



# **CBA-IPI Software Process Appraisal Findings Briefing**

**DLA Systems Design Center  
(DSDC)  
14 February 1997**





# Agenda

- ❖ Appraisal Background
- ❖ Scope of Appraisal
- ❖ Overall Strengths
- ❖ Summary of Key Findings
- ❖ Maturity Level Achieved
- ❖ Other Related Issues
- ❖ Recommendations
- ❖ Next Steps





# Appraisal Objectives

- ❖ Understand SW Engineering Practices
- ❖ Identify Key Process Improvement Areas
- ❖ Facilitate Process Improvement Actions
  - Provide Framework for Action
  - Assist in Getting Sponsorship/Support for Action

***Provide Improvement Framework***





# What is the Basis for the Appraisal?

## ❖ The Capability Maturity Model

- Principal Tool of the Appraisal
- Relates Maturity Level, Characteristics, Key Challenges and Risk
- Provides reference point to establish present state of SW process
- Acts as roadmap for future software improvement activities
- Measure of merit widely used by industry and government
- Probably the one with broadest recognition and acceptance





# Capability Maturity Model

<i>Level</i>	<i>Focus</i>	<i>Key Process Areas</i>
5 Optimizing	Continuous Improvement	Process Change Management Technology Change Management Defect Prevention
4 Managed	Product and Process Quality	Software Quality Management Quantitative Process Management
3 Defined	Engineering Process	Organization Process Focus Organization Process Definition Peer Reviews Training Program Intergroup Coordination Software Product Engineering Integrated Software Management
2 Repeatable	Project Management	SW Project Planning SW Project Tracking & Oversight SW Subcontract Management SW Quality Assurance SW Configuration Management SW Requirements Management
1 Initial	Heroes	





# What will an Appraisal tell you?

## ❖ The Findings Tell You:

- Where your major problem areas are
  - Tied to the CMM Key Process Areas
  - As defined by the CMM Key Practices
- Some of the symptoms that were observed
- Some of the consequences that are impacting you

## ❖ The Recommendations Tell You:

- What key improvement you need to undertake
- What supporting elements you must address
- A suggested priority scheme





# What will an Appraisal NOT tell you?

## ❖ The Findings:

- Will not provide a detailed baseline of your process
- Will not tell you what your specific current practices are
- Will not tell you where your “Kernels of Excellence” are
- Will not tell you specifically what to retain or what to replace

## ❖ The Recommendations:

- Will not tell you what your improvement goals and objectives should be
- Will not provide specific “How to” information
- Will not establish firm priorities
- Will not serve as an “Action Plan”
  - No resources identified
  - No schedule defined
  - No specific Tasks identified



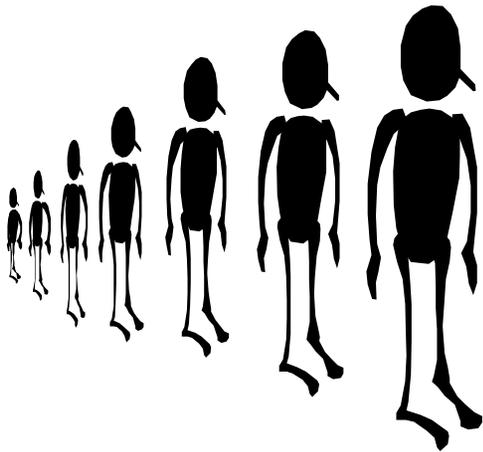


# It Is Not An Evaluation Or Status Report On:

## Projects



## People





# Scope of Appraisal

## ❖ Team Members

- Susan Crabtree
- Darin Hill
- Cheryl Hobbs
- Judith Lantinga
- Rene Moore-Ali
- Jennifer Taulbee
- Sheila Terry
- Tina Walls

## ❖ Dayton Aerospace, Inc.

- Bob Lavoie
- Ann Roberts

## ❖ Interviews

- 4 Project Leaders
- 5 Managers
- 24 Practitioners

## ❖ Projects Reviewed

- MOCAS Batch Re-Engineering
- IRS Form 1099
- DCARRS
- PCARSS





# Strengths

- Strong Senior Management Commitment to Process Improvement
- SEPG is operating effectively
- Associates not afraid of hard work
- Organization has strong technical capabilities
- Organization is eager to improve
- Organization committed to delivering quality products
- Organization knows and supports its systems and customers
- Organization understands that everyone (including customers) must take this journey together
- DSDC Project Guide is a very effective tool
- Auditing has enhanced implementation of the process





# Recurring Themes

- Resources are adequate for current workload but can easily become strained with downsizing and increased number of projects
- Metrics are being collected but not used effectively to improve the process
- Metrics have not been defined for all level 3 KPAs and therefore there is limited management visibility
- Policies and procedures have not been fully defined for most level 3 KPAs
- Level 3 Institutionalization Common Features are not satisfied for most KPAs





# Requirements Management

- ❖ Allocated system requirements are controlled to establish a baseline for software engineering and management use.
- ❖ Software plans, products and activities are kept consistent with these allocated requirements

FS

FS

## The purpose of Requirements Management is:

To establish a common understanding between the customer and the software project of the customer's requirement that will be addressed by the software project. This agreement with the customer is the basis for planning (as described in Software Project Tracking and Oversight) the software project. Control of the relationship with the customer depends on following an effective change control process (as described in Software Configuration Management.)





