Practical Experiences and Lessons Learned in Implementing CMMI®

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SPAWAR Systems Center Charleston (SSC-C)

NDIA CMMI Conference, November 13, 2006 - NDIA 3762

Improving operational effectiveness through C4ISR common integrated solutions
Introduction to SPAWAR Systems Center Charleston

Vision and Strategy

Critical Success Factors

Practical Experiences

Success!

Lessons Learned

Going Forward

Summary
Introduction to SSC-Charleston

- Where we fit
- What we do
- What we are known for
- Who we are
What We Do

Connecting the Warfighter

Mission- We enable knowledge superiority to Naval and Joint Warfighters through the development, acquisition, and life cycle support of effective, integrated C4ISR Information Technology, and Space capabilities.

Vision- Fully Netted in Three

We are the Principal C4I Acquisition Engineering & Integration Center on the East Coast & Principal C4ISR ISEA for the Navy

Approved for release to the public - 12 Oct 2006
What We’re Known For

- Developer of FORCEnet joint collaborative assessment tools that promote netCentric interoperability and reduce system redundancy

- Principal SPAWAR provider for Joint and Homeland Security C4I solutions in a responsive manner

- Navy’s most efficient provider of critical engineering and acquisition expertise for Navy/Joint commands and other federal agencies

- Rapid integrator and deployer of interoperable technologies to the Navy, Federal Government, and Joint Warfighter

- Developer and employer of life-cycle logistic support solutions in a web-enabled portal environment
Who We Are

A Large Systems & Software Engineering Organization

Over 70% of workforce is in an engineering or computer-related discipline

- The solutions to the global war on terror developed by SPAWAR result from good systems and software engineering.
- Systems engineering is our core competency.
- Total workforce of ~ 2,300 employees.
• Vision
  – Develop and Maintain a World Class Systems Engineering Organization

• Strategy for Implementing CMMI®
  – Research Best Methods (Case Studies)
  – Investigate Techniques and Models
  – Build Plan of Action
  – Implement Plan of Action
Research and Investigate

– Extensively researched industry and government organizations that have successfully used the CMM® and CMMI® to implement process improvement*
– Identified commonality among implementation approaches and lessons learned
– Identified Benefits of CMMI®
– Identified “Critical Success Factors”

* Case Studies Included: Boeing-Integrated Defense Systems (IDS); U.S. Army Armaments Research, Development and Engineering (RDE) Centers; Lockheed Martin Corporation; Electronic Data Systems (EDS); Raytheon; Northrop Grumman – Mission Systems; Motorola – Global Software Group; General Dynamic Advanced Information Systems; SPAWAR Systems Center San Diego; Defense Finance and Accounting Service; Thales Training and Simulation; Jet Propulsion Laboratory; Bosch Automotive; Jacobs Sverdrup
Benefits of Implementing CMMI®

• Increased control of requirements, costs and schedule

• Increased ability to predict schedule and costs of product and product components

• Ability to remove defects early and efficiently from the work products

• Reduced rework leading to reduced development cycle time

• Increased predictability and control of product quality (the quality of a system is highly influenced by the quality of the process used to acquire, develop, and maintain it)
Benefits of Implementing CMMI®

• Enhanced ability to make cost-benefit trade-offs of implementing new technologies and processes

• Increased capability to select and manage qualified suppliers

• Enhanced ability to make management decisions based on quantitative data

• More time available for top innovators to spend on problems and challenges requiring creative energy

• Enhanced communication and involvement of everyone in continuing process improvement efforts
SSC-Charleston chose to implement CMMI® because it provides a structured model for process improvement and is used to measure and improve an organization’s ability to successfully manage complex systems engineering and software projects.

The model recognizes excellence in business practices, as measured against a set of demanding criteria.
### Critical Success Factors for Implementing CMMI®

<table>
<thead>
<tr>
<th>Command-wide Policy (Create vision that is urgent)</th>
<th>Assign Responsibilities (Strong Change Agents are essential)</th>
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</thead>
<tbody>
<tr>
<td>Strategy and Plan (Include knowledge of why change is necessary and benefits)</td>
<td>Provide Training</td>
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<tr>
<td>Senior Management Support</td>
<td>Build Central Repository</td>
</tr>
<tr>
<td>Provide Resources and Funding (New Organizational Structure Usually Needed)</td>
<td>Measure and Communicate Progress</td>
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</tbody>
</table>
Applied the Critical Success Factors:

1. Ensure Policy Published at Highest Level
2. Obtain Approval for Process Improvement (PI) Plan
3. Obtain Resources (Funding) and Assign Responsibility for PI Initiative
4. Build Support for the PI Initiative
5. Plan and Provide Training
6. Build and Maintain Central Repository
7. Measure and Communicate Progress
Command-wide policy signed by our Technical Director, approved by the Board of Directors, and published December 2003.

- The policy directs the use of the best practices represented in the CMMI®-SE/SW model for all SSC-C systems and software engineering projects and tasks.

- The policy also directs the use of industry standards (ISO/IEC 15288 for Systems Engineering and ISO/IEC 12207 for Software Engineering).

- Plan included why changes were necessary
- Schedule included achievement of CMMI® Maturity Level 2 for Command in April 2005
- Schedule includes achievement of CMMI® Maturity Level 3 for Command in April 2007
Applied the Critical Success Factors:

1. Ensure Policy Published at Highest Level
2. Obtain Approval for Process Improvement (PI) Plan
3. Obtain Resources (Funding) and Assign Responsibility for PI Initiative
4. Build Support for the PI Initiative
5. Plan and Provide Training
6. Build and Maintain Central Repository
7. Measure and Communicate Progress
3. Resources and Responsibility

New Organizational Structure Established and Funded at the Command Level.

– Director of Engineering Operations (Code 09K)
– Engineering Process Office (EPO)
– Command and Departmental Engineering Process Groups (EPGs)
– Various Integrated Process Teams (IPTs)
New Organization for Implementation

Sponsor

Strategy

Tactical Implementation

Business Board

Management Steering Group (MSG)

Define and Manage Standard Processes

M. Kutch
Dir. of Engineering Operations

Team Chairman

Staff

Enterprise Process Group (Ent PG)
Codes 09K / 09A

Engineering Process Office (EPO)

Corporate Engineering Process Group (EPG)

Dept. Code 50 EPG

Dept. Code 60 EPG

Dept. Code 70 EPG

Dept. Code 80 EPG

Corporate Business Process Group (BPG)

J09T

J09C

J09F

J0E

WFO IPT

Facility IPT

RDT&E IPT

PPQA IPT

J0M

J02

J01

J0A

J09W

J0C

J09A

J0R

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5. Plan and Provide Training
6. Build and Maintain Central Repository
7. Measure and Communicate Progress
Spread the word!

