

“Who needs that process stuff anyway?” A practical example of process discipline to improve deployment

Raytheon Missile Systems

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Organization and Accomplishments

Raytheon Missile Systems, Headquarters Tucson, AZ



Employees: 11,000



2005 Sales: \$4.1 B



**World Largest Appraised SEI
CMMI Level 3 Organization
December 2004**



**SW-CMM® Level 5 in
November 2001**



**SE / SW CMMI® V1.1 Staged
Representation Level 3 in
December 2004**



The Situation

- **“The Conflict”**
 - **No insight into progress toward CMMI level 3 goal**
 - What Specific & Generic Practices by PA assessment ready across Front Runners
- **“The Questions”**
 - How much evidence do we need?
 - How do we know where we are?
 - How many process areas are deployed?
 - What evidence are we going to collect?
 - Where are we with evidence collection?
 - How much do we collected?
 - Where is it?
 - Etc, Etc, Etc
- **“What to do”?**
 - **R6S Project** –
 - Show 6 stages – Visualize, Commit, Prioritization, Characterization, Improve, Achieve
 - Tools - Brainstorming, affinitizing, prioritizing, root cause analysis, & consensus building

Observation – Undesirable Effects

Key elements of our approach

GOAL:

- Use a proven approach to rapidly fix a major problem
 - Provide quick, accurate, detailed graphic results to improved visibility into SCAMPI readiness
 - Quick response < 6 weeks

Vision

- Create a vehicle that can be used to track progress of the RMS CMMI Project toward attaining level 3

Requirements

- Involve key stakeholders
 - Leadership
 - Deployment teams
 - Process Area Experts
- Collecting & reporting status to the stakeholders in a consistent, deterministic, and timely manner
- Graphic reports of key metrics

Use a proven approach to improve the situation

Visualize

- **Problem Statement**
- **The CMMI Deployment Tracking Spreadsheet & Reporting Tools where difficult to use, inaccurately populated, and consequently not readily usable by the CMMI Leadership Team to monitor project status**

- **Vision**
- **Implement a deployment tracking process to monitor progress towards attaining CMMI Level 3 at RMS**
 - **Reports tracking progress are required**

- **Scope**
- **Deployment Tracking Spreadsheet updates shall be ready in less than 6 weeks**

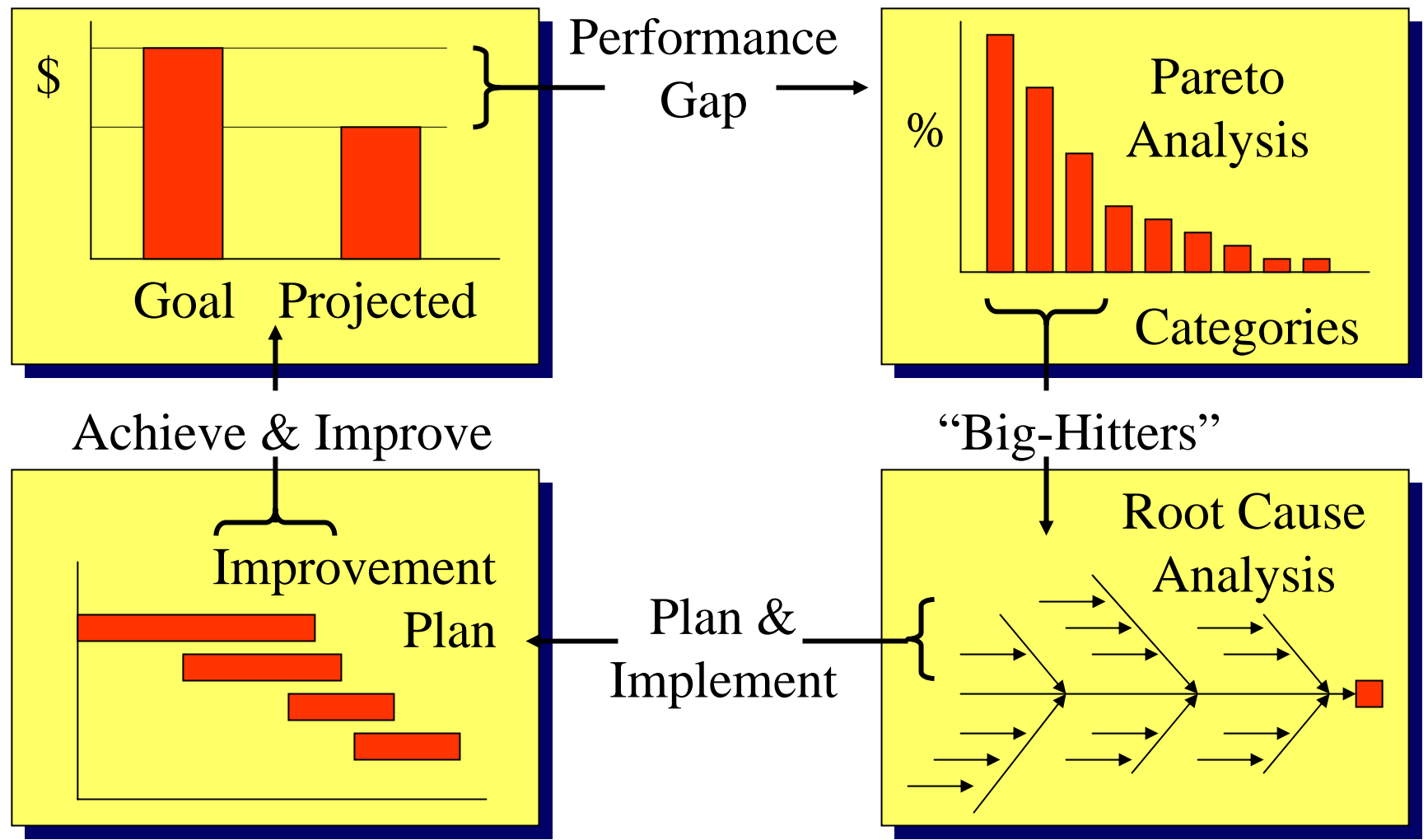
Clearly define the desired state

R6σ Process Model



Our *Knowledge Based Process* for *Transforming Our Culture* to *Maximize Customer Value* and *Grow Our Business*

Applying $R6\sigma$ to What We Do



How it works

- **Met with Sponsors**
 - **Outlines approach & Project requirements**
- **Obtained commitment to proceed:**
 - Vision, Commitment (do whatever it takes), Scheduled this as an agenda item for Project all hands meeting (5/18/04) to discuss & gather survey comments
 - Meeting agenda with stakeholders
 - » Project Vision & Deliverables
 - » Project Assumptions
 - » Data Gathering approach
 - » Determination of current Process Flow
 - » Deliverable
 - » Assumptions
 - » Stakeholder Tasks – how they could make this successful