# Requirements Management

## ❖ Strengths

- Requirements management policy exists and is followed
- The project team reviews the allocated requirements before they are incorporated into the software project
- Requirements are used as the basis for software plans, work products, and activities
- A group is responsible for analyzing and documenting requirements. Technical Leads are responsible for allocating requirements
- Adequate funding and resources are provided for managing the allocated requirements
- Members of the software related groups are trained to perform their requirements management activities
- Management is informed of requirements management activities on a periodic and event-driven basis
- Measurements are made and used to determine the status of the requirements
- SQA reviews/audits the requirements management activities and products





# Requirements Management

## ❖ Weaknesses:

- Requirements are not traced to an appropriate level of detail through all phases of the lifecycle at this time





# Requirements Mangement

## ❖ Candidates for Improvement:

- The current organization of requirements changes in Tab B of the project books is not conducive to future analysis.
- The organization lacks a central repository of product line system information (such as, requirements) to support future system analysis
- Programmers' role in the requirements process is not clearly understood, communicated, or implemented
- Metrics are being collected but are not effectively used to improve the process





# KPA Implementation Status

## Requirements Management

Commitment

Written Policy

Ability

- Responsibility Assigned
- Resources Allocated
- People Trained

Activities

- SW Engr Analyzes
- Planning Basis
- Changes Controlled

Measurement

Status Measured

Verification

- Senior Mgt Review
- Project Mgt Review
- QA Audit

- Fully Satisfied
- Partially Satisfied
- Not Satisfied





# Software Project Planning

- ❖ Software estimates are documented and used to plan and track.
- ❖ Software project activities and commitments are planned and documented.
- ❖ Affected groups and individuals agree to their commitments.

FS

FS

FS

## The purpose of Software Project Planning is:

To establish reasonable plans for performing the software engineering and for managing the software project. These plans are the necessary foundation for managing the software project (as described in Software Project Tracking and Oversight.) Without realistic plans, effective project management cannot be implemented.





# Software Project Planning

## ❖ Strengths

- A planning policy exists and is followed
- Project books exist and are updated regularly
- Required estimates are developed according to a procedure and are documented in project books
- Risks are identified and documented
- The project team participates in the initial development of the project plan and continues throughout the life cycle
- PMs are trained in estimating procedures and tools
- Management regularly reviews planning activities
- CM and SQA analysts participate in planning and project milestone reviews as identified in their plans





# Software Project Planning

- ❖ Weaknesses:
  - NONE





# Software Project Planning

## ❖ Candidates for Improvement:

- Software estimating is based on experience not on an organizational planning database.
- Critical computer resource, facilities, and support tool estimating is being performed but is not well documented in the project plans
- Resources are adequate for current workload but can easily become strained with downsizing and increased number of projects
- Metrics are being collected but not used effectively to improve the process

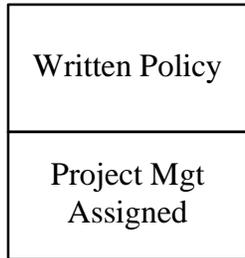




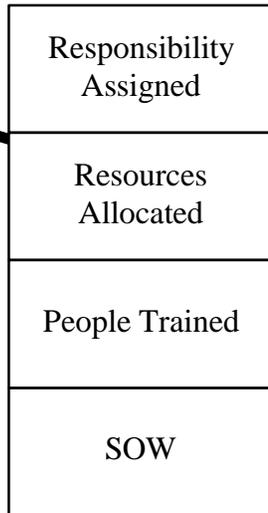
# KPA Implementation Status

## Software Project Planning

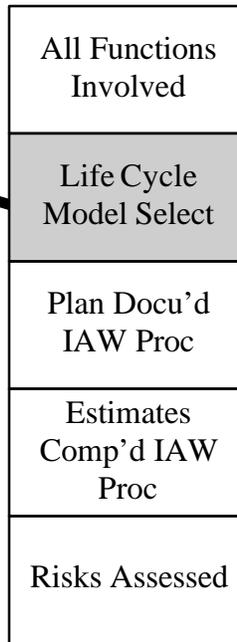
### Commitment



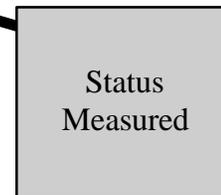
### Ability



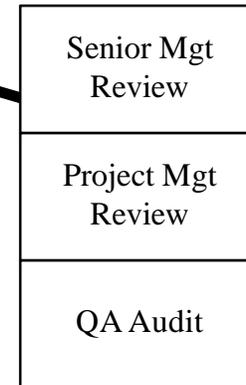
### Activities



### Measurement



### Verification



- Fully Satisfied
- Partially Satisfied
- Not Satisfied





# SW Project Tracking & Oversight

- ❖ Actual results are tracked against software plans.
- ❖ Corrective actions taken and managed to closure when significant deviations occur
- ❖ Changes to software commitments are agreed to by the affected people

FS

FS

FS

## The purpose of Software Project Tracking & Oversight is:

To establish adequate visibility into actual progress so that management can take effective actions when the software project's performance deviates significantly from the software plans.





