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DLA'S Central Design Activity

*INDUSTRY*

*Software Process  
Improvement  
(SPI)*

**Presented by: DSDC**

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# ***Description and Objectives***

**Description:** This presentation describes the Software Process Improvement Program (SPI) within DLA, the roles and responsibilities for SPI, the industry models used within the SPI program, and the status of SPI activities at DLA.

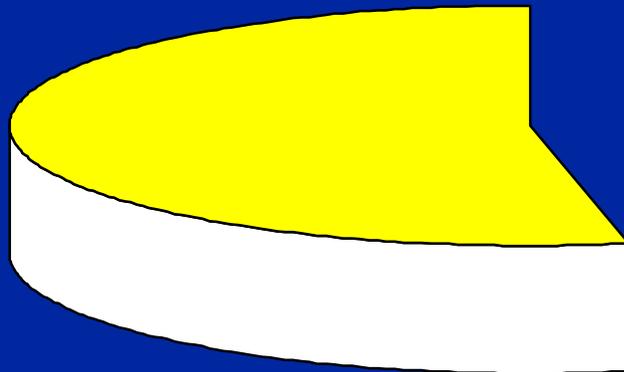
**Objectives:** At the end of this orientation, the attendees will be able to:

1. Recognize the three industry models used for Software Process Improvement (SPI)
2. Distinguish and identify their role in the SPI effort at DLA
3. Summarize the status of SPI activities within DLA

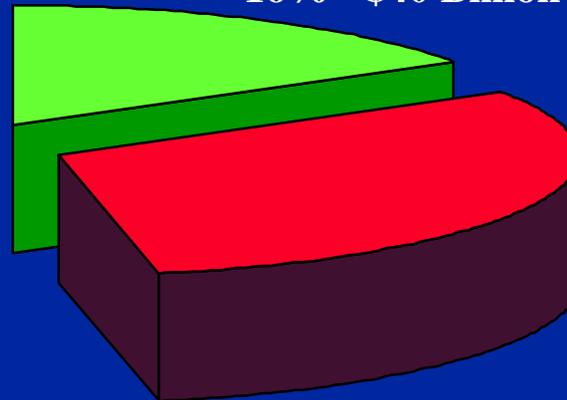
# The CHAOS Study

Annual Expenditure for Software Development in the U.S. - \$250 Billion

Over Budget, Delayed, Less  
Than Planned Functionality  
53% - \$132.5 Billion



On Budget, On Time, As requested  
16% - \$40 Billion



- Successful
- Impaired
- Challenged

Canceled In Development  
31% - \$77.5 Billion

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# What is SPI?

The DLA Software Process Improvement (SPI) initiative is the Corporate commitment for improving its capability to produce software.

SPI is a focused, sustained effort at building a process infrastructure of effective and efficient software engineering and management practices.

Improving the software process results in better management of software costs and schedules, product functionality, and quality.



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# **SPI**

## **Why Do It?**

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- ✓ **Most business process improvements implemented via software**
- ✓ **Improved process stability and capability**
- ✓ **Greater predictability for size, cost, schedule, effort & documentation**
- ✓ **Increased quality in products and services**
- ✓ **Reduced rework**
- ✓ **Decreased reliance on testing to ensure quality**
- ✓ **Minimized risk to software development investments**
- ✓ **Efficient project staff start-up time; faster project start-up**
- ✓ **Dynamic allocation of resources**
- ✓ **Improved teamwork among stakeholders**
- ✓ **Improved tool usage**
- ✓ **Long term benefits from continuous SPI**