Obtained Leadership commitment to the Plan

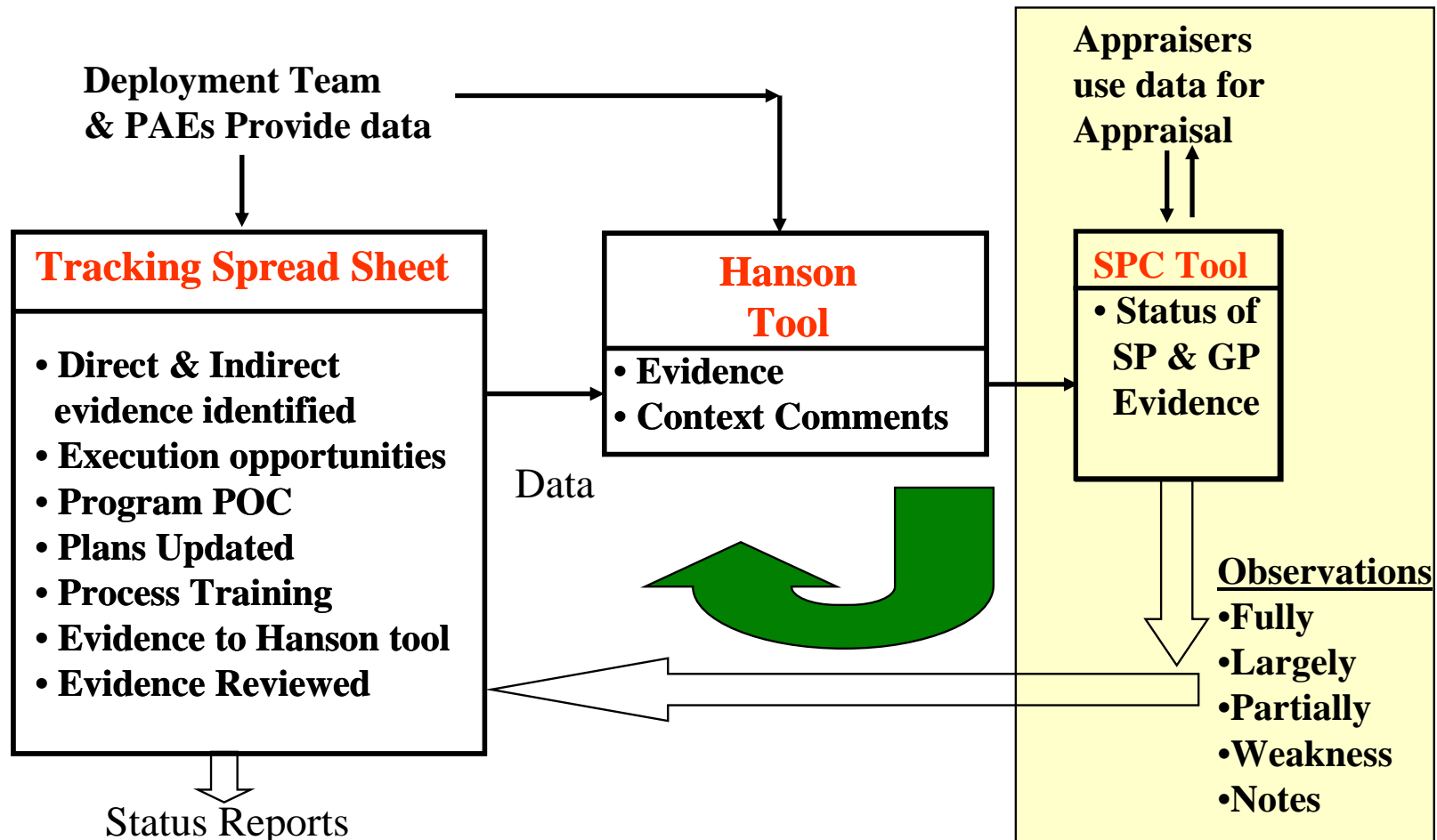
- **Updated Deployment Tracking Spreadsheet**
- **Updated Run Rules & Process Flow & training**
- **Reporting Charts**
 - **Deployment & Evidence Rate Charts (1 per Program & Roll up)**
 - **Program Plans / TDs by PA and Practice (1 per Program)**
 - **Program Opportunities by Program & PA**
 - **Evidence Status by Program & PA**
 - **Program Evidence by PA & SP (1 per Program)**
 - **Program Evidence by PA & GP (1 per Program)**
 - **Rollup of all evidence across all Front runners required for SCAMPI**
- **Demonstrated accurate information usable by the CMMI Project Team**

Clearly define a finite set of deliverables

- **Devised plan to survey PAEs, MOR's, POR's, & Deployment Leads**
 - **Got stakeholders opinion**
- **Fashion a solution that met Sponsor's vision**
 - **Usable by different class of users**
 - **Deployment teams**
 - **Process area Representatives**
 - **Leadership team for status**
 - **Appraisal team for SCAMPI**
 - **Reporting requirement**