– Shared Early Successes in *The Chronicle*, SSC-C’s site publication
– Built Senior Management Support
– Created a Newsletter Focusing on Systems & Software Engineering Process Improvement
  • Available in printed and electronic format
  • Published every 2-3 months
– Provided Extensive Mentoring and Coaching
– Communicate what is expected from SSC-C Projects
Spread the Word!

Systems and Software Engineering Newsletter

Volume 2, Issue 1
February 2006

The Benefits of CMMI®

SSC Charleston’s Project Managers have pushed their teams to practice CMMI® and are reaping great benefits as a result. The Engineering Process Office sat down with them to discuss what they learned during their pursuit of Maturity Level 2. Article on Page 2.

KUTCH’S KORNER: CMMI® Makes SSC-C Work Smarter

In the past year, we’ve taken great steps toward making SPAWAR Systems Center Charleston a world-class engineering organization. We had six teams go to CMMI® Maturity Level 2, and their experience is the focus of this issue of the eNEWS.

Created this effort required significant work, but SSC-C is reaping numerous benefits as a result of implementing CMMI. By jumping ahead, these teams have provided a roadmap we all can follow, allowing us to work smarter to achieve the same success.

The tangible, quantifiable benefits we’ve reaped by implementing CMMI have boosted SSC Charleston’s reputation—both in the Command and the civilian world as a quality engineering institution, and that’s something we can all be proud of. In their interviews for the article you’re about to read, SSC-C’s projects were very...

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AP IPT Finishes Marine Corps Project 6
CGS Receives Official Certification for Secured Product 7
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6. Build and Maintain Central Repository
7. Measure and Communicate Progress
5. Plan and Provide Training

• Intro to Process Improvement
  – Formal Classroom Course Initially
  – Currently Provided via WBT
  – Now Mandatory for all employees

• CMMI®
  – SEI Intro to CMMI®
  – SSC-C Level 2 Processes

• Systems Engineering Fundamentals Classes
Intro to Process Improvement WBT

Originally given as a podium course, converted to Web Based Training in 2004
Now required for all employees
SEI’s Introduction to CMMI® course teaches the full CMMI® model

- Students learn how the best practices build and relate across process areas
- Learn the terminology and complete model
- SEI-Authorized instructors are well-versed in our implementation to augment material with SSC-C specific content
- Highlight SSC-C tools and resources

• Over 300 employees trained
**Systems Engineering Fundamentals Classes**

- **Teach the Systems Engineering process**
- **3-day on-site, classroom course**
  - Based on SMU SE Masters course
  - Customized to incorporate SSC-C SE process
  - Over 300 SSC-C engineers trained
- **1-day SE for Managers course added**

"Thought provoking, motivating, and challenging. Learning basic SE caused me to brainstorm many different applications of organized system processes. It motivated me to want to begin organizing its application. It also challenged me to apply GOOD SE practices in order to successfully be more efficient in the process."

"It was extremely beneficial to have a professor with extensive knowledge of the subject matter and one who could apply it to the SPAWAR methods."

**Student Feedback**
Applied the Critical Success Factors:

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2. Obtain Approval for Process Improvement (PI) Plan
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5. Plan and Provide Training
6. Build and Maintain Central Repository
7. Measure and Communicate Progress
Built and Continue to Populate Central Repository (CORPWEB/CMMI® intranet website).

- Policies & Process Manuals
- Standard Operating Procedures (SOPs)
- Sample Documentation and Templates
- Projects’ Artifacts
- Artifacts from Teams – IPTs, EPGs
- Link to PI-WBT and other WBT courses
- Links to Reference materials and guidebooks
- Link to ePlan Builder (EBP) - Our CMMI Tool
SCC-Charleston Engineering Process Office

SSC-C Standard Processes

Currently, the SSC-C Standard Processes contain policies, process manuals for CMMI®-SE/SW Level 2 and Level 3 process areas, and select SOPs. The standard processes for Systems Engineering and Software Engineering provide detailed procedures for accomplishing tasks within these respective disciplines. The 3 top-level standard engineering processes are:

- Systems Engineering
- Software Development
- Software Maintenance

These processes were derived from the ISO/IEC industry standards to address the typical engineering work performed by SCC-C. Additional SSC-C standard processes have been developed to further refine these top level engineering processes and to support the process areas of CMMI®. The graphic depicts the derivation of the SSC-C standard processes.
A unique SSC-Charleston Policy and Process Manual addresses each of these Process Areas:

- Project Planning
- Project Monitoring and Control
- Configuration Management
- Process and Product Quality Assurance
- Measurement & Analysis
- Requirements Management
- Supplier Agreement Management
- Requirements Development
- Technical Solution

- Product Integration
- Verification
- Validation
- Risk Management
- Decision Analysis and Resolution Management
- Organizational Process Focus
- Organizational Process Definition
- Organizational Training
- Integrated Project Management
Applied the Critical Success Factors:

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4. Build Support for the PI Initiative
5. Plan and Provide Training
6. Build and Maintain Central Repository
7. Measure and Communicate Progress
Progress Measured Every 1-4 Months

- Projects conducted Process Reviews and Document Reviews to measure progress and identify gaps using Appraisal tool
- EPO performed Class B/C appraisals of selected projects
- SEI performed Standard CMMI® Appraisal Method for Process Improvement (SCAMPI\textsuperscript{SM}) Class A’s at the Project-level
- SEI performed Command-wide SCAMPI\textsuperscript{SM} Class A appraisal in April, 2005
Recognize and Publicize Early Successes

– ‘Project-level’ SCAMPIs provided early successes due to conducting the appraisal using the “continuous representation” of the model

• Scope of appraisal looked at all 7 ML2 PAs and if the PAs were satisfied, i.e., achieved CL2, then the project achieved ML2 [equivalent staging]

• Projects received CL2 for various PAs (e.g., CM, SAM, REQM, PP, PMC)

– Led to BIG success! - SSC-C became the first SPAWAR Systems Center to achieve CMMI® Maturity Level 2 (April 2005)
Continuous

... Rating is for a single process area

Staged

... Rating is for a specified set of process areas

Process Area Capability

CL0  CL1  CL2  CL3  CL4  CL5

Continuous Rating is for a single process area.

