



Applying CMMI to the DCMA Surveillance Strategy

Presented by:

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DCMA - Pittsfield
Nov 15, 2006

Mission



DODD 5105.64, 9/27/2000: Mission – DCMA shall perform Contract Administration Services (CAS) for the DoD, other authorized federal agencies, foreign governments and others as authorized. DCMA is a combat support agency of the DoD under the direction of USD (AT&L) performing CAS functions IAW the Federal Acquisition Regulation and DoD Federal Acquisition Regulation Supplement.

Topics to be Discussed

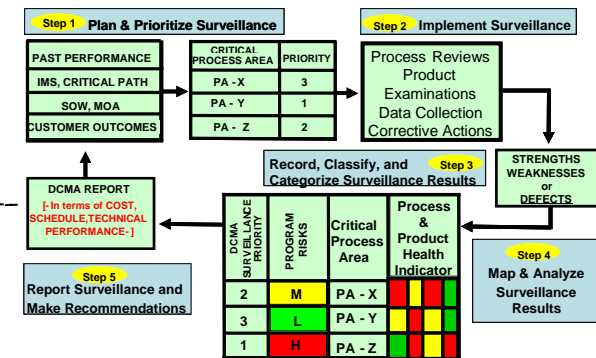