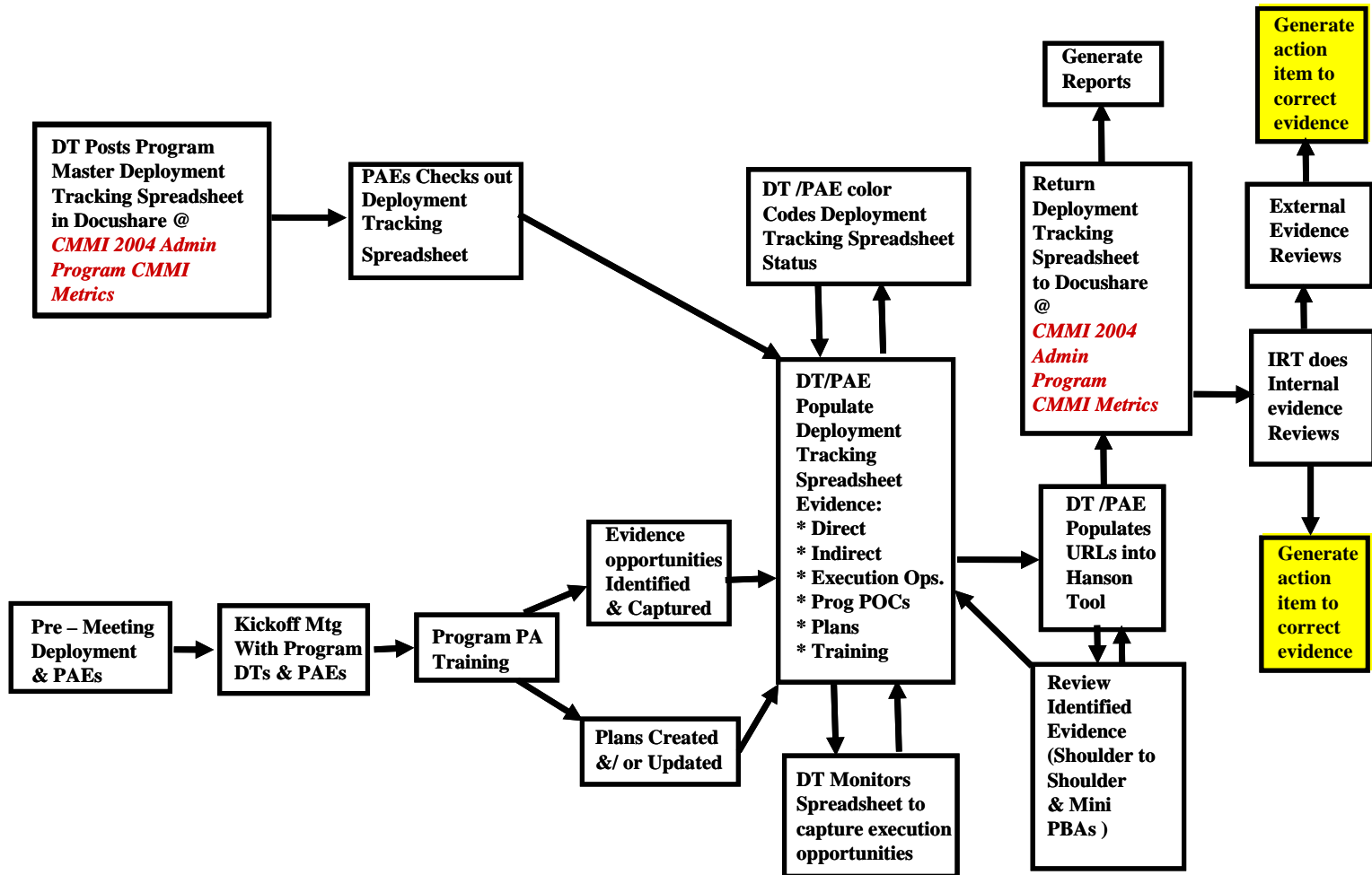
Clearly determined where we were & where headed

Requirements Context Diagram



Appraisal team required a tool

Shared Activities (OLD) Process Flow



Determined current state process flow

Characterization – 1 of 2

- **Survey Questions**

- Describe your Current State
- What are your top 3 Desirables about the Current State?
- What are your top 3 Undesirables about the Current State?
- What specific Run Rules have you developed for your team?
- What is your Ideal Future State? (3 key descriptions)
- What are your change recommendations? Be Specific
- What data do you find useful to you?
- What data is not useful to you?

- **Received 182 inputs from 5/18/04 data gathering session**

- 72% (122) are covered by proposed solution
- 28% (47) are not covered
- (13) Use one tool
 - » The Spreadsheet and the Hanson tool both have unique capabilities
- (9) Opinions about what is useful data
 - » Varies greatly from nothing is useful to everything is useful
- (6) Spreadsheet control
 - » Decision is to not lock spreadsheets and to allow docushare checkout
- (4) Consistency between Spreadsheet and Hanson tool
 - » Required to ensure accuracy of content and eliminate confusion on what is loaded versus what is required
- 13 inputs are non-actionable