# SW Project Tracking & Oversight

## ❖ Strengths

- PM guidance is recognized and utilized on projects
- Project books are regularly updated when tracking actuals vs estimates (such as, schedule, cost, sizes, staffing)
- Team meetings and/or IPRs are regularly held to communicate status, track progress, revise schedules, and identify corrective actions
- Team members provide bi-weekly status reports to the PM
- PMs complete various management reports (such as, project schedule status report, workload spreadsheet)
- SQA analysts participate in project milestone reviews as identified in SQA plans
- Audits are regularly scheduled and completed





# SW Project Tracking & Oversight

## ❖ Weaknesses:

- Some project managers may not have enough background to resolve the critical dependencies among cost, schedule, and technical issues





# SW Project Tracking & Oversight

## ◆ Candidates for Improvement:

- Some project managers and team members may not have achieved an adequate level of interpersonal skills to ensure successful team operation and project implementation
- Some 1st line supervisors may not have adequate familiarization with all the functions for which they are responsible
- Risks may not be consistently updated and tracked throughout the project life cycle
- Computer resources estimates may not be updated throughout the project life cycle
- Metrics are collected but not used effectively to improve process





# KPA Implementation Status

## SW Project Tracking & Oversight

### Commitment

Written Policy
SW Mgr Assigned

### Ability

Responsibility Assigned
Resources Allocated
People Trained
SDP Approved

### Activities

SDP Used for PT&O
SDP Current
Act vs Est Tracked
Deviations Recorded
Corrective Action Taken
Risks Tracked
Reviews Held

### Measurement

Status Measured
-----------------

### Verification

Senior Mgt Review
Project Mgt Review
QA Audit

- Fully Satisfied
- Partially Satisfied
- Not Satisfied





# SW Subcontract Management

- ❖ Select qualified subs capable of doing the work.
- ❖ Establish and maintain mutual understanding of contractual commitments.
- ❖ Both parties maintain on-going communications.
- ❖ Track subcontractor's actual performance against commitments.

FS

FS

FS

FS

## The purpose of Software Subcontract Management is:

To select qualified software subcontractors and manage them effectively. It combines the concerns of Requirements, Management, Software Project Planning, and Software Project Tracking and Oversight for basic management control, along with necessary coordination of Software Quality Assurance and Software Configuration Management, and applies this control to the subcontractor as appropriate.





# SW Subcontract Management

## ❖ Strengths

- Selection and technical documentation (such as, SOW, SSS, SRS) procedures exist
- Prime contractor and subcontractor maintain on-going communications
- Prime contractor tracks subcontractor's actual results against their commitments
- Subcontractor manager trained and assigned (COR/COTR)
- Subcontract contractual activities are well established and performed





# SW Subcontract Management

## ❖ Weaknesses:

- Differences between legal aspects of contract management and technical aspects of project management are not fully understood, communicated, or implemented
- Day-to-day management of subcontractor technical activities are not clearly defined
- Team members interaction with subcontractors is not clearly defined





# SW Subcontract Management

## Candidates for Improvement:

- Post-contract activities such as lessons learned, contractor evaluations are not clearly defined
- Acceptance criteria for deliverables and performance are not defined at a detailed enough level to truly serve as acceptance criteria
- Differences between subcontracting development and supplemental resources (“body-shopping”) for DSDC are not clearly understood
- Organic resources to manage subcontracts are adequate for current workload but can easily become strained with downsizing and increased number of projects
- Metrics are being collected but not used effectively to improve the process