Staged Rating is for a specified set of process areas.

ML5
ML4
ML3
ML2
First SPAWAR Systems Center to Achieve Command Level CMMI® Maturity Level 2

Also, First SPAWAR Systems Center to have a Program Achieve CMMI® Maturity Level 3 (July 2006)
What do these Critical Success Factors and the model itself have in common?
"Both Institutionalize the PI/CMMI® Process"

<table>
<thead>
<tr>
<th>Critical Success Factors</th>
<th>CMMI® Generic Practices</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ensure Policy Published at Highest Level</td>
<td>2.1 Establish an Organizational Policy</td>
</tr>
<tr>
<td>Get the Plan Approved</td>
<td>2.2 Plan the Process</td>
</tr>
<tr>
<td>Get Resources (Funding) and Assign Responsibility</td>
<td>2.3 Provide Resources</td>
</tr>
<tr>
<td>Get Resources (Funding) and Assign Responsibility</td>
<td>2.4 Assign Responsibility</td>
</tr>
<tr>
<td>Plan and Provide Training</td>
<td>2.5 Train People</td>
</tr>
<tr>
<td>Build and Maintain Central Repository</td>
<td>2.6 Manage Configurations</td>
</tr>
<tr>
<td>Get Resources (Funding) and Assign Responsibility</td>
<td>2.7 Identify and Involve Relevant Stakeholders</td>
</tr>
<tr>
<td>Measure and Communicate Progress</td>
<td>2.8 Monitor and Control the Process</td>
</tr>
<tr>
<td>Measure and Communicate Progress</td>
<td>2.9 Objectively Evaluate Adherence</td>
</tr>
<tr>
<td>Get Resources (Funding), Assign Responsibility and Communicate Progress</td>
<td>2.10 Review Status with Higher Level Management</td>
</tr>
</tbody>
</table>
1. **Do your homework:** Researching what others have done to successfully implement process improvement and what challenges they encountered helped prepare us.

2. **Formulate a good plan:** Building a Plan based on the “Critical Success Factors” led to our success.

3. **Policy needs to be Top-down:** Having Command-level policy energized the PI initiative.

4. **Train, train, train:** Providing an understanding of what the CMMI® is all about, what SE is all about, and how to implement within a project is critical.
5. **Train some more:** Train process owners (PPQA, CM, REQM, etc.) to be subject matter experts (SMEs).

6. **Bite off small pieces:** Approach change in small steps and use those experiences, successes and ‘best practice’ artifacts to ease the change for all Command personnel.

7. **Ensure they know what’s in it for them:** Value added must be visible. Share benefits that others have experienced in implementing CMMI®.

8. **Advertise successes early on:** Publicize each positive outcome as progress is measured.
9. **Full-time SME to mentor and coach**: Dedicated Engineering Process Office (EPO) maintained momentum and resolved issues.

10. **Build a support system**: Identify key “change agents” within the organization to overcome resistance to change (those most respected and energized).

11. **Make sure the plan gets implemented**: Promulgate realistic timeframes to all stakeholders (EPGs, IPTs, projects) and monitor schedules for continued successes in the PI Program.
12. **Establish organizational assets early:**
   Developing Process Manuals, Naming Conventions, Formats/Style Guides, Templates and Tools provided value, consistency and ‘starting points’ for projects.

13. **Communication is constantly needed:** Use multiple methods and channels for effective understanding, up to date status, and cross-communication among teams.
The rest of the story........

Phase 2 - ML2 to ML3
• Shift Focus of Process Improvement Strategy from “Implementing CMMI®” to “Executing Sound Systems Engineering”

• Educate Project Managers on What’s Expected

• Improve Project’s Planning and Documented Processes

• Provide additional CMMI® Training and WBTs

• Incorporate ISO, Lean Six Sigma (LSS) and Balanced Scorecard (BSC) Initiatives
The Second Wave – ML2 to ML3

• Develop internal “self-assessment” process for measuring ongoing implementation of Maturity Level 2 processes

• Populate EPO/CMMI® Website with ‘best examples’

• Implement Tailoring Guidelines

• Implement SSC-C Measurement Repository

• Implement ML2-to-ML3 Action Plans

• Continue to Measure and Communicate Progress

• Maintain Momentum and Commitment to Goals
SSC-C SE Revitalization Plan

Elements of SSC-C SE Revitalization

Policy / Guidance
- SSC-C SE Instruction
- SSC-C SE Process Manual
- SSC-C SW-Dev Process Manual
- SSC-C SW-Maint Process Manual
- EPO Website
- ePlan Builder

Training / Education
- Intro to PI WBT
- SE 101 WBT
- SE Fundamentals
- SE for Managers
- Project & Process Workshop
- Intro to Software Engr.
- Architecture Dev. WBT
- Certification/Degrees

Assessment & Support
- CMMI® Level 2
- CMMI® Level 3
- Balanced Scorecard
- Lean Six Sigma
- Integrated Product Teams
- IT Tools

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Policies mandate the use of ISO/IEC life cycle processes and CMMI® best practices

ISO/IEC 15288
System Life Cycle Processes

ISO/IEC 12207
Software Life Cycle Processes

CMMI® for SE/SW

SSC-C Systems Engineering Process

SSC-C Software Engineering Process

CMMI® Supporting Process Areas to SE/SW Processes

<table>
<thead>
<tr>
<th>ML2</th>
<th>PP</th>
<th>PMC</th>
<th>CM</th>
<th>REQM</th>
<th>PPQA</th>
<th>MA</th>
<th>SAM</th>
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<td>ML3</td>
<td>OPF</td>
<td>OPD</td>
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<td>IPM</td>
<td>RD</td>
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Use CMMI® to Measure & Assess Processes

Industry Standards

Good Engineering

Top Level SSC-C Processes

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Classic System Engineering “Vee” Diagram
Aligning SE with CMMI and Process Improvement

- Understand User Requirements, Develop System Concept and Validation Plan
- Develop System Performance Specification and System Validation Plan
- Expand Performance Specifications into CI “Design-to” Specifications and CI Verification Plan
- Evolve “Design-to” Specifications into “Build-to” Documentation and Inspection Plan
- Inspect to “Build-to” Documentation
- Fabricate, Assemble, and Code to “Build-to” Documentation
- Assemble CIIs and perform CI Verification to CI “Design-to” Specifications
- Integrate System and Perform System Verification to Performance Specifications
- Demonstrate and Validate System to User Validation Plan

CMMI Process Areas align with SE “Vee”

- RD
- Val
- TS
- Ver
- PI

Systems Engineering

Decomposition and Definition
Integration and Qualification

Design Engineering

PP | PMC | CM | REQM | PPQA | MA | SAM | RSKM | DAR
• Shift Focus of Process Improvement Strategy from “Implementing CMMI®” to “Executing Sound Systems Engineering”

• Educate Project Managers on What’s Expected

• Improve Project’s Planning and Documented Processes

• Provide additional CMMI® Training and WBTs

• Incorporate ISO, Lean Six Sigma (LSS) and Balanced Scorecard (BSC) Initiatives
What is expected from SSC-C projects?