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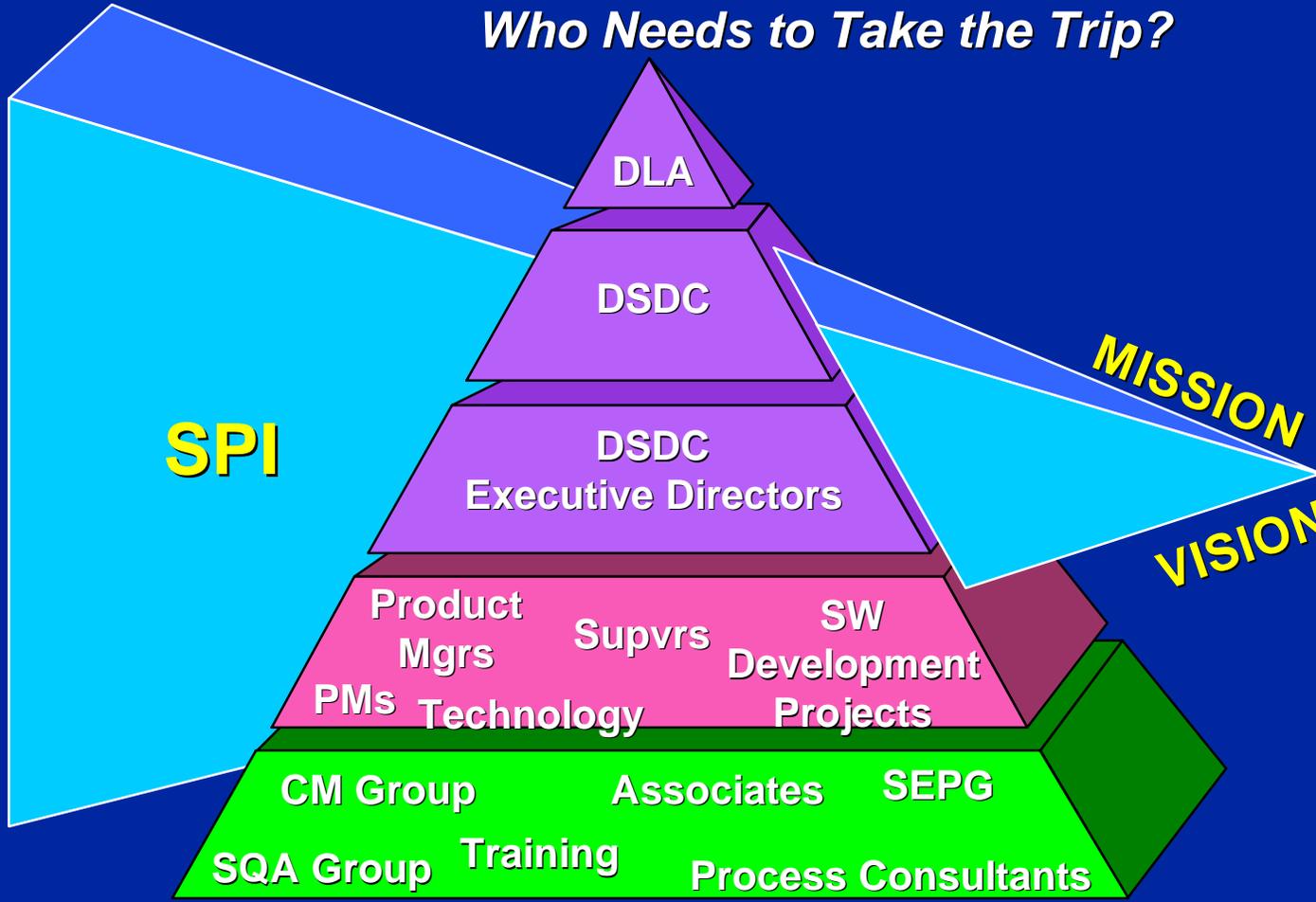
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# Software Process Improvement (SPI)

## The Agents

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Who Needs to Take the Trip?