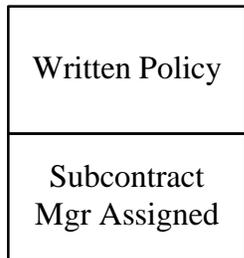




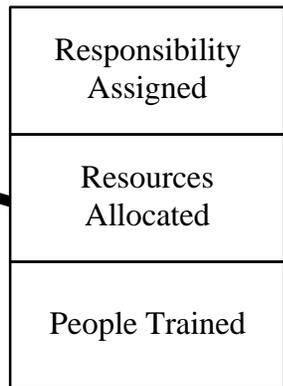
# KPA Implementation Status

## Software Subcontract Management

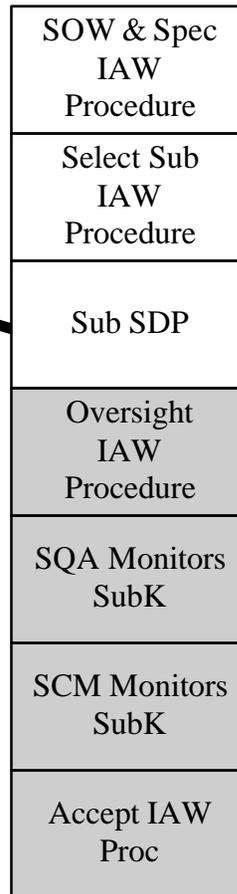
### Commitment



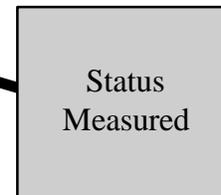
### Ability



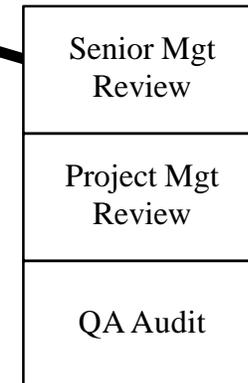
### Activities



### Measurement



### Verification



- Fully Satisfied
- Partially Satisfied
- Not Satisfied





# Software Quality Assurance

- ❖ Produce feasible plans for implementing SQA practices.
- ❖ Adequately check compliance of SW products & processes to their standards and requirements.
- ❖ Affected groups and individuals are informed of SQA activities and results.
- ❖ Escalate noncompliance issues to appropriate management level for resolution.

FS

FS

FS

FS

## The purpose of Software Quality Assurance is:

To provide management with appropriate visibility into the process being used by the software project and of the products being built. Software Quality Assurance is an integral part of most software engineering and management processes.





# Software Quality Assurance

## ❖ Strengths

- Activities are performed in accordance with the documented plans
- SQA participates in preparation and reviews of SDP, standards and procedures
- Audits of software activities and management work products are performed
- Results of SQA activities are reported to all affected groups
- SQA staff is trained in SQA activities and procedures
- Independent assessment of SQA activities has been performed and documented





# Software Quality Assurance

## ❖ Weaknesses:

- Technical software work products (software design, code, requirements traceable across life cycle) are not audited





# Software Quality Assurance

## ❖ Candidates for Improvement:

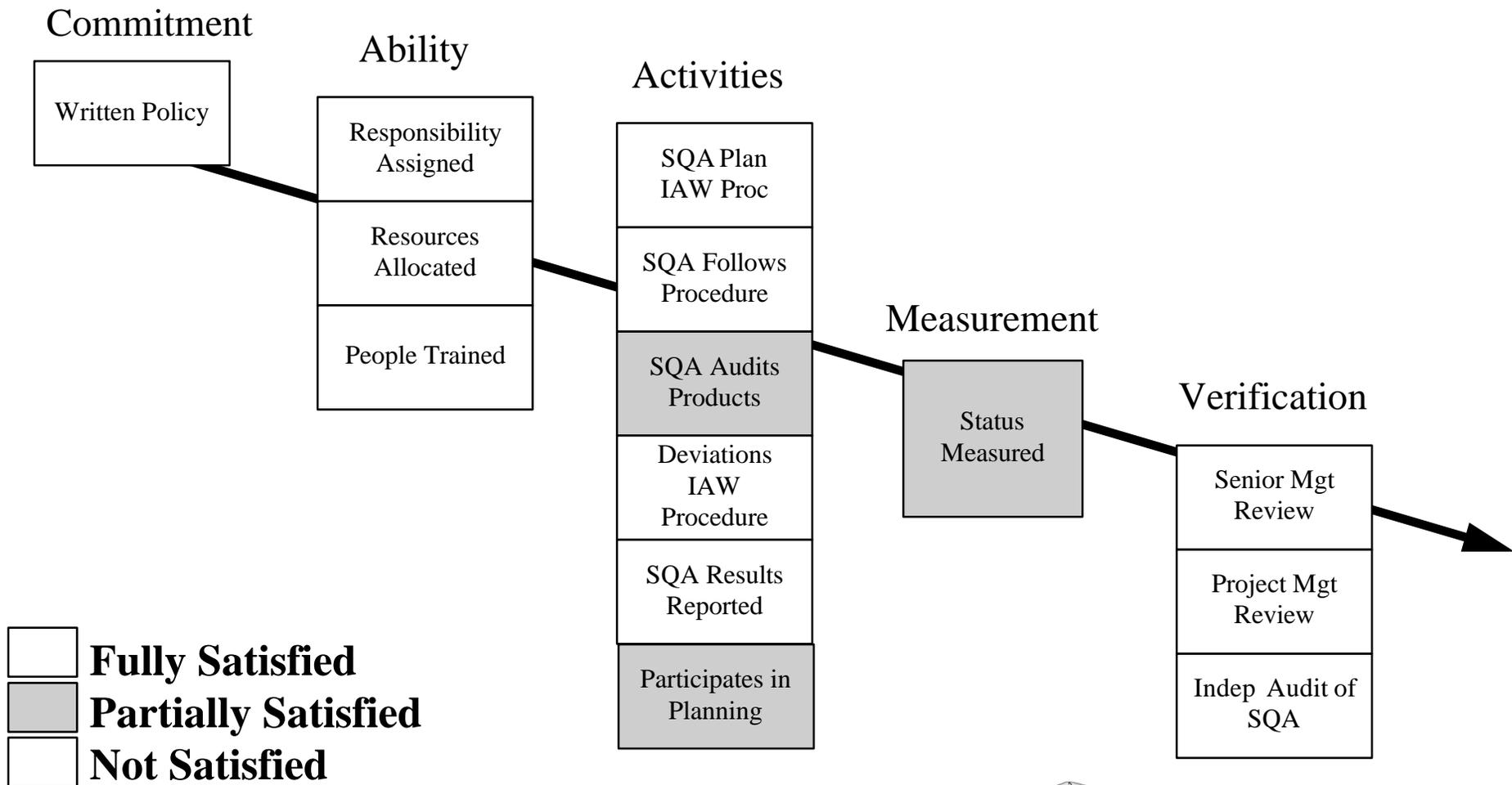
- SQA results (rollup) are not visible throughout the organization
- SQA is primarily focused on audits but SQA's role as a team member is not well defined or understood
- Resources are adequate for current workload but can easily become strained with downsizing and increased number of projects
- Metrics are being collected but not consistently analyzed and used effectively to improve the process