- **Execute sound systems engineering**
  - Utilize the organizational processes, tools, guidance available

- **Sound systems engineering requires**
  - Proper Project Planning
  - Control over the project and process
    - Configuration Management, Requirements Management
    - Verification (Peer Reviews), Process Quality Assurance, …
  - Iterative and robust design and development methodology
    - Decomposition of Requirements, Analysis, Alternatives, …
  - Frequent interaction of senior management and customers (sponsor)

*CMMI® provides a standard to assess progress against sound systems engineering practices*
SSC-C Project Process - Planning

- Gather Originating Requirements
  - Initial Capabilities Document (ICD) or Statement of Work (SOW)
- Validate Project Scope
  - Size; Project Criteria
- Invoke Appropriate Engineering Process(es)

Components of the Integrated Project Management Package (IPMP)

1. **Review/Apply Tailoring Guidelines**
   - Tailoring Form; Waivers

2. **Develop Project Management Plan (PMP)**
   - (PP/PMC/IPM)

3. **Develop Project Management Support Plans**
   - REQM Plan *
   - CM Plan *
   - M&A Plan *
   - PPQA Plan *
   - SAM Plan
   - RSKM Plan
   - DAR Plan

4. **Develop Engineering Plans**
   - (as required)

5. **Systems Engineering Mgmt Plan (SEMP)** and/or
   - Systems Engineering Plan (SEP) *
   - and/or
   - Software Development Plan (SDP)
   - (Address RD/TS/PI/VER/VAL)

6. **Develop Any Additional Required Plans**
   - Detailed VER/VAL Plan; Install Plans (BESEP); TEMP/SOVT Plan; Cut-Over Plan
   - Other plans, etc.

* ePlan Builder can be used to generate this type of plan.

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Pitfalls in Developing Plans

- Generating from scratch
  - Author specific
  - What did I forget?
  - Time – “Re-inventing the wheel”
- Copy from “good” example
  - Is it good?
  - Cut and Paste errors – old project data
  - What did they forget or intentionally leave out?
  - Is my project really the same?
- Document Outlines/Templates
  - Provide placeholders; not explanation/examples
  - No validation
- General issues with all above alternatives
  - Consistency from Plan to Plan
  - Formatting
  - What belongs in this section?
ePlan Builder tool

– An interactive, web-based application that leads the user through a structured interview process (like TurboTax®) to generate a CMMI®-compliant plan

– Includes standard, consistent text
  • Definitions
  • Acronyms
  • Roles and Responsibilities

– Generates an initial project-specific document
• TurboTax® (and other income tax software)
  – Simplifies the process for completing income tax returns
  – Uses an “interview” format with the user to collect information
  – Provides common defaults (that can be changed)
  – Branches to necessary sections based on input collected; skips unnecessary sections
  – Information entered once, but used in several places
  – Validates information for gaps and inconsistencies
  – Provides page/field specific help text
  – Automatically generates final forms
Apply Concept to Building Plans

- Collect common project information once
  - Ensures consistency from plan to plan
- Acts as on-line template
  - Ask questions, give choices, prompt for input
  - Application logic ensures full coverage of required sections (from standard process manuals)
  - Logic permits skipping / branching as appropriate
  - Provide on-line, section sensitive help
- Standard content can be included in all plans
- Automatically generate initial draft of plan
ePlan Builder Tool

• Generates CMMI®-compliant (Maturity Level 3) Plans:
  • Project Management Plan (with WBS)
  • Configuration Management Plan
  • Quality Assurance Plan
  • Requirements Management Plan
  • Systems Engineering Plan (DoD SEP Format)
  • Measurement and Analysis Plan
  • Systems Engineering Management Plan (under development)
  • Verification Plan (under development)
  • Decision Analysis and Resolution Plan (under development)
ePlan Builder Tool

- Generates plan in Rich Text Format (rtf)
  - For further editing and updating
- Generates SSC-C compliant plan-specific standard lists for:
  - Definitions
  - Acronyms
  - References
  - Roles/Responsibilities

Project-specific content can also be added to these sections
Welcome to the SSC-Charleston ePlan Builder (EPB)

Version 2.1

This application will guide you through the process of creating documentation for your project that is compliant with the CMMI® and SSC-C policy and process manuals.

This release of ePlan Builder will now support the Systems Engineering Plan (SEP), click here to see the other documents that EPB supports.

Documents that are in the process of being built will be held for 90 days. Afterward that, they will be purged from EPB. Once a document is generated, it will be held for 24 hours to allow the user to store it in the appropriate CM repository. After this 24-hour period, EPB will purge the document.
Project Information

This section will allow you to enter project information. The information entered here, while not included within the generated documents does have a bearing on the text and options for a given document.

Please select the Project Type.

- [ ] Product
- [x] Service

Please select the Product Type.

- [ ] Software
- [x] Hardware

Please select the project effort.

- [ ] Development
Project Roles

The project has primary personnel that comprise the Management, Development and Testing team. Please enter the following roles for this project.

External Stakeholders:

Please enter the code and name of the Program Sponsor
Code: None Name: None

Please enter the code and name of the Program Manager
Code: 524 Name: Joanna Shirey

Please enter the code and name of the Primary Requirements Provider
Code: 05 Name: Dan Green, FIT Project Office

Please enter the code and name of the CCB Chairman
Code: None Name: None

Please enter the code and name of the Senior Manager
Code: 52 Name: Ken Bible

Required Project Roles

Please enter the code and name of the Project Leader
Code: 524 Name: Joanna Shirey
EPB – Select Tasks for each Role

Tailor each role from pre-defined list of tasks and/or add custom tasks

Project Leader Tasks

The Project Leader is responsible for establishing and maintaining the project plan.