Use a proven approach to improve the situation

- Deliverables – See Tasks Below
- Improvement Plan Schedule

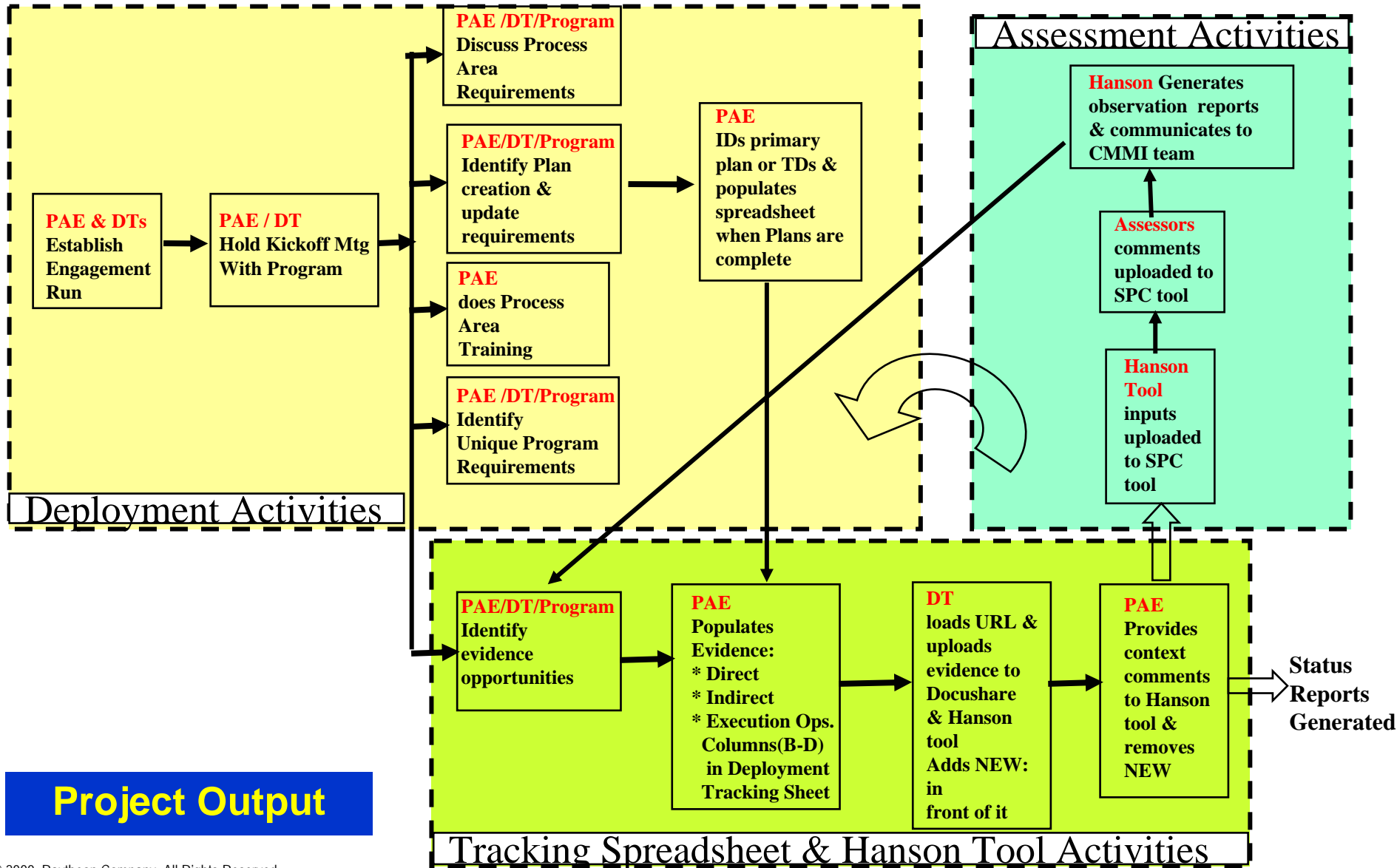
Task	Owner	Start Date	End Date	When	Total L OE
Develop proposed task list	Mike	5/14/2004	5/16/2004	Sunday	2.0
Create proposed Problem Statement	Bill	5/14/2004	5/17/2004	AM	0.4
Create proposed Vision	Bill	5/15/2004	5/17/2004	AM	0.4
Create proposed expectations	Bill	5/16/2004	5/17/2004	AM	0.6
Create proposed deliverables	Bill	5/17/2004	5/17/2004	AM	0.6
Get Peckney to start looking at current matrix & data guidelines	Mike / Bill	5/17/2004	5/17/2004	AM	0.5
Gather/Understand all Reporting Charts	Mike	5/17/2004	5/17/2004	AM	2.0
Obtain Sponsor agreement on Tasks 1-5	Mike / Bill	5/17/2004	5/17/2004	Lunchtime	2.0
Identify & Invite Stakeholders to 5/18 PAE/DT Meeting	Mike	5/17/2004	5/17/2004	PM	1.5
Develop questions to ask Stakeholders at 5/18 PAE/DT Meeting	Bill	5/16/2004	5/17/2004	PM	1.0
Prepare agenda & Presentation for 5/18 PAE/DT Meeting	Mike / Bill	5/16/2004	5/17/2004	PM	2.0
Gather data from all Stakeholders (may have to call some directly)	Mike / Bill	5/18/2004	5/18/2004	AM	12.0
Develop Current State Descriptors	Bill	5/18/2004	5/18/2004	PM	3.0
Develop a Current State Process Flow	Bill	5/18/2004	5/18/2004	PM	3.0
Create Future State Descriptors from Stakeholder inputs	Mike	5/18/2004	5/18/2004	PM	3.0
Determine Root Causes for Undesirables	Mike / Bill	5/19/2004	5/19/2004	AM	3.0
Identify the Gaps between Current & Future States	Mike / Bill	5/19/2004	5/19/2004	AM	3.0
Merge Root Causes & Gaps & Affinitize the list	Mike	5/19/2004	5/19/2004	Lunchtime	3.0
Brainstorm Solutions to the Affinitized List	Mike / Bill	5/19/2004	5/19/2004	PM	5.0
Prioritize Brainstormed Solutions	Mike / Bill	5/19/2004	5/19/2004	PM	2.0
Create a Business Case (Description, Benefit Implementation Process & Cost, etc) for Key Brainstormed Solutions	Mike / Bill	5/19/2004	5/20/2004	PM - AM	6.0
Measure proposed Solutions against Future State Descriptors	Mike	5/20/2004	5/20/2004	AM	2.0
Weekly Progress Report Due	Bill	5/20/2004	5/20/2004	PM	1.0
Obtain Sponsor Approval to Proceed	Mike / Bill	5/20/2004	5/20/2004	PM	4.0
Update Documentation Instructions	Mike / Bill	5/21/2004	5/24/2004	Daily	16.0
Train Stakeholders	Mike / Bill	5/25/2004	5/25/2004	AM	6.0
Weekly Progress Report Due	Bill	5/27/2004	5/27/2004	PM	1.0
Stakeholders Update Spreadsheets	Stakeholders	5/25/2004	6/1/2004	PM	???
Correct Spreadsheet Errors	Mike / Bill	6/1/2004	6/4/2004	Daily - AM	48.0
Measure Success to Deliverables	Mike / Bill	6/4/2004	6/4/2004	AM	2.0
Complete Project Submittal	Mike / Bill	6/4/2004	6/4/2004	PM	2.0
Celebrate	Mike / Bill	6/4/2004	6/4/2004	PM	Infinity

Developed a detailed plan

- **Executed plan**
- **Suggested improvements to meet requirement as project progressed**
- **Got expert & necessary help to transition current state matrix to improved form**
- **Trained stakeholders**
- **Using the matrix to track progress**
- **Using output reports to show status & to focus team efforts**