Customers  
(Sponsors)  
&  
End Users

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# Software Process Improvement (SPI)

## Who Benefits?

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### End Users

- ✓ Higher quality products
- ✓ Faster
- ✓ Desired functionality

### Customers (Sponsors)

- ✓ All above plus
- ✓ Lower Total Cost
- ✓ Lower Risk Projects

### DSDC

- ✓ All above plus
- ✓ Stable, challenging work environment

### DLA

- ✓ All above plus
- ✓ Organization that survives AND thrives now AND in the future



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# Capability Maturity Model

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LEVEL	KEY PROCESS AREAS	RESULT
OPTIMIZING 5	DEFECT PREVENTION TECHNOLOGY INNOVATION PROCESS CHG MGT	PRODUCTIVITY AND QUALITY
MANAGED 4	PROCESS MEASUREMENT AND ANALYSIS QUALITY MANAGEMENT	
DEFINED 3	ORGANIZATION PROCESS FOCUS ORGANIZATION PROCESS DEFINITION PEER REVIEWS TRAINING PROGRAM INTERGROUP COORDINATION SOFTWARE PRODUCT ENGINEERING INTEGRATED SOFTWARE MGT	
REPEATABLE 2	REQUIREMENTS MGT SOFTWARE PROJECT PLANNING SOFTWARE PROJECT TRACKING SOFTWARE SUBCONTRACT MGT SOFTWARE QUALITY ASSURANCE SOFTWARE CONFIGURATION MGT	
INITIAL 1		

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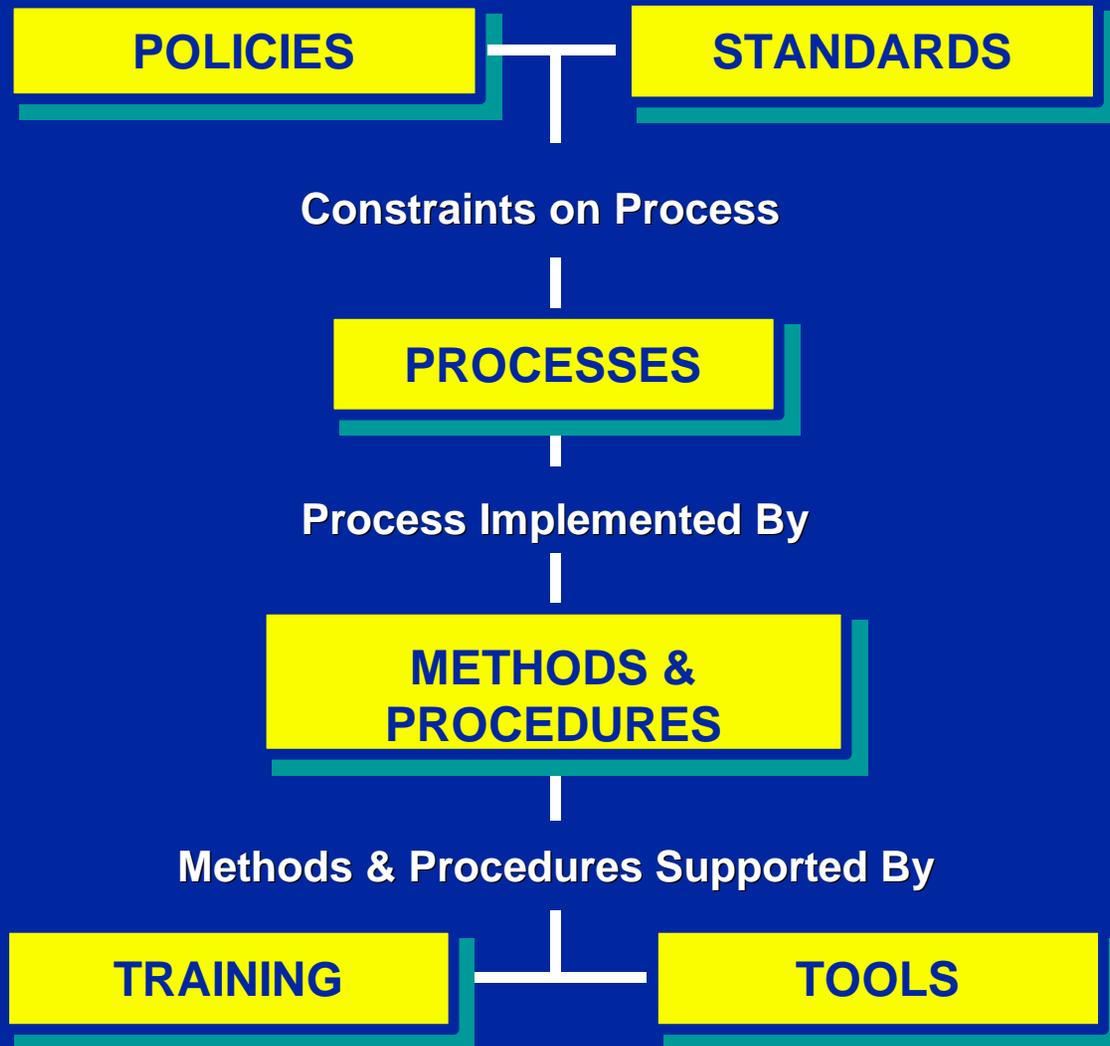
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# Software Process Improvement (SPI)