Please identify the specific responsibilities of the Project Leader.
- Coordinates all activities of the prime contractor and subcontractors
- Assigns specific responsibilities to subcontractors [PP GP 2.4]
- Discusses technical issues from the Government with subcontractors
- Discusses technical issues from the subcontractors with the Government
- Manages the project cost and schedule [PMC 1.1]
- Resolves any inconsistencies in the requirements [PMC 2.2]
- Mitigates project risks [PMC 1.3]
- Manage and resolve corrective actions [PMC 2.2] [PMC 2.3]
- Provides prime contractor and subcontractor work products and deliverables to the Government

Please enter any additional specific responsibilities of the Project Leader.
Task

Note mapping to CMMI® generic and specific practices
# Work Breakdown Structure (WBS) in a Project Management Plan

The Work Breakdown Structure (WBS) accommodates multi-year projects. Cost estimates can be entered using the SPAWAR global WBS or the SSC-C Activity Based Costing WBS. The WBS structure allows for drilling down three levels deep, with costs summing up to higher level.

<table>
<thead>
<tr>
<th>Category</th>
<th>Year</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>000 Leadership/Management</td>
<td>2007</td>
<td>$500</td>
</tr>
<tr>
<td>001 Leading</td>
<td>2007</td>
<td>$500</td>
</tr>
<tr>
<td>002 Management</td>
<td>2007</td>
<td>$900</td>
</tr>
<tr>
<td>003 Personnel Management Activities</td>
<td>2007</td>
<td>$500</td>
</tr>
<tr>
<td>004 Communications</td>
<td>2007</td>
<td>$500</td>
</tr>
<tr>
<td>100 Project Management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>110 Management Documentation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>111 Programming &amp; Budgeting</td>
<td>2007</td>
<td>$200</td>
</tr>
<tr>
<td>112 Program Planning Documents</td>
<td>2007</td>
<td>$200</td>
</tr>
<tr>
<td>113 Acquisition Documents</td>
<td>2007</td>
<td>$100</td>
</tr>
</tbody>
</table>
Risk Identification in PMP

Risks

This page allows you to enter a list of known or expected risks. The severity of the risks and the mitigation approach for each should be identified. Please use the table below to identify the major risks associated with the project.

<table>
<thead>
<tr>
<th>Risk Category</th>
<th>Impact/Concern</th>
<th>Level</th>
<th>Mitigation Approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schedule</td>
<td>Products are required by the customer by 10/1/06</td>
<td>High</td>
<td>Be prepared to provide draft materials if development of</td>
</tr>
<tr>
<td>Quality</td>
<td>Will products be ready for 10/15/06 in a condition</td>
<td>Medium</td>
<td>Provide technical data to contractor in accordance with schedule with</td>
</tr>
<tr>
<td>Technical</td>
<td>Ability to get tech technical data from the</td>
<td>High</td>
<td>Interact directly with the satellite manufacturer to obtain the technical</td>
</tr>
</tbody>
</table>

PMP may also reference a more comprehensive Risk Management Plan
**Cost** is a measure within the Financial Performance category that measures the cost for activities, events, and products. The measure provides an easy-to-understand view of the budget. Comparison of planned and actual cost data provides insight into significant and repetitive cost changes at the activity level.

While more detailed cost information provides more insight into the project's total cost, until the project personnel have achieved a certain level of proficiency in estimating costs, it is recommended that the cost data should be captured at a level commensurate with this level of experience.

**Collection and Storage**

**Identify the level of detail for capturing cost data**

- Project Level

**Please select how the Project Leader will report contract costs from the list below. If the Project Leader is not responsible for managing contracts, select "Project".**

- Project

**Identify who will provide the actual cost data:**

- Project Leader

**Identify the tool to be used to collect cost data:**

- BSA and PMACS

**Identify how often the actual cost data will be collected:**

- Monthly

**Analysis Procedures**

**Identify how often the cost data will be analyzed:**

- Monthly

**Identify the cost alert threshold:**

- 95%
Metrics Reporting

Please enter the Reports to be generated during the Measurement and Analysis process:

<table>
<thead>
<tr>
<th>Report Identifier</th>
<th>Measures</th>
<th>Periodicity</th>
<th>Delivery Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost</td>
<td>Process Performance</td>
<td>Monthly</td>
<td>Hard Copy</td>
</tr>
<tr>
<td></td>
<td>Milestone Dates</td>
<td></td>
<td>Soft Copy</td>
</tr>
<tr>
<td></td>
<td>Cost</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performance</td>
<td>Process Performance</td>
<td>Monthly</td>
<td>Hard Copy</td>
</tr>
<tr>
<td></td>
<td>Milestone Dates</td>
<td></td>
<td>Soft Copy</td>
</tr>
<tr>
<td></td>
<td>Cost</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Schedule</td>
<td>Process Performance</td>
<td>Monthly</td>
<td>Hard Copy</td>
</tr>
<tr>
<td></td>
<td>Milestone Dates</td>
<td></td>
<td>Soft Copy</td>
</tr>
<tr>
<td></td>
<td>Cost</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
SEP format follows the DoD SEP Preparation Guide

Next Life-Cycle Phase

The SEP requires that the program’s acquisition history and life-cycle phase be discussed, describing the top-level, technical process used in each life-cycle phase. This Next Life-Cycle Phase section should give an overview of the next planned life-cycle phase as well as summarize the process activities that are expected to be finished during the next life-cycle phase.

Please enter text discussing the Next Life-Cycle Phase of the program.

This description should give an overview of the planned SE process and should have more detail than the historical life-cycle processes completed. It should include how the technical process will be integrated into the life-cycle model and summarize the process activities that are expected to be finished during the next life-cycle phase.

Life-Cycle Phases (in hierarchical order):

1. Concept Refinement
2. Technology Development
3. System Development and Demonstration
4. Production and Deployment
5. Operations and Support
The nature of the SEP requires more open input text fields, but EPB helps by providing elaborations and examples for the user.
Trade Studies

This section should include a brief description of the process used to determine trade-offs between various attributes of the program (e.g., between requirements and design). Information about how trade studies are addressed within the organization will be automatically embedded into the document. To view the embedded information about how trade studies will be addressed, click the "Click to view the embedded trade studies text" link below.

Click to view the embedded trade studies text.

Trade studies will be addressed in accordance with the SSC-C Technical Solutions Process Manual and SSC-C Decision Analysis and Resolution Process Manual where the development of alternate solutions, selection criteria and trade processes are discussed.

The actual trade studies to be performed on the program will be captured and listed in the control below.

Please enter the trade studies that will be conducted on this program.