Execution included deployment & use of Work products

New Process Flow



Project Output

Tracking Run Rules

A	B
#	Run Rule
1	Each Practice will have a minimum of 1 direct evidence item and 1 indirect evidence item / affirmation
2	1 Evidence item per row
3	Deployment Tracking Spreadsheet column owners are ultimately responsible for the completion of their columns
4	Deployment Tracking Spreadsheets are available to all CMMI team members for docushare checkout
5	When you update a Deployment Tracking Spreadsheet, notify applicable DTs & PAEs. DTs will verify links are ok and PAEs will verify content is ok
6	When adding or modifying evidence in the Hanson tool, add "New" in front of the document name
7	When reviewing and/or adding context comments for evidence that has been placed in the Hanson tool, remove the "NEW" from the front of the document name
8	Each Program DT will maintain a golden Deployment Tracking Spreadsheet in a separate location as insurance in the event of a docushare data crash
9	Consistency between the Deployment Tracking Spreadsheet and the Hanson tool will be maintained
10	Scoring for a column is not "Complete" until all activity on the Evidence rows is finished
11	If no evidence is available type in "No Opportunity" in the "Load Latest Review Results" column
12	If "No Opportunity" is used, reduce the "Total # of Opportunities" count at the bottom of the Deployment Tracking Spreadsheet
13	Maintain each program's Deployment Tracking Spreadsheet in the docushare admin area for each program
14	The Practices row order on the Deployment Tracking Spreadsheets will not be modified
15	The Practices row is for "scoring" only.
16	Evidence rows are used to gather evidence information
17	"Total # of Opportunities" is defined as the # of SPs and GPs, minus any identified as "No Opportunity"
18	For the Plan column to be considered "Complete", the Plan must be identified, created / updated, and be ready for program use
19	If no Plan is applicable for a Practice, load the applicable IPDS@RMS Task Descriptor
20	The Plan is loaded at the Practice level
21	If additional Plans need to be referenced, place them in the "Comments" column
22	For the "Identify & Complete Execution Opportunity" column, follow the date (2004/04/18) - opportunity (Team of Three) - Program POC (name) convention. If you don't know the specific day, use the last day of the month.
23	The "Identify Execution Opportunity" column is considered "Complete" when the opportunity information for each evidence row is captured on the Deployment Tracking Spreadsheet.
24	To be able to "Load Evidence", the Execution Opportunity must have occurred and the information captured
25	When Review results are anything but "Fully", the Practice is considered red and the "Complete" for all columns is removed.
26	Select "Loaded in Hanson Tool" to indicate Context Comments have been loaded into the Hanson Tool. Select "None" if no Context Comments are required. Select "Blank" if Context Comments have not yet been loaded into the Hanson Tool.
27	If a Practice has no indirect evidence available, type "Affirmation Required" in the "Comments" column on the Practice row
28	When a review results in a "Largely", "Partially", or "Not", a "Red" color code is reported. DT removes the "Complete" from columns C,F,G, and H. Once a "Complete" is reloaded (which means that an update has occurred) into one of the columns C,F,G, or H, the DT changes the review results column H to "Blank". This resets the colors to restart progressing through yellow and green.
29	When uploading URLs, do not paste the document name, because if the document is changed, the link will be broken. Example to use: http://ds.rms.ray.com/dscg/ids.py/Get/File-209214 . Avoid: http://ds.rms.ray.com/dscg/ids.py/Get/File-209214/TTL_Master_Status_Template.xls . Browse to the file using the DocuShare client then right-click on the file, edit, copy URL.
30	If column E (Identify Execution Opportunity) has not been completed on an evidence row, and the opportunity has already occurred and been loaded into the Hanson Tool, then an alternative to loading "Date - Opportunity - POC" is to load "OBE - POC". Leaving the cell "blank" or using "na" is not a suitable alternative.
31	Order evidence supporting each practice by importance in the Hanson Tool.
32	To assist the Assessors review, Context Comments should contain the following 4 parts, as appropriate: <ol style="list-style-type: none"> 1. Applicable page # or location in the evidence document; 2. What part of the practice or sub-practice the evidence answers; 3. Which thread the evidence ties to; and 4. Historical background/perspective of the document

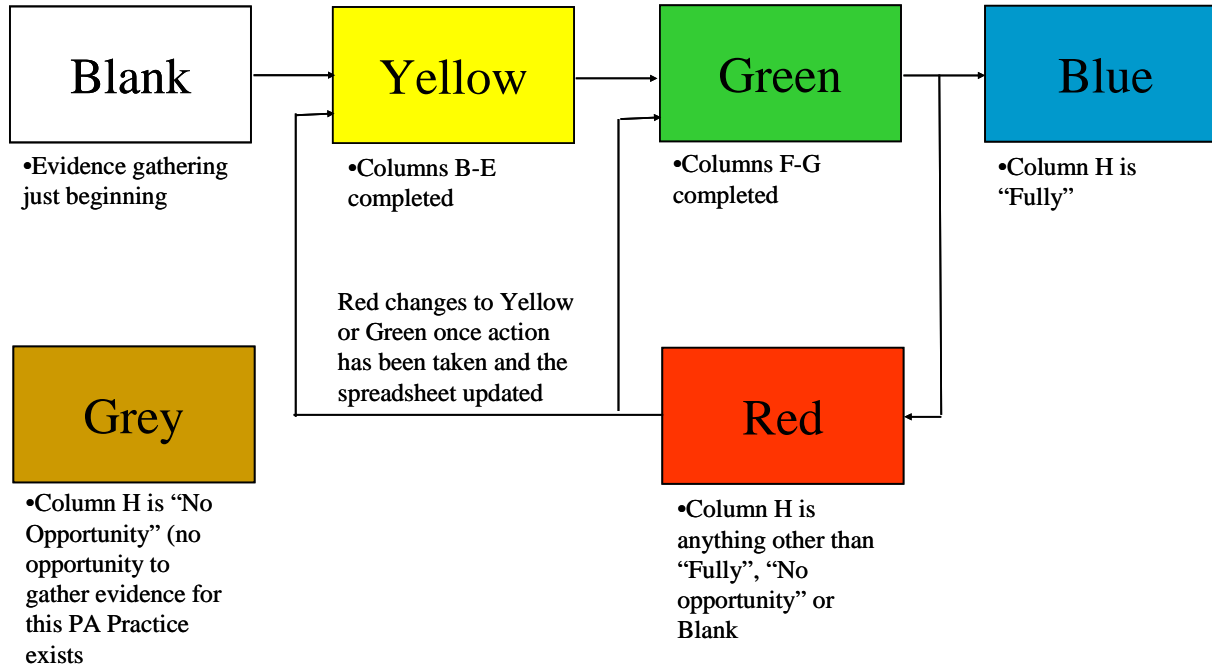
Project Output

Deployment Tracking Spreadsheet Definitions

Rows	Description	Clarification / Example
<p>Practices Rows</p>	<p>Columns on this row are for “scoring” only. Words placed in the cell relate to color codes. For Column B, type in the applicable Plan or IPDS@RMS Task Descriptor For Columns C, E, F & G on the SP row, typing “Complete” into the cell indicates task completion For Column H, type in the scoring result received from the latest review</p>	<p>In SP 1.1 Column C (Identify Evidence), when all applicable evidence is loaded into the deployment tracking spreadsheet, type “Complete” in the SP row Column C cell</p>
<p>Evidence Rows</p>	<p>Evidence and all actions associated with Columns C – G are captured in the applicable column</p>	<p>In SP 1.1 Column C (Identify Evidence), type in evidence “xyz”</p>
<p>Opportunity Scoring</p>	<p>At the bottom of each worksheet Total # of Opportunities = the total # of SPs & GPs. This should be a fixed # (Exception) If “No Opportunity” is identified for a specific practice, then remove that SP from the count Total # Complete=the # of Practices Rows that</p> <ol style="list-style-type: none"> 1. Have a Plan or TD loaded 2. Have “Complete” loaded 3. Have a Latest Review Result loaded 	<p>Column C (Identify Evidence) has Total # of Opportunities = 20 because there are 21 SPs & GPs on the worksheet minus 1 no opportunity Total # Complete = 6 because “Complete” was loaded on the SP Row cell 6 times</p>
<p>Shaded areas</p>	<p>No input is needed in the cell</p>	<p>Leave blank</p>