## The Operational Framework



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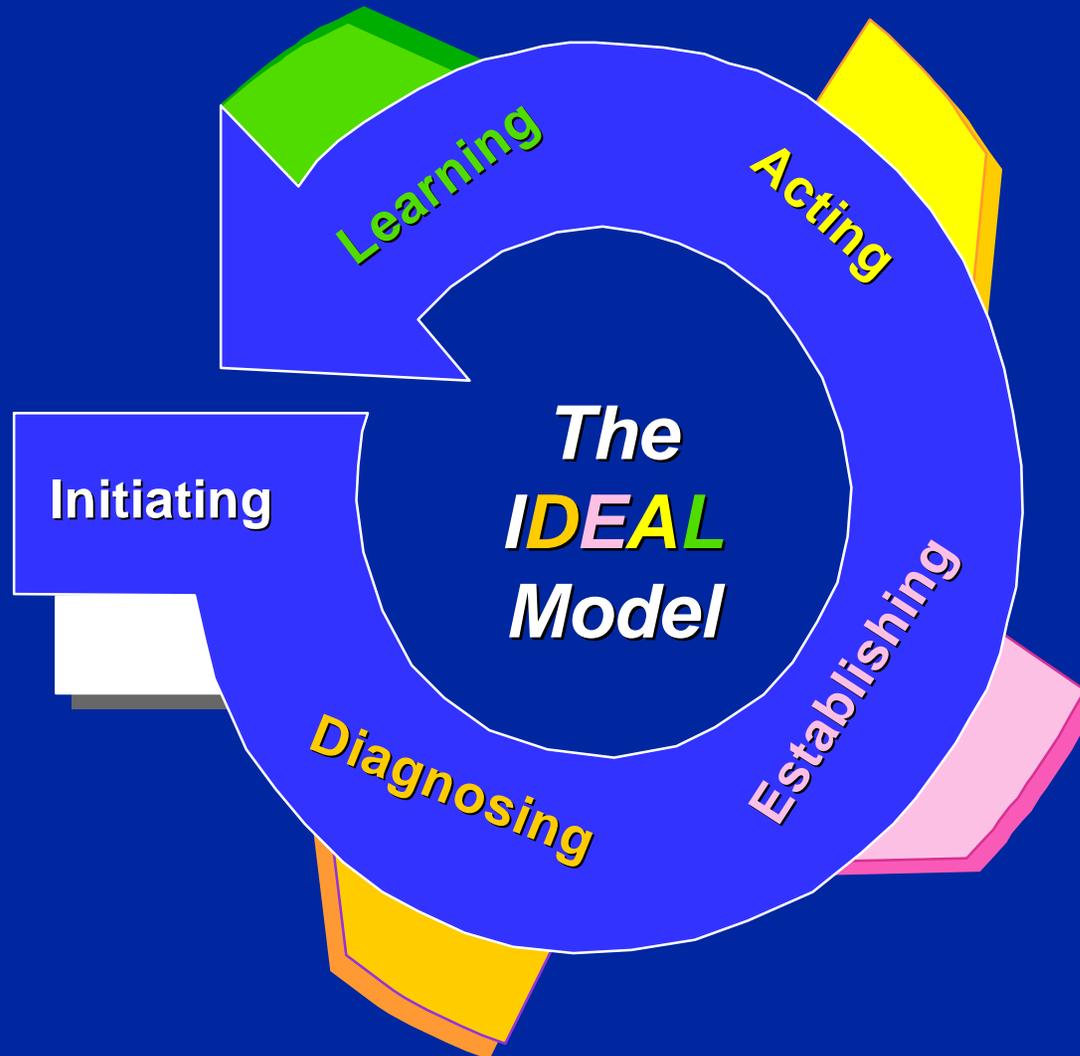
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# Software Process Improvement (SPI)