Trade Study
Research on OSP topologies

Trade Study
Research on different conduit installation
Project Management Plan (PMP)

For

MARSOC West SCAMPI CER (593)

August 18, 2006

Prepared by:
Space and Naval Warfare Systems Center, Charleston
(SNWC)
P.O. Box 196022
North Charleston, SC 29419-6422

Approved by: Nick Roman (593) Date: August 25, 2006

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      1.4.1 Acronyms and Abbreviations ................................................................. 3
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## Project Planning

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</thead>
<tbody>
<tr>
<td>PP 1</td>
<td>Establish Estimates. Estimates of project planning parameters are established and maintained.</td>
<td>3.2</td>
<td>1.2.1</td>
</tr>
<tr>
<td>PP 1.1</td>
<td>Estimate the Scope of the Project. Establish and maintain a top-level work breakdown structure (WBS) to estimate the scope of the project.</td>
<td>3.2</td>
<td>1.2.1 Appendix A</td>
</tr>
<tr>
<td>PP 1.2</td>
<td>Establish Estimates of Project Attributes. Establish and document estimates of the attributes of the work products and tasks.</td>
<td>3.2</td>
<td>1.2.1 1.3</td>
</tr>
<tr>
<td>PP 1.3</td>
<td>Define Project Life Cycle. Define the project life cycle phases upon which to scope the planning effort.</td>
<td>3.2</td>
<td>1.2.1</td>
</tr>
<tr>
<td>PP 1.4</td>
<td>Determine estimates of Effort and Cost. Estimate the project effort and cost for the attributes of the work products and tasks based on estimation rationale.</td>
<td>3.2</td>
<td>1.2.1 Appendix A</td>
</tr>
<tr>
<td>PP 2</td>
<td>Develop a Project Plan. A project plan is established and maintained as the basis for managing the project.</td>
<td>3.3</td>
<td>1.2.1</td>
</tr>
</tbody>
</table>
• **Architecture**
  
  – Web-based application, with supporting database
    
    • MS SQL Server® 2000 Relational Database Management System (RDBMS)
    
    – Web architecture: Active Server Page, MS.NET Framework® 1.1 (ASP.NET)
    
    – Programming Language: MS Visual Basic® .NET (VB.NET)
    
    – Scripting Language: HTML, Javascript
    
    – Master Page engine that uses only one Active Server Page (ASP) that dynamically retrieves required information (questions, client answers, document template text, etc.)

• **Development - Incremental life-cycle model**
The Second Wave – ML2 to ML3

- Shift Focus of Process Improvement Strategy from “Implementing CMMI®” to “Executing Sound Systems Engineering”

- Educate Project Managers on What’s Expected

- Improve Project’s Planning and Documented Processes

- Provide additional Training, Workshops and WBTs

- Incorporate ISO, Lean Six Sigma (LSS) and Balanced Scorecard (BSC) Initiatives
• All employees need a **basic** understanding of process improvement
  – What is their process now?
  – How to add value by formalizing and improving their process (based on Organizational process)

• All project teams need to fully understand the CMMI model (all processes, all levels)
  – To understand all of the best practices and maturity levels
  – To comply/prepare for DoD and NAVY policy

*This accounts for some employees attending more than one course*
Provide Workshops

- All project team members and supporting personnel need to know how to perform the standard processes and best practices required
  - How to do good SE, CM, PPQA, Planning, Measurement, Risk, VER/VAL, etc.

- To properly prepare for and complete an assessment or appraisal, key project team members need to map the project work products to the practices assessed.

These needs can be depicted in a Training Architecture
Training Architecture

Foundation of PI and CMMI®

PI WBT → SEI Intro to CMMI®

3-day

Core SSC-C project and engineering processes (Level 2 and 3)

Engineering Project & Process Mgmt Workshop → SE Fundamentals → Intro to Software Engineering

SE for Managers

SEMP Workshop

Subject Matter Experts - Use commercially available on-site classes

Quality Engineering → Requirements Analysis

Configuration Mgmt

Prepare Projects for BSC or SCAMPI

Appraisal & Assessment Workshop 2-day

Approved for release to the public - 12 Oct 2006
Training and Tools

- EPO Website
- PI WBT
- SEI Intro to CMMI
  - 3-day
- Engineering Project & Process Mgmt Workshop
- SE Fundamentals
- Intro to Software Engineering
- SE for Managers
- SEMP Workshop
- Quality Engineering
- Requirements Analysis
- Configuration Mgmt
- Appraisal & Assessment Workshop
  - 2-day
- New - develop
- Existing
- Existing - revise
- New - buy

Approved for release to the public - 12 Oct 2006
SE 101 Web-Based Training

• Introduction to Systems Engineering WBT
  – 10-module web based training
  – Closely aligned to SSC-C SE Process, SE Fundamentals Course, and ISO/IEC 15288
  – Includes hotlinks to referenced documentation
• SSC-C Process manuals, policies, standards
  – Extensive branching for more detail
Topical WBTs

• Developing web-based training courses in specific topics

• Architecture Development WBT - completed
  – Introduction to Architecture Development and DoDAF
  – Designed to educate and promote value of system architecture to non-architects and new engineers
  – Tests for understanding

• Risk Management WBT
  – Risk identification
  – Analysis tools and techniques
  – Mitigation planning
  – Risk monitoring

• Requirements Development
• **Similar format to the Systems Engineering Fundamentals**
  – 3 days, primarily lecture
  – Aligned with the SSC-C Software Development Process Manual

• **Course Outline**
  – Intro to Software Engineering
  – Roles
  – Software Engineering Practices
  – Software Development Process
  – Software Maintenance
  – Managing Software Projects
  – Tailoring
• Multi-session workshop oriented “how to” class
• What is a good process? Is my process good?
• How to generate project plans
  – What makes a good PMP, CM Plan, QA Plan…
  – How to use ePlan Builder
  – Hierarchy of plans (Based on level 2 or level 3 goals)
• Configuration Mgmt
  – Are my Configuration Items (CI’s) and Change Control adequate?
• PPQA
  – How to execute a process review and work product review
• Measurement and Analysis
  – Are my measures measurable?
• Requirements Management
  – Traceability - simple to complex
• Monitoring and Control using Reviews
• Shift Focus of Process Improvement Strategy from “Implementing CMMI®” to “Executing Sound Systems Engineering”

• Educate Project Managers on What’s Expected

• Improve Project’s Planning and Documented Processes

• Provide additional Training, Workshops and WBTs

• Incorporate ISO, Lean Six Sigma (LSS) and Balanced Scorecard (BSC) Initiatives
A World Class Engineering Organization