# KPA Implementation Status

## Software Quality Assurance





# Software Configuration Management

- ❖ Produce feasible plans for implementing SCM practices.
- ❖ Selected SW work products are identified, controlled and available.
- ❖ Changes to SW products are controlled.
- ❖ Affected people are informed of the status and content of software baselines.

FS

FS

FS

FS

## The purpose of Software Configuration Management is:

To establish and maintain the integrity of the products of the software project throughout the project's software life cycle. Software Configuration Management is an integral part of most software engineering and management processes.





# Software Configuration Management

## ❖ Strengths

- SCM plans are developed according to a documented procedure, and approved by senior management and the customer
- A CCB exists and is effectively controlling baselines and changes
- Corporate CM group audits baselines
- Software baselined configuration items are documented and audited as prescribed by policy and procedure
- The SQA group reviews/audits the SCM activities and work products and reports the results
- Measurements are made and used to determine the status of SCM activities





# Software Configuration Management

- ❖ Weaknesses:
  - NONE





# Software Configuration Management

## ❖ Candidates for Improvement:

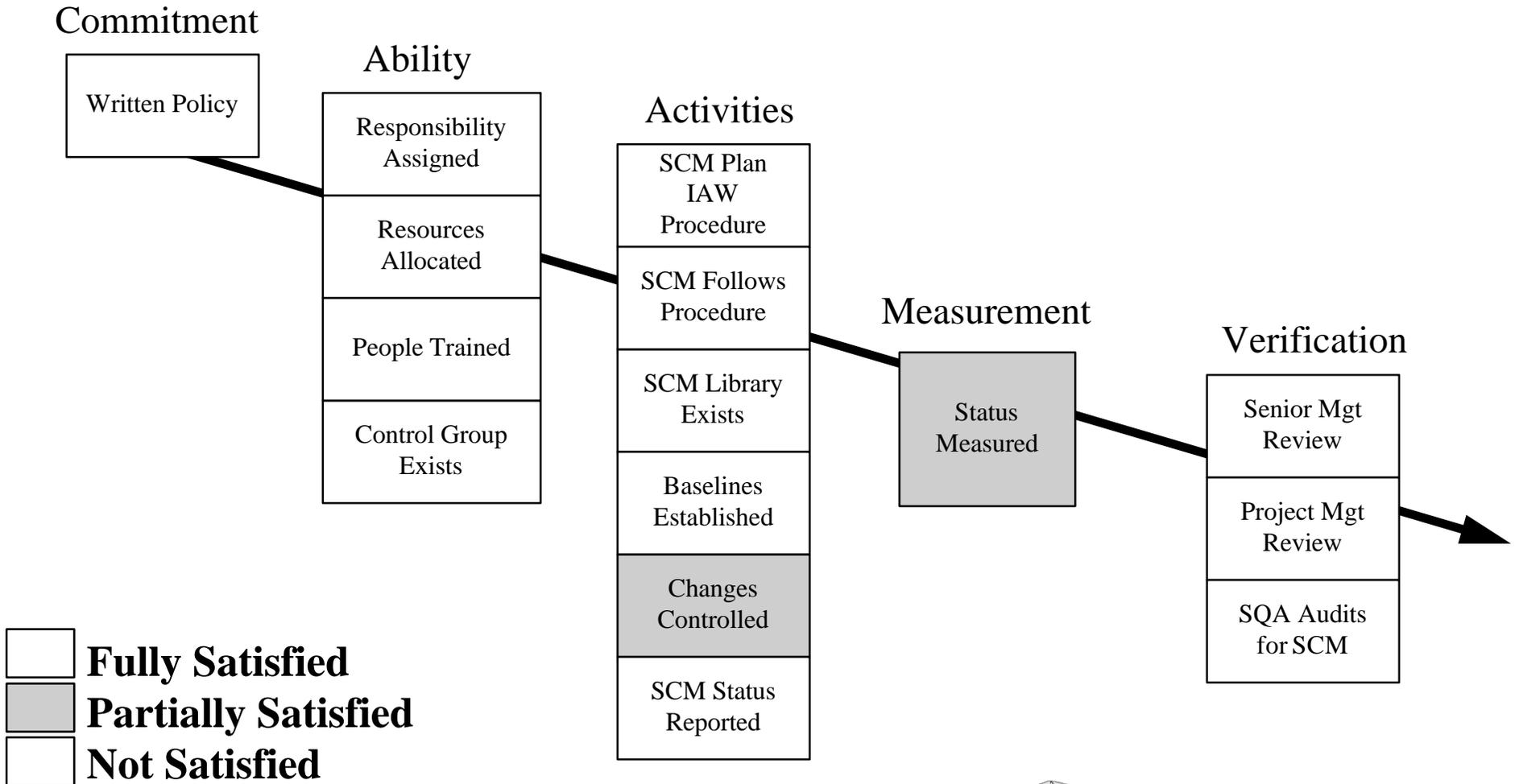
- Manual control of baselines is manpower intensive
- Baselining and document control and tracking are not consistent across projects
- CM administrator's role in the organization and on the project is not well understood
- The roles of the Directorate for Release and Configuration Management (DRCM) and the Corporate CM staff are not fully understood.
- Resources are adequate for current workload but can easily become strained with downsizing and increased number of projects
- Project-level metrics are being collected but not consistently analyzed and used effectively to improve the process
- Not all members of the organization are aware of the DSDC front door process





