr	Proj Mgmt	Proj Mgmt	Proj Mgmt	Support	Support	Support	Engr	Engr	Engr	Engr	Engr	Process Mgmt	Process Mgmt	Process Mgmt	Proj Mgmt	Proj Mgmt	Support	Discipline Amplification
Maturity Level	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	
Process Areas	REQM	PP	PMC	SAM	MA	PPQA	CM	RD	TS	PI	VER	VAL	OPF	OPD	OT	IPM	RSKM	DAR	IPPD
SG1																			
SP 1.1	S	S	S		S	S	S	S	P	P	P	P	S	S	S	S	S	S	
SP 1.2	S	S	S		S	S	S	P	S	P	S	S	S	S	S	S	S	S	
SP 1.3	P	S	S		S		P		P	S	S	S	S	S	S	S	S	P	
SP 1.4	S	S	S		S									S	S	S		P	
SP 1.5	P		S											S		S		P	
SP 1.6			S															P	
SP 1.7			S																
SG2																			
SP 2.1		S	S		S	S	P	S	S	P	S	P	S		S	S	S		
SP 2.2		S	S		S	P	S	S	S	P	P	S	S		S	S	S		
SP 2.3		S	S		P			P	S		S		S		S	S			
SP 2.4		S			P				S				S						
SP 2.5		S																	
SP 2.6		S																	
SP 2.7		S																	
SG3																			
SP 3.1		S					P	S	S	P	S					S	S		
SP 3.2		S					P	S	S	P	P					S	S		
SP 3.3		S						P		S									
SP 3.4								S		S									
SP 3.5								P											

ange from CMM

rmation from Borland on IPPD Direction

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PIID Evidence Shows Where Evidence is Required

The Road to CMMI

		SG1							SG2							SG3					GG2										GG3		
		1.1	1.2	1.3	1.4	1.5	1.6	1.7	2.1	2.2	2.3	2.4	2.5	2.6	2.7	3.1	3.2	3.3	3.4	3.5	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	2.10	3.1	3.2	
Model	Green	13	11	8	7	3	3	1	13	10	6	2	1	1	1	4	5	4	3	2	13	10	10	11	13	10	9	10	4	12	11	2	213
	Yellow	1	4	3	1	2	1	0	0	3	2	1	0	0	0	4	3	1	1	0	0	3	3	2	0	3	4	3	0	1	1	11	58
	Red	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0	1	0	12
	X	2	2	2	0	0	0	0	2	2	1	0	0	0	0	1	1	0	0	0	4	4	4	4	4	4	4	4	4	4	4	4	61
IRDB	Green	7	4	3	2	2	0	0	4	3	0	1	1	1	1	2	2	0	0	0	11	4	2	6	9	5	0	3	3	6	6	1	89
	Yellow	7	7	5	5	1	3	1	8	9	7	2	0	0	0	2	3	4	3	2	2	7	9	5	4	5	10	7	0	6	6	2	132
	Red	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	12
	Blue	1	3	3	1	2	1	0	0	1	1	0	0	0	0	4	2	1	1	0	0	2	2	2	0	3	3	3	2	1	1	10	50
	X	2	2	2	0	0	0	0	2	2	1	0	0	0	0	1	1	0	0	0	4	4	4	4	4	4	4	4	4	4	4	4	61
SICMS	Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Yellow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Blue	17	17	14	8	5	4	1	15	15	9	3	1	1	1	9	9	5	4	2	17	17	17	17	17	17	17	17	17	17	17	17	344
	X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CRS	Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Yellow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Blue	17	17	14	8	5	4	1	15	15	9	3	1	1	1	9	9	5	4	2	17	17	17	17	17	17	17	17	17	17	17	17	344
	X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	Green	20	15	11	9	5	3	1	17	13	6	3	2	2	2	6	7	4	3	2	24	14	12	17	22	15	9	13	7	18	17	3	302
	Yellow	8	11	8	6	3	4	1	8	12	9	3	0	0	0	6	6	5	4	2	2	10	12	7	4	8	14	10	0	7	7	13	190
	Red	1	1	2	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	17	0	1	0	24
	Blue	35	37	31	17	12	9	2	30	31	19	6	2	2	2	22	20	11	9	4	34	36	36	36	34	37	37	37	36	35	35	44	738
	X	4	4	4	0	0	0	0	4	4	2	0	0	0	0	2	2	0	0	0	8	8	8	8	8	8	8	8	8	8	8	8	122
																																	1376

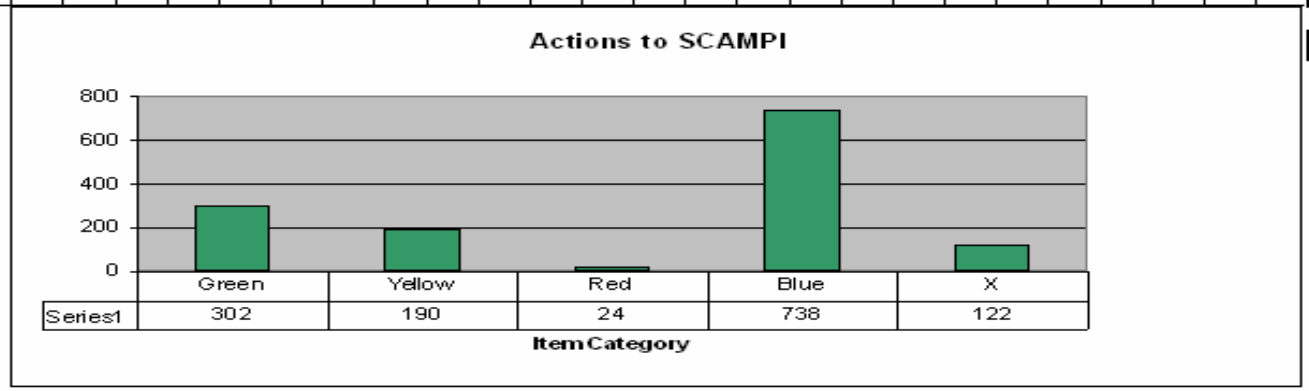
Green - Good To Go

Yellow - Minor Issue

Red - Show Stopper

Blue - No Evidence Yet

X - Not reviewed for Class B



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Summary

Implementation Strategy

- CMMI Project must be well planned with management commitment
- CMMI Project must be monitored regularly
- Personnel may have to perform multiple roles
  - PIID developers were SEPG members
  - SQA and SCM performed by same individual
  - Project leads are trained to perform multiple roles (i.e. SQA, SCM, RD and REQM activities)
- Applications may be implement with a single developer/project lead, but the process must support multiple developers/project leads

Implementing

- All projects use the SAME standardized process documents, forms, templates, and checklists
- Tools are complementary and build on each other
- All employees required to take all roles of department training which helped with institutionalization

Preparing and Interpreting/Incorporating Results

- PIIDs were built and reviewed by two department personnel who worked closely with Lead Appraiser during preparation

Closing Point

Achieving a CMMI-Dev + IPPD Version 1.2 Maturity Level *3* in a small organization can be achieved through planning, hard work, dedication, commitment and a little fun. Although it can be intimidating, frustrating, and disheartening at times the end result of these efforts are consistent and repeatable processes that promote stability and better communication.