Software Engineering
IAW ISO/IEC 12207

System Engineering
IAW ISO/IEC 15288

QMS
ISO 9001/2000

CMMI

Lean Six Sigma

Implements a QMS

Provides a Benchmark for Best Practices

Implements Stable Processes

SW Process Standard

SE Process Standard

Improves Stable Processes

Provides a Benchmark for Best Practices
  – ISO requires the Organization to focus upon organizational processes, the Customer, and continual improvement.
  – ISO requires documented processes and procedures that complement and supplement existing processes and procedures.
  – It is a common sense, documented system focusing on consistency, reliability, and improving the way businesses operate.
  – ISO provides elaboration of the CMMI QA best practices, giving you the detail to implement the Quality Management System

• Lean Six Sigma is an Internationally recognized process improvement methodology that combines both Lean and Six Sigma.
  – Lean minimizes waste and improves process flow.
  – Six Sigma improves process capability and eliminates process variation.
  – Lean Six Sigma is an aid in improving stable processes and process flow.
  – Lean Six Sigma is applied to stable, mature processes.
ISO - CMMI Relationships

Hi-level view

ISO: Quality Management System

CMMI®:
OPF, OPD, PP, PPQA, CM, SAM;
GP 2.1, 2.2, 2.3, 2.6, 2.7, 2.8, 2.9, 3.1, 3.2

ISO: Resource Management

CMMI®:
PP, OT, OEI;
GP 2.3, 2.5

ISO: Management Responsibility

CMMI®:
OPF, OPD, RD, PMC, OPP, QPM;
GP 2.1, 2.2, 2.3, 2.4, 2.6, 2.7, 2.10, 3.1

ISO: Measurement, Analysis & Improvement

CMMI®:
PMC, PPQA, MA, CM, REQM, RD, SAM, OPF, VER, VAL, OID, OPP, QPM, CAR;
GP 2.1, 2.2, 2.4, 2.6, 2.8, 2.9, 3.2

ISO: Product Realization

CMMI®:
REQM, RD, TS, PI, MA, QPM, VER, VAL, OPD, PP, PMC, IPM, CM, SAM;
GP 2.1, 2.2, 2.3, 2.4, 2.6, 2.7, 2.8, 2.9, 2.10, 3.1
CMMI LSS ISO improvement framework comparison

<p>| | | | | |</p>
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</table>
Balanced Scorecard Strategy

Customer Focused
- C1: Provide Composable C4ISR Capability
- C2: Deliver Real-Time Business Data
- C3: Provide Organized Accessibility
- C4: Balance the Right Readiness With Right Cost

Mission Focused
- IM1: Perform Core Work In-House
- IM2: Enable Capacity for Context Work

Process Focused
- IP1: Develop a World Class Systems Engineering Capability
- IP2: Develop a World Class Business Operation

Human Capital
- HC1: Align Competencies with Strategies
- HC2: Accelerate Innovation & Experimentation
- HC3: Develop Proactive & Visionary Leadership

Organizational Capital
- OC1: Enable an Empowered, Collaborative & Synchronized Environment

Information Capital
- IN-C1: Achieve Strategy-Focused, Shared Awareness, & Aligned Effect

Financial
- F1: Maintain Financial Health
- F2: Manage Cost of Operations
- F3: Optimize Return on Assets

Stakeholder
- S1: ‘Fully Netted in Three’

Fully Netted Force
- Fully Netted Resources

Drivers
- Effects

Learning & Growth

IC1: Manage Customer Relationships
IM1: Perform Core Work In-House
IM2: Enable Capacity for Context Work

Fully Netted Resources

IN-C1: Achieve Strategy-Focused, Shared Awareness, & Aligned Effect

Approved for release to the public - 12 Oct 2006
## Balanced Scorecard Based on CMMI®

<table>
<thead>
<tr>
<th>Perspectives</th>
<th>Objective Headline</th>
<th>Objective Statement</th>
<th>Measure</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer (Internal)</td>
<td>IC1: Manage Customer Relationships</td>
<td>Construct and align our enterprise processes to insure maximum customer involvement.</td>
<td>On-line Customer Profile - Percent of customers for which we have current tasking and profiles that are enterprise wide accessible</td>
<td>To drive the customer focus thru all engineering and business processes</td>
</tr>
<tr>
<td>Mission</td>
<td>IM1: Perform Core Work In-House</td>
<td>Apply our limited government resources to the mission-critical and strategy-valued functions</td>
<td>Government Man-Hours on Core Work - Percent of government man-hours spent on core</td>
<td>To increase percentage of core government labor hours to total government man-hours</td>
</tr>
<tr>
<td></td>
<td>IM2: Enable Capacity for Context Work</td>
<td>Maintain a sufficient level of contract capacity to support our outsourcing and out-tasking requirements.</td>
<td>Context Ceiling Capacity - Available contract ceiling with actual burn rate</td>
<td>Monitor available ceiling to ensure it exceeds expected work</td>
</tr>
<tr>
<td>Process</td>
<td>IP1: Develop a World-Class Engineering Capability</td>
<td>Establish standard engineering processes that provide a qualitative competitive edge in the global market</td>
<td>A. Technical Maturity Assessments, Average ratings from assessments B. Level Two/Three/Four Projects - Count the number of department projects self-assessed at Level 2/3/4.</td>
<td>Drive the level of implementation of common Systems Engineering practices at the Command</td>
</tr>
<tr>
<td></td>
<td>IP2: Develop a World-Class Business Operation</td>
<td>Establish standard business processes that complement our engineering processes and provide a competitive edge in the global market</td>
<td>A. Core business Processes Captured and Documented - Ratio of the business processes within the functional areas in Enterprise Process Management Architecture that are defined and documented with proper interfaces identified and controlled / facilitated</td>
<td>To promote standardization of processes and greater efficiency of overall business operations</td>
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<td>To promote standardization of processes and greater efficiency of overall business operations</td>
</tr>
</tbody>
</table>
• **Implementation**
  
  – Use all to complement each other
  
  – Promote consistent implementation from Command down

• **Benefits**
  
  – Objective evaluation and QA available to all projects, large or small
  
  – Cost sharing for QA or process reviews on an as-used basis
  
  – Central tracking of issues and lessons learned for sharing across division and department
• Develop internal “self-assessment” process for measuring ongoing implementation of Maturity Level 2 processes

• Populate EPO/CMMI® Website with ‘best examples’