## The Life Cycle



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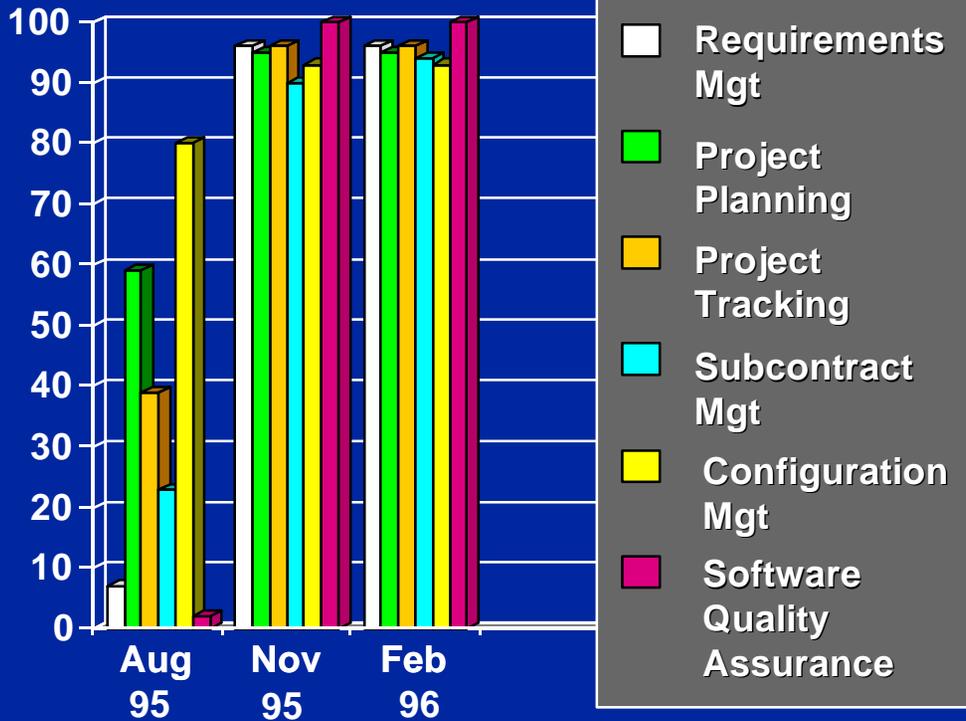
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# SPI Increment 1 Review