# KPA Implementation Status

## Software Configuration Management





# Organization Process Focus

- ❖ Software process development and improvement activities are fully coordinated.
- ❖ Strengths and weaknesses of the software processes used are identified relative to a process standard.
- ❖ Organization-level process development and improvement activities are planned.

FS

FS

FS

## The purpose of Organization Process Focus is:

To establish the organizational responsibility for software process activities that improve the organization's overall software process capability. The primary result of the Organization Process Focus activities is a set of software process assets, which are described in Organization Process Definition. These assets are used by the software projects, as is described in Integrated Software Management.





# Organization Process Focus

## ❖ Strengths

- The activities for developing, improving, and providing training on software process are coordinated at the organizational level
- New processes, methods, and tools are evaluated and where appropriate, transferred for use to other parts of the organization
- Software process is assessed periodically and action plans are developed to address the assessment findings
- Organization-level process development and improvement activities are planned
- Software process library is coordinated at the organizational level
- Processes and procedures are monitored for effectiveness





# Organization Process Focus

## ❖ Weaknesses:

- Tool use and effectiveness is not consistently monitored





# Organization Process Focus

## ❖ Candidates for Improvement:

- Resources are adequate for current workload but can easily become strained with downsizing and organizational rollout
- SEPG roles and activities are not clearly understood throughout DSDC
- Return On Investment measurements are limited and do not quantify the results of the improvement activity





# Organization Process Definition

- ❖ A standard software process for the organization is established and maintained
- ❖ Information related to the use of the standard process is collected reviewed and made available

PS

PS

## The purpose of Organization Process Definition is:

To develop and maintain a usable set of software process assets that improve process performance across the projects and provide a basis for cumulative, long-term benefits to the organization. These assets provide a stable foundation that can be institutionalized via mechanisms such as training, which is described in Training Program.





# Organization Process Definition

## ❖ Strengths

- The organization has a software process improvement policy
- The organization's standard software process is developed, documented, and maintained according to a documented procedure
- The organization's software process database including standards, procedures, development plans, measurement plans, and training materials is established and maintained
- Adequate resources and funding are provided for process development and training





# Organization Process Definition

## ❖ Weaknesses:

- Technical elements of the process are not defined





# Organization Process Definition

## ❖ Candidates for Improvement:

- Resources are adequate for current workload but can easily become strained with downsizing and organizational rollout
- Tailoring guidelines/procedures are not adequate and leave too much room for interpretation
- Awareness of the software process library and other process assets is limited





# Training Program

- ❖ Training activities are planned
- ❖ Training to develop technical and management skills is provided
- ❖ All individuals appointed to fill SW roles receive the training necessary to perform their roles

PS

PS

PS

## The purpose of Training Program is:

To develop the skills and knowledge of individuals so they can perform their roles effectively and efficiently. Training is an organizational responsibility, but the software projects should identify their needed skills and provide the necessary training when the project's needs are unique.