Data Gathering Analysis

Reporting Color Coding Process Flow



	A	B	C	D	E	F	G	H	I
1	Program: NFIRES			Process Area: MA		PAE: SANTILLAN / MARSH		DT BORKO WSKI / ARD	
3		Identify & Gather Evidence			Load Evidence				
	Practice	Identify Primary Plan (that is ready for program use) OR Task Descriptor (is identified) (PAE)	Identify Evidence (PAE)	Identify as Direct or Indirect (PAE)	Identify & Complete Execution Opportunity (Date - Opportunity - POC) (PAE)	Load Evidence (Into Documentare & Hanson Tool) [List url] (DT)	Load Context Comments (Into Hanson Tool) [List comments] (PAE)	Load Latest Review Results (DT)	Comments
4	SP 1.1 Establish and maintain measurement objectives that are derived from identified information needs and objectives.	M&A Plan	Complete		Complete	Complete	Complete	Fully	
5						http://ds.rms.ray.com/ide/ide.n	Complete		

Updated Deployment Tracking Spreadsheet

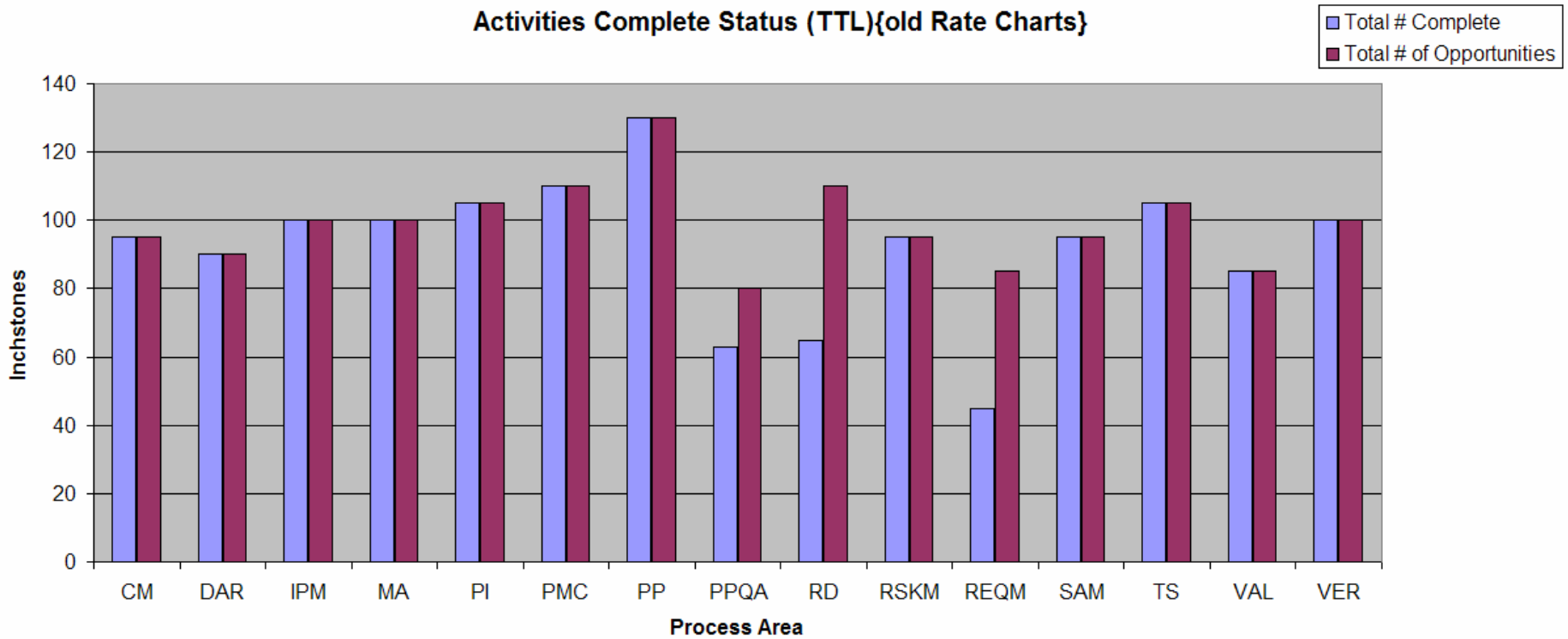


Example

Program: NFIRE		Process Area: TS			PAE: Hector Esparza		DT: Bill Borkowski / Mike Ard	
Practice	Identify & Gather Evidence				Load Evidence		Load Latest Results (DT)	Comments
	Identify Primary Plan (that is ready for program use) OR Task Descriptor (is identified) (PAE)	Identify Evidence (PAE)	Identify as Direct or Indirect (PAE)	Identify Execution Opportunity (Date [yyyy/mm/dd] - Opportunity - POC) (PAE)	Load Evidence (into DocuShare & Hanson Tool) [List url] (DT)	Load Context Comments (into Hanson Tool) [List comments] (PAE)		
SP 1.1 Develop detailed alternative solutions and selection criteria	M&A Plan	Complete		Complete	Complete	Complete	Fully	
		xyz	D	2004/04/18 - Team of Three - Bhalala	xyz@raytheon.com	None		
		rst	I	2004/04/11 - Worksheet Markups - Bhalala	rst@raytheon.com	page 3		
SP 1.2 Evolve the operational concept, scenarios, and environments to describe the conditions, operating modes, and operating states specific to each product component.	M&A Plan	Complete		Complete	Complete	Complete	Largely	
SP 2.1 Develop a design for the product or product component.	M&A Plan	Complete		Complete	Complete	Complete		
		ghi	D	2004/04/18 - Team of Three - Bhalala	xyz@raytheon.com	None		
		jkl	I	2004/04/11 - Worksheet Markups - Bhalala	rst@raytheon.com	Table 2		
SP 2.2 Establish and maintain a technical data package.	M&A Plan	Complete		Complete				
		ghi	D	2004/04/18 - Team of Three - Bhalala				
		jkl	I	2004/04/11 - Worksheet Markups - Bhalala				
SP 2.3 Design comprehensive product-component interfaces in terms of established and maintained criteria.		Complete						Affirmation Required
		ghi	D					
		jkl	D					
SP 2.4 Evaluate whether the product components should be developed, purchased, or reused based on established criteria.							No Opportunity	
Total # of Opportunities	20	20		20	20	20	20	
Total # Complete	5	6		5	4	4	2	