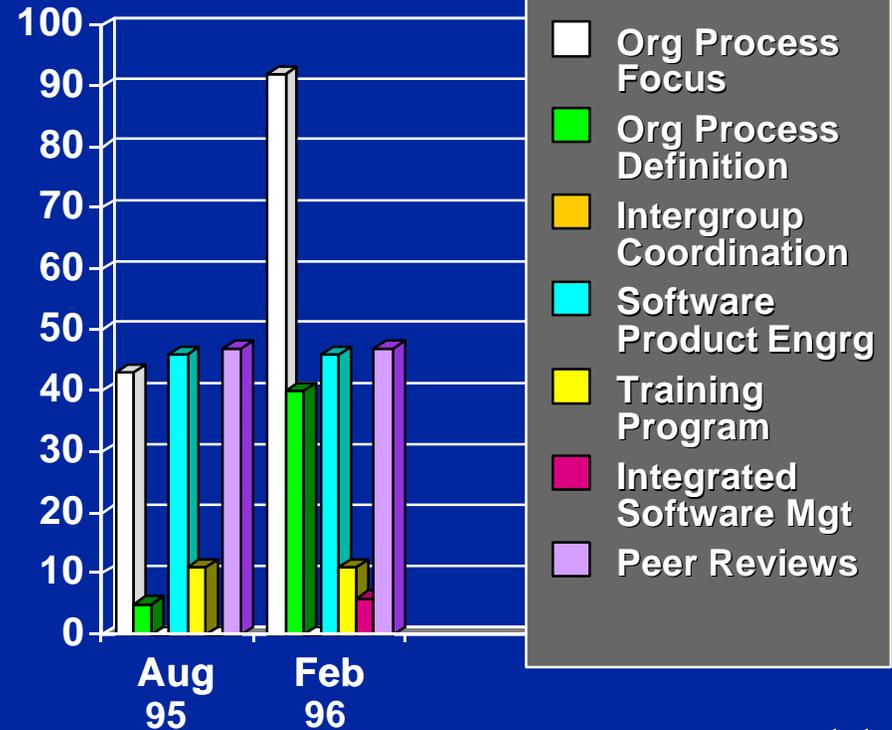
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## Software Process Improvement - Documentation

### CMM Level 2



### CMM Level 3



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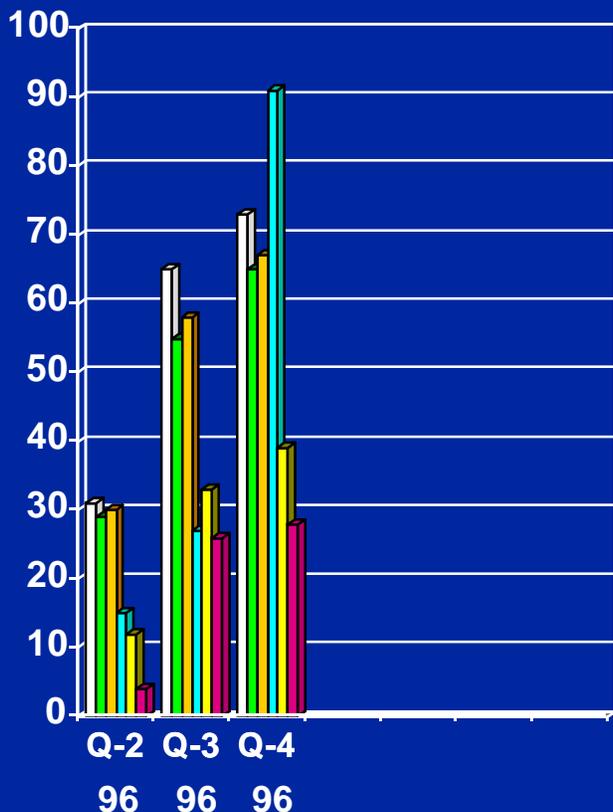
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# SPI Increment 2 Review