• Implement Tailoring Guidelines

• Implement SSC-C Measurement Repository

• Implement ML2-to-ML3 Action Plans

• Continue to Measure and Communicate Progress

• Maintain Momentum and Commitment to Goals
Internal “Self-Assessment” Process

- Good starting point for project to understand what’s required
- Teaches difference between Direct and Indirect evidence and the need for both
- Serves as the BSC Measure of project’s progress towards ML2/ML3/ML4
- Artifacts are reviewed for compliance
• Improved/formalized process to populate EPO/CMMI® Website with ‘best examples’
  – EPO submittal form to submit via email
  – Direct and timely response that artifact was received
  – Process for SME to evaluate artifact and recommend posting, holding for future date, not posting
  – Process for project to submit artifact with Do Not Post notice
  – Process to notify when submittal is posted or reason for not posting
• Gave Website a “Facelift”
• Populated it with many “Good Samples” of ML2 and ML3 Plans and SOPs for projects to use
• Helps Institutionalize GP 3.2 for all Process Areas
  – Collect work products, measures, measurement results, and improvement information derived from planning and performing the process to support the future use and improvement of the organization’s processes and process assets.
• Develop internal “self-assessment” process for measuring ongoing implementation of Maturity Level 2 processes

• Populate EPO/CMMI® Website with ‘best examples’

• Implement Tailoring Guidelines

• Implement SSC-C Measurement Repository

• Implement ML2-to-ML3 Action Plans

• Continue to Measure and Communicate Progress

• Maintain Momentum and Commitment to Goals
In order to initiate the Tailoring Process, a Project/Task Leader follows the guidance provided in the SSC-C Tailoring Guidelines and the SSC-C Integrated Project Management Process Manual to establish and manage a project according to an integrated and defined process that is tailored from the organization’s set of standard processes. The SSC-C Tailoring Guidelines can be found on the EPO website.

There are six activities within the Tailoring Process, described in detail in the SSC-C Tailoring Guidelines:

• Establish the project profile
• Select project processes from the SSC-C Set of Standard Processes
• Complete the Tailoring Form
• Complete Waiver Request, if applicable
• Complete Peer Reviews of Tailoring Forms and Waiver Request, if applicable
• Department Head reviews Waiver Request

The results of the completed Tailoring activities are used in conjunction with the SSC-C Integrated Project Management Process Manual to establish the Project’s Defined Process. The basis for establishing the SSC-C Project’s defined process is SSC-C’s standard processes. The SSC-C Systems Engineering Process Manual, SSC-C Software Development Process Manual, and the SSC-C Software Maintenance Process Manual provide the detailed activities and tasks needed to successfully implement the process requirements provided in the SSC-C Level 2/3 Process Manuals.
• Built SSC-C Measurement Repository (OMR) for projects to use for managing their projects
  – Capturing standardized cost, schedule, and process performance
• Implementation included hands on training in reporting and using OMR
• Laying groundwork for higher maturity
ML2 to ML3 Action Plans

- PI Plan to address ML2 findings and ML3 actions
- Lessons learned from SCAMPIs
- Incorporate Tailoring Guidelines
- Provide metrics to OMR
- What’s ML3 all about?
  - Peer Reviews
  - SEMPs
  - DAR Plan
  - RSKM Plan
The Second Wave – ML2 to ML3

- Develop internal “self-assessment” process for measuring ongoing implementation of Maturity Level 2 processes
- Populate EPO/CMMI® Website with ‘best examples’
- Implement Tailoring Guidelines
- Implement SSC-C Measurement Repository
- Implement ML2-to-ML3 Action Plans
- Continue to Measure and Communicate Progress
- Maintain Momentum and Commitment to Goals
Measure and Communicate Progress

- Continuing similar approach to Maturity Level 3
- Successful ML3 Program (with 4 projects) in July 2006
- Another project achieved CL3 in 16 Process Areas
- 4 more projects with planned SCAMPIs in 2006
- Continuing to use Continuous Representation and Equivalent Staging for early successes
- S2E Newsletter is a great means of communicating status and success
• 2007
  – Conduct interim Maturity Level 3 appraisals on projects
  – Correct findings and strengthen institutionalization
  – Conduct Command Maturity Level 3 appraisal in April 2007
  – Incorporate new version of CMMI model (V1.2)
  – Incorporate IPPD (Integrated Product and Process Development)
  – Mentor projects to Maturity Level 3

• 2008 - 2009
  – Begin Maturity Level 4/5 implementation
  – Establish/Refine/Compose organizational and project measures
  – Increase collection of project, process, and organizational measurement data
  – Conduct interim Maturity Level 4 appraisals on projects
• Decided on Approach – use CMMI® for Process Improvement and Measuring Progress
• Using extensive research, determined the ‘Critical Success Factors for Implementing CMMI®’
• Built Plan of Action
• Advertised Early Successes
• Implemented Plan Successfully for Phase 1
• First SPAWAR Systems Center to achieve CMMI® Maturity Level 2 in April 2005
• Following Plan for Phase 2 – CMMI® Maturity Level 3
• Focus on System Engineering Excellence
• Continue to apply “Lessons Learned”
  – Findings from SCAMPIs
    • Peer Reviews, Effectiveness of DAR, Senior Management Involvement, PPQA
  – Feedback from using the SSC-C Organizational Assets
  – Feedback for using the SSC-C Organizational Measurement Repository
  – Feedback from ePlan Builder (MR Process in place)
• Leveraging from the first program in SPAWAR Systems Center to achieve CMMI® Maturity Level 3
  – Interviews and pictures in S2E Newsletter
  – Sample ML3 Documents on Website
  – Findings from SCAMPI

• Continuing to prepare for the Command Maturity Level 3 appraisal in April 2007

• Laying groundwork for higher maturity
• Aggressive SE Program
• Industry Standards
  – Systems Engineering
  – Software Engineering
• Best Practices
• Automated Tools
  – ePlanBuilder
  – eWBS
• Training – 1,600+
  – SE Fundamentals - 305
  – Web-Based Training courses
    • SSC-C PI; Intro to SE; Arch. Dev.

• Successes
  – April 2005 Command Achieved CMMI® Maturity Level 2 as certified by Software Engineering Institute
  – July 2006 first program to achieve CMMI® Maturity Level 3
  – 1st SPAWAR Systems Center to achieve these levels

• Goals
  – World-Class SE Program
  – Support Command Balanced Scorecard
  – April 2007, Command to achieve CMMI® Level 3

EPO Website
corpweb2.spawar.navy.mil/cmml
Thank you!

Any Questions?

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