Tracking Matrix Output # 1

Evidence by PA



Project Output

Tracking Matrix Output # 2

Overdue Report

CMMI Evidence Overdue Report by Program

#	Program	Process Area	Practice	Execution Opportunity	Evidence
1	Prog A	CM	SP 1.1	2005/06/24 Mary Process	ENB Table of Contents
2	Prog A	CM	SP 1.1	2005/06/30 John Practice	Specification Tree
3	Prog A	CM	SP 1.1	2005/06/30 John Practice	Boost Flight DVT Drawing Tree
4	Prog A	CM	SP 1.1	2005/06/21 John Practice	Drawing Number List
5	Prog A	CM	SP 1.2	2005/06/22 Mary Process	Date Accession List (DAL)
6	Prog A	CM	SP 1.2	2005/06/21 John Practice	PDM control procedure for work authorization for CMOP
7	Prog A	CM	SP 1.2	2005/06/22 Mary Process	E-mail for ENB Structure
8	Prog A	CM	SP 1.3	2005/06/30 John Practice	Functional Baseline Report (BFDVT)
9	Prog A	CM	SP 1.3	2005/06/30 John Practice	SOW Describing Functional Baseline.
10	Prog A	CM	SP 1.3	2005/06/24 Joe Procedure	Software Baseline
11	Prog A	CM	SP 1.3	2005/06/30 John Practice	Allocated Baseline
12	Prog A	CM	SP 1.3	2005/06/24 Joe Procedure	Software Synergy/PDM Baseline View
13	Prog A	CM	SP 1.3	2005/06/24 Joe Procedure	Software CCB Minutes
14	Prog A	CM	SP 1.3	2005/06/24 Joe Procedure	E-Mail Scheduling Software CCB Agenda
15	Prog A	CM	SP 1.3	2005/06/24 Jane Audit	Hardware CCB agenda and minutes: Dated TBD
16	Prog A	CM	SP 2.1	2005/09/01 John Practice	Change Notification (TBD)
17	Prog A	CM	SP 2.1	2005/06/24 Jane Audit	Initial Release Memo (IRM)
18	Prog A	CM	SP 2.1	2005/06/16 John Practice	Signed CN number xxxxxx for Revision A Specifications.
19	Prog A	CM	SP 2.1	2005/09/01 John Practice	CCB to analyze the Revision A CN.
20	Prog A	CM	SP 2.1	2005/09/01 John Practice	File Version History View (PDM)
21	Prog A	CM	SP 2.1	2005/06/24 Joe Procedure	E-Mail Scheduling Software CCB Agenda
22	Prog A	CM	SP 2.1	2005/06/24 Joe Procedure	Software CCB Minutes: Dated TBD
23	Prog A	CM	SP 2.1	2005/06/24 Joe Procedure	Software CI's from SDP
24	Prog A	CM	SP 2.1	2005/06/24 Joe Procedure	Software CR's
25	Prog A	CM	SP 2.2	2005/09/01 John Practice	Change incorporation history (screen shot of PDM from Revision - to Revision A)

Project Output

Tracking Matrix Output # 3

Plans Completed

Practice	CM	DAR	IPM	MA	PI
SP 1.1	Configuration Management Plan	Program Management Plan (PMP)	Program Management Plan (PMP)	Measurement and Analysis Plan (PMP)	Program Management Plan (PMP)
SP 1.2	Configuration Management Plan	Program Management Plan (PMP)	Program Management Plan (PMP)	Measurement and Analysis Plan (PMP)	Program Management Plan (PMP)
SP 1.3	Configuration Management Plan	Program Management Plan (PMP)	Program Management Plan (PMP)	Measurement and Analysis Plan (PMP)	Program Management Plan (PMP)
SP 1.4		Program Management Plan (PMP)	Program Management Plan (PMP)	Measurement and Analysis Plan (PMP)	
SP 1.5		Program Management Plan (PMP)	Program Management Plan (PMP)		
SP 1.6		Program Management Plan (PMP)			
SP 1.7					
SP 2.1	Configuration Management Plan		Program Management Plan (PMP)	Measurement and Analysis Plan (PMP)	Program Management Plan (PMP)
SP 2.2	Configuration Management Plan		Program Management Plan (PMP)	Measurement and Analysis Plan (PMP)	Program Management Plan (PMP)
SP 2.3			Program Management Plan (PMP)	Measurement and Analysis Plan (PMP)	
SP 2.4				Measurement and Analysis Plan (PMP)	
SP 2.5					
SP 2.6					
SP 2.7					
SP 3.1	Configuration Management Plan				Program Management Plan (PMP)
SP 3.2	Configuration Management Plan				Program Management Plan (PMP)
SP 3.3					Program Management Plan (PMP)
SP 3.4					Program Management Plan (PMP)
SP 3.5					
GP 2.1	RMS Practice 07-04-525	RMS Practice 07-04-525	RMS Practice 07-04-525	RMS Practice 07-04-525	RMS Practice 07-04-525
GP 3.1	Configuration Management Plan	Program Management Plan (PMP)	Program Management Plan (PMP)	Measurement and Analysis Plan (PMP)	Program Management Plan (PMP)
GP 2.2	Configuration Management Plan	Program Management Plan (PMP)	Program Management Plan (PMP)	Measurement and Analysis Plan (PMP)	Program Management Plan (PMP)
GP 2.3	Staffing Plan	Staffing Plan	Staffing Plan	Staffing Plan	Staffing Plan
GP 2.4	Configuration Management Plan	Program Management Plan (PMP)	Program Management Plan (PMP)	Measurement and Analysis Plan (PMP)	Program Management Plan (PMP)
GP 2.5	Training Plan	Training Plan	Training Plan	Training Plan	Training Plan
GP 2.6	Configuration Management Plan	Data Management Plan	Data Management Plan	Data Management Plan	Data Management Plan
GP 2.7	Stakeholder Involvement Plan (PMP)	Stakeholder Involvement Plan (PMP)	Program Management Plan (PMP)	Stakeholder Involvement Plan (PMP)	Stakeholder Involvement Plan (PMP)
GP 2.8	Measurement and Analysis Plan (PMP)	Measurement and Analysis Plan (PMP)	Measurement and Analysis Plan (PMP)	Measurement and Analysis Plan (PMP)	Measurement and Analysis Plan (PMP)
GP 2.9	Interceptor Objective Evaluation Plan (OE)	Interceptor Objective Evaluation Plan (OE)	Interceptor Objective Evaluation Plan (OE)	Interceptor Objective Evaluation Plan (OE)	Interceptor Objective Evaluation Plan (OE)
GP 2.10	Configuration Management Plan	Program Management Plan (PMP)	Program Management Plan (PMP)	Measurement and Analysis Plan (PMP)	Program Management Plan (PMP)
GP 3.2	Configuration Management Plan	Program Management Plan (PMP)	Program Management Plan (PMP)	Measurement and Analysis Plan (PMP)	Program Management Plan (PMP)

[▶ ▶ Plans Status \(by Program\)](#) /
 [CMMI Evidence Overdue Report \(P](#) /
 [Activities Comp Status \(by Prog](#) /
 [CM](#) /
 [DAR](#) /
 [IPM](#) /
 [MA](#) /
 [PI](#) /
 [PMC](#) /
 [PP](#) /
 [P](#)

Project Output

Tracking Matrix Output # 4 Assessment Coverage

Practice	CM	DAR	MA	PPQA	RSKM	SAM	OPD	OPF	OT
SP 1.1	Blue								
SP 1.2	Blue	Green							
SP 1.3	Blue	Green							
SP 1.4	Blue	Green							
SP 1.5	Blue	Green							
SP 1.6	Blue	Green							
SP 1.7	Blue	Green							
SP 2.1	Blue		Green	Green		Green		Blue	Blue
SP 2.2	Blue		Green	Green		Green		Blue	Blue
SP 2.3	Blue		Green	Green		Green		Blue	Blue
SP 2.4	Blue		Green	Green		Green		Blue	Blue
SP 2.5	Blue		Green	Green		Green		Blue	Blue
SP 2.6	Blue		Green	Green		Green		Blue	Blue
SP 2.7	Blue		Green	Green		Green		Blue	Blue
SP 3.1	Blue				Blue				
SP 3.2	Blue				Blue				
SP 3.3	Blue				Blue				
SP 3.4	Blue				Blue				
SP 3.5	Blue				Blue				
GP 2.1	Blue	Yellow	Blue	Green	Blue	Yellow	Green	Green	Blue
GP 2.2	Blue	Yellow	Blue	Green	Blue	Yellow	Green	Green	Blue
GP 2.3	Blue	Yellow	Blue	Green	Blue	Yellow	Green	Green	Blue
GP 2.4	Blue	Yellow	Blue	Green	Blue	Yellow	Green	Green	Blue
GP 2.5	Blue	Yellow	Blue	Green	Blue	Yellow	Green	Green	Blue
GP 2.6	Blue	Yellow	Blue	Green	Blue	Yellow	Green	Green	Blue
GP 2.7	Blue	Yellow	Blue	Green	Blue	Yellow	Green	Green	Blue
GP 2.8	Blue	Yellow	Blue	Green	Blue	Yellow	Green	Green	Blue
GP 2.9	Blue	Yellow	Blue	Green	Blue	Yellow	Green	Green	Blue
GP 2.10	Blue	Yellow	Blue	Green	Blue	Yellow	Green	Green	Blue
GP 3.2	Blue	Yellow	Blue	Green	Blue	Yellow	Green	Green	Blue

Blue = Fully
Green = Largely w/o Partial
Yellow = Largely with Partial
Partially or Not Satisfied

Appraisal team knew precisely where they were with respect to required evidence using the products from the project

Practice	RD		IPM			PI			TS
	REQM		PMC	PP	VAL	VER			
SP 1.1	Blue	Green						Blue	
SP 1.2	Blue	Green						Blue	
SP 1.3	Blue	Green						Blue	
SP 1.4	Blue	Green						Blue	
SP 1.5	Blue	Green						Blue	
SP 1.6	Blue	Green						Blue	
SP 1.7	Blue	Green						Blue	
SP 2.1	Blue	Green						Blue	
SP 2.2	Blue	Green						Blue	
SP 2.3	Blue	Green						Blue	
SP 2.4	Blue	Green						Blue	
SP 2.5	Blue	Green						Blue	
SP 2.6	Blue	Green						Blue	
SP 2.7	Blue	Green						Blue	
SP 3.1	Blue	Green						Blue	
SP 3.2	Blue	Green						Blue	
SP 3.3	Blue	Green						Blue	
SP 3.4	Blue	Green						Blue	
SP 3.5	Blue	Green						Blue	
GP 2.1	Blue	Green						Blue	
GP 2.2	Blue	Green						Blue	
GP 2.3	Blue	Green						Blue	
GP 2.4	Blue	Green						Blue	
GP 2.5	Blue	Green						Blue	
GP 2.6	Blue	Green						Blue	
GP 2.7	Blue	Green						Blue	
GP 2.8	Blue	Green						Blue	
GP 2.9	Blue	Green						Blue	
GP 2.10	Blue	Green						Blue	
GP 3.2	Blue	Green						Blue	

Project Output

- Documented project using Specialists Template & STS
- Rewarded stakeholders with gift certificates
- Showed results of tracking matrix to outside assessors who say it is Best in Class for tracking progress
- Intend to present this approach at R6 Sigma Forum as an example of a “Go Fast” project that had results
- Deliverables
 - Updated Deployment Tracking Spreadsheet
 - Updated Run Rules & Process Flow
 - Reporting Charts
 - Deployment & Evidence Rate Charts (1 per Program & Roll up)
 - Program Plans / TDs by PA and Practice (1 per Program)
 - Program Opportunities by Program & PA
 - Evidence Status by Program & PA
 - Program Evidence by PA & SP (1 per Program)
 - Program Evidence by PA & GP (1 per Program)
 - Demonstrated accurate information usable by the CMMI Project Team
 - All deliverables were generated on time with minimal changes

Lessons Learned

- Imposing strict run rules and enforcing them worked in the solution
- Inputs from stakeholders & using them in the solution created a win / win for most parties
- If you measure it, you should act on it
 - Less panic in the end game because we knew exactly where we were with the evidence
- All SCAMPI A goals appraised as satisfactory

Goals	Maturity Level																								
	Level 2							Level 3										Level 4			Level 5				
	REQM	FP	FMCD	SAW	NA	FPQA	QM	RD	TS	PI	VER	VAL	OFF	OPD	OT	IFM	RSKM	IT	ISM	DAR	EO	OPP	CFM	QID	CAR
GG 3	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$			\$					
GG 2	\$	\$	\$	\$	\$	\$	\$																		
SG 4																									
SG 3		\$					\$	\$	\$	\$	\$					\$	\$								
SG 2		\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$		\$	\$	\$	\$								
SG 1	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$			\$					
Rating	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$			\$					

Goal Attained

Raytheon

*A CMMI® based Appraisal was completed on December 16, 2004
in accordance with the Software Engineering Institute's
SCAMPISM, V1.1: Method Definition Document and it was
determined that*

Raytheon Missile Systems**SEI Level 3 Process Maturity**

*as defined by the SEI CMMI® Version 1.1
SE/SW Staged Representation.*

(signed)

Albert J. Truesdale
SEI Authorized Lead Appraiser
Center for Systems Management



(signed)

James Armstrong
Appraisal Team Member
Software Productivity Consortium



**Largest world wide facility to obtain CMMI Level 3
Certification**