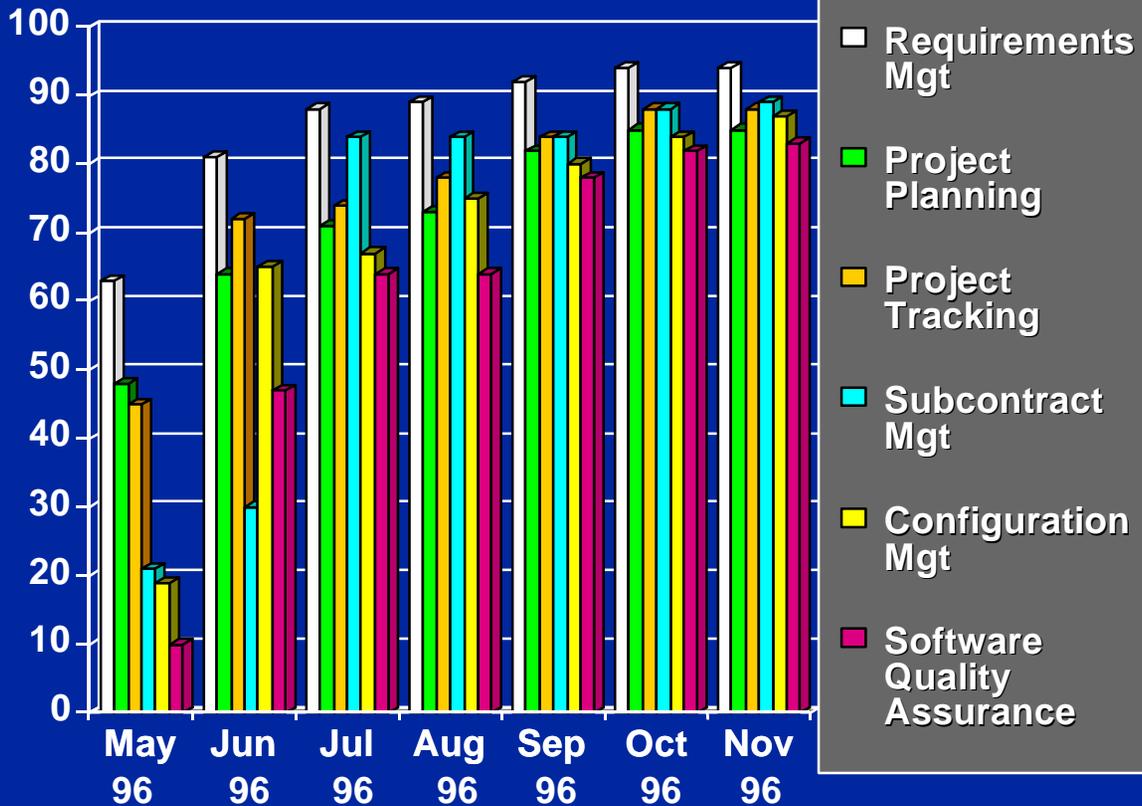
## Software Process Improvement - Implementation

CMM Level 2

**Without** Process Consultants



**With** Process Consultants



- Requirements Mgt
- Project Planning
- Project Tracking
- Subcontract Mgt
- Configuration Mgt
- Software Quality Assurance

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# SPI Increment 3

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## Software Process Improvement - Implementation & Documentation

- ✓ Train DSDC Associates
- ✓ Institutionalize CMM Level 2 Across DSDC
- ✓ Define all CMM L3 Key Process Areas

- ✓ Conduct Formal Assessment of 1 DSDC Product Line
- ✓ Publish updated SPI Operational Business Plan