# Training Program

## ❖ Strengths

- Some elements of DSDC have generated excellent training plans
- Project Management training is completed IAW a training plan
- When required, internal training courses are developed IAW DSDC standards
- Training records are consistently maintained for project management and process training
- Significant resources have been committed to process, management, and technical training





# Training Program

## ❖ Weaknesses:

- DSDC training program is not defined
- Training plans are incomplete for some elements of DSDC
- There is no “organization” training plan. Consequently, training is not performed IAW such a plan
- No evidence of defined career ladders for DSDC associates
- Waiver procedures and criteria not yet in use
- Training program policy not established
- Skills database not available to support staffing decisions
- Measurements and status reports to management are generally limited to funds tracking
- Training effectiveness not currently measured on a regular basis
- Training program not currently audited





# Training Program

## ❖ Candidates for Improvement:

- Mandate to operate in the fee-for-service environment affects the training group's ability to satisfy DSDC training needs
- Level 3 training requirements will over-extend the training resources
- Scope of training group support is broader than DSDC and may be straining the limited resources
- Training group is in the wrong organizational directorate, affecting its ability to independently support all DSDC training needs
- Physical location of the training personnel limits their ability to interact with the project teams
- Existing training management tool limits the training group's capability to support a DSDC-wide training program
- Some management issues are impacting definition of the training program





# Integrated Software Management

- ❖ The project's defined software process is a tailored version of the organization's standard SW process.
- ❖ The project is planned and managed IAW its defined SW process.

PS

PS

## The purpose of Integrated Software Management is:

To integrate the software engineering and management activities into a coherent, defined software process that is tailored from the organization's standard software process and related process assets, which are described in Organization Process Definition. This tailoring is based on the business environment and technical needs of the project, as described in Software Product Engineering. Integrated Software Management evolves from Software Project Planning and Software Project Tracking and Oversight at Level 2.





# Integrated Software Management

## Strengths

- Software risk identification and management procedure is well documented and being used
- SDP is developed and revised according to a documented procedure and is being used to manage projects
- Regular reviews of software projects for adherence to schedule and plans are performed
- Activities for managing the software project are reviewed with senior management periodically
- Measurements are rolled up to determine effectiveness of project management activities
- SQA reviews and/or audits the activities and work products for managing projects and reports results





# Integrated Software Management

## ❖ Weaknesses:

- The organization lacks a mechanism for collecting and disseminating technical and management data and analyses across the organization, such as lessons learned
- The concept of critical dependencies is not well understood
- Critical dependencies between process elements and organizations are not always identified during planning
- Some project managers may not have enough background to resolve the critical dependencies among cost, schedule, and technical issues





# Integrated Software Management

## ❖ Candidates for Improvement:

- Tailoring guidelines/procedures are not adequate and leave too much room for interpretation
- Some project managers and team members may not have achieved an adequate level of interpersonal skills to ensure successful team operation and project implementation
- Risks may not be consistently updated and tracked throughout the project life cycle
- Conflicting priorities between projects are affecting staffing, schedules and morale





# Software Product Engineering

- ❖ SW engineering tasks are defined, integrated and consistently performed to produce SW
- ❖ Software work products are kept consistent with each other

NS

NS

## The purpose of Software Product Engineering is:

To consistently perform a well-defined engineering process that integrates all the software engineering activities to produce correct, consistent software products effectively and efficiently. Software Product Engineering describes the technical activities of the project, e.g., requirements analysis, design, code and test.





# Software Product Engineering

## ❖ Strengths

- Draft procedures exist for requirements development and testing
- Technical lead identified on some projects
- Requirements definition performed and baselines established
- Requirements traced during acceptance test
- Requirements & SDP changes are managed
- Tools for analysis, design, coding, and test exist





# Software Product Engineering

## ❖ Weaknesses:

- Draft procedures only cover requirements and system/acceptance test
- No organizational architecture, high-level and detailed design, coding, unit test procedures in place
- No requirements traceability procedure to cover entire lifecycle
- Defect data not collected and analyzed at all stages of life cycle
- Process descriptions, software design, code, and test changes are not maintained and consistent
- Draft SPE policy does not address SPE issues and includes procedures more geared toward Intergroup Coordination or Integrated Software Management
- Technical software work products (software design, code, requirements traceable across life cycle) are not audited by SQA





# Software Product Engineering

## ❖ Candidates for Improvement:

- Technical Lead resources are adequate for current workload but can easily become strained with downsizing and an increased number of projects
- Organization lacks a full life cycle requirements traceability tool
- Software engineering training (requirements, analysis, design, development, and testing) is lacking
- Orientation in related software engineering disciplines is not fully effective
- Training plan for developing and qualifying technical leads does not exist





# Intergroup Coordination

- ❖ Customer's requirements are agreed to by all affected groups.
- ❖ The commitments made by the engineering groups are agreed to by the affected groups
- ❖ The groups identify track and resolve intergroup issues

FS

PS

PS

## The purpose of Intergroup Coordination is:

To establish a means or the software engineering group to participate actively with the other engineering groups so the project is better able to satisfy the customer's needs effectively and efficiently. Intergroup Coordination is the interdisciplinary aspect of Integrated Software Management that extends beyond software engineering; not only should the software process be integrated, but the software engineering groups interactions with other groups must be coordinated and controlled.





# Intergroup Coordination

## ❖ Strengths

- Project team participates with customers and end-users via JAD session workshops and peer reviews to establish system requirements
- Weekly DSDC-MP resource meetings with vertical organization first-line supervisors are held to identify and negotiate resources
- Project team reviews work products from other groups to ensure they meet their needs (e.g., inputs from subcontractor)
- Team and/or technical meetings held and action items are documented and tracked to closure





# Intergroup Coordination

## ❖ Weaknesses:

- No policy, plans, procedures, or measurements exist for establishing/maintaining interdisciplinary engineering teams
- Critical dependencies among vertical organizations are not tracked according to a documented procedure
- DSDC associates orientation in roles and responsibilities, processes, methods, and standards used by other groups is not fully effective





# Intergroup Coordination

## ❖ Candidates for Improvement:

- Not all DSDC associates are trained in teamwork
- Conflicting priority issues among projects is impacting morale and the ability to perform the job
- Resource leveling (over and under-utilization of people) is not being effectively addressed
- Some 1st line supervisors may not have adequate familiarization with all the functions for which they are responsible
- Vertical organization structure not fully understood and/or accepted





# Peer Reviews

- ❖ Produce feasible plans for implementing effective peer review practices
- ❖ Identify and remove product defects as early and as efficiently as possible

PS

PS

## The purpose of Peer Reviews is:

To remove defects from the software work products early and efficiently. An important corollary effect is to develop a better understanding of the software work products and of the defects that can be prevented. The peer review is an important and effective engineering method that is called out in Software Product Engineering and that can be implemented via Fagan-style inspections [Fagan86], structured walks/through, or a number of other collegial review methods [Freedman90].





# Peer Reviews

## ❖ Strengths

- Draft peer review policy exists
- Data on the conduct and results of the peer review are recorded, and measurements are tracked by process consultant
- The SQA group audits peer review activity





# Peer Reviews

## ❖ Weaknesses:

- Not all projects are doing peer reviews
- Size guidelines in the documented procedures were not followed
- Lack of training plans and official peer review policy has resulted in insufficient training for peer review leader and participants





# Peer Reviews

## ❖ Candidates for Improvement:

- A database for collecting and tracking peer review findings does not exist
- The distinction between peer reviews, inspections, and walkthroughs is not well understood in the organization





## Other Related Issues

- ❖ Funding constraints are impeding implementing improvements needed to bring all vertical organizations through process improvement
- ❖ Quality work is not always recognized and appreciated
- ❖ Communications among all levels is not as effective as it needs to be
- ❖ Perception exists that management is not always sensitive to people issues
- ❖ Ineffective approach to workload balancing is affecting morale and productivity
- ❖ Perception exists that morale issues are not being addressed
- ❖ Residual resistance to implementing CMM exists





# Key Process Area Profile

Maturity Level:

**2**

	Fully Satisfied
	Partially Satisfied
	Not Satisfied
	Not Applicable
	Not Rated

	<b>Optimizing KPAs</b>
	Process Change Management
	Technology Change management
	Defect Prevention

	<b>Managed KPAs</b>
	Software Quality Management
	Quantitative Process Management

	<b>Defined KPAs</b>
	Peer Reviews
	Intergroup Coordination
	Software Product Engineering
	Integrated Software Management
	Training Program
	Organization Process Definition
	Organization Process Focus

	<b>Repeatable KPAs</b>
	Software Configuration Management
	Software Quality Assurance
	Software Subcontract Management
	Software Project Tracking & Oversight
	Software Project Planning
	Requirements Management





# Recommendations

- ❖ Review metrics program and how the metrics can be used more effectively to improve process and products
- ❖ Review resource allocations based on changes in the organization and workloads
- ❖ Address life cycle requirements traceability
- ❖ Establish an organizational planning database
- ❖ Establish defect and lessons learned database
- ❖ Improve definition of technical interfaces with subcontractors
- ❖ Acquire automated tool for configuration management
- ❖ Expand SQA audits to cover technical software products





# Whats next?

- ❖ Complete Final Report (Appraisal Team)
- ❖ Formulate an Action Plan (SEPG):
  - Establish priorities for implementation of recommendations.
  - Define the specific implementation approach.
  - Define the resources required.
  - Define a specific schedule.
  - Require periodic management review of progress.
- ❖ Obtain management approval of Action Plan.
- ❖ Plan for and schedule subsequent product line appraisals.