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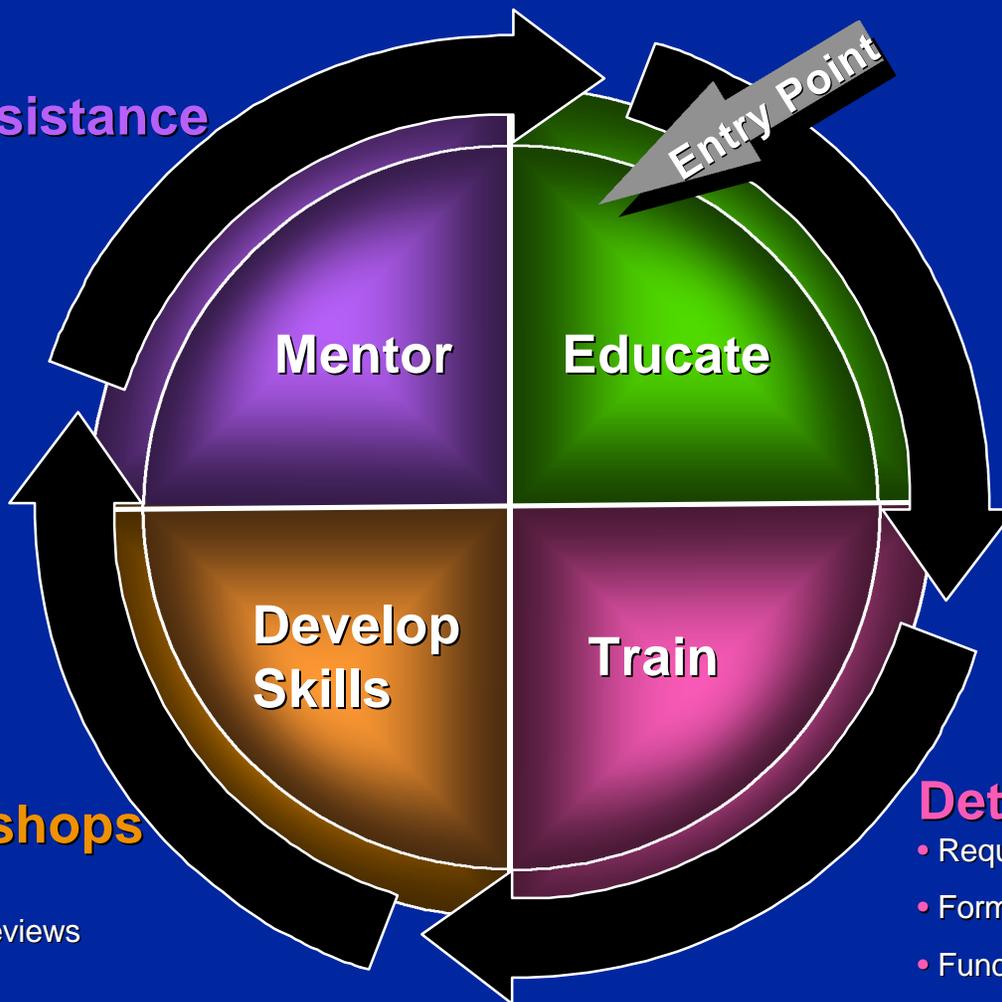
# SPI Increment 3 Review

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## Software Process Improvement - Implementation

### One-on-One Assistance

- SEPG
- Process Consultants
- Training Consultants



### Overviews

- CMM
- CMM Appraisals
- DSDC Status
- MIL-STD 498
- Project Mgt
- Risk Mgt
- Configuration Mgt
- SQA
- Size/Cost Estimation
- Testing
- Software Environments

### Hands-on Workshops

- Requirements Definition
- Formal Inspections/ Peer Reviews
- Function Pts/COCOMO

### Detailed Courses

- Requirements Definition
- Formal Inspections/ Peer Reviews
- Function Pts/COCOMO

# CMM Key Process Area (KPA) Profile Increment 3 Review

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LEVEL

2

M  
A  
T  
U  
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Y

3

### Defined KPAs

- Peer Reviews
- Intergroup Coordination
- Software Product Engineering
- Integrated Software Management
- Training Program
- Organization Process Definition
- Organization Process Focus

L  
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V  
E  
L

2

### Repeatable KPAs

- Requirements Management
- Software Project Planning
- Software Project Tracking & Oversight
- Software Subcontractor Management
- Software Configuration Management
- Software Quality Assurance

- Fully Satisfied
- Partially Satisfied
- Not Satisfied
- Not Applicable
- Not Rated

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# SPI Increments 4+ Preview

## Software Process Improvement - Implementation

- ✓ Implement CMM L3 Across DSDC Through Use of Education, Training, Skill Development and Mentoring
- ✓ Conduct Formal Assessment(s) of *all* DSDC Product Lines

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# Summary

- ✓ Need to Maintain Improvement Momentum
- ✓ Need to Develop As Professionals
- ✓ Need to Select Methods as well as Tools
- ✓ Previous Successes Prove “DSDC Can Do”
- ✓ Ultimately, Everyone Must Be Involved
- ✓ HQ DLA Sponsorship & Investment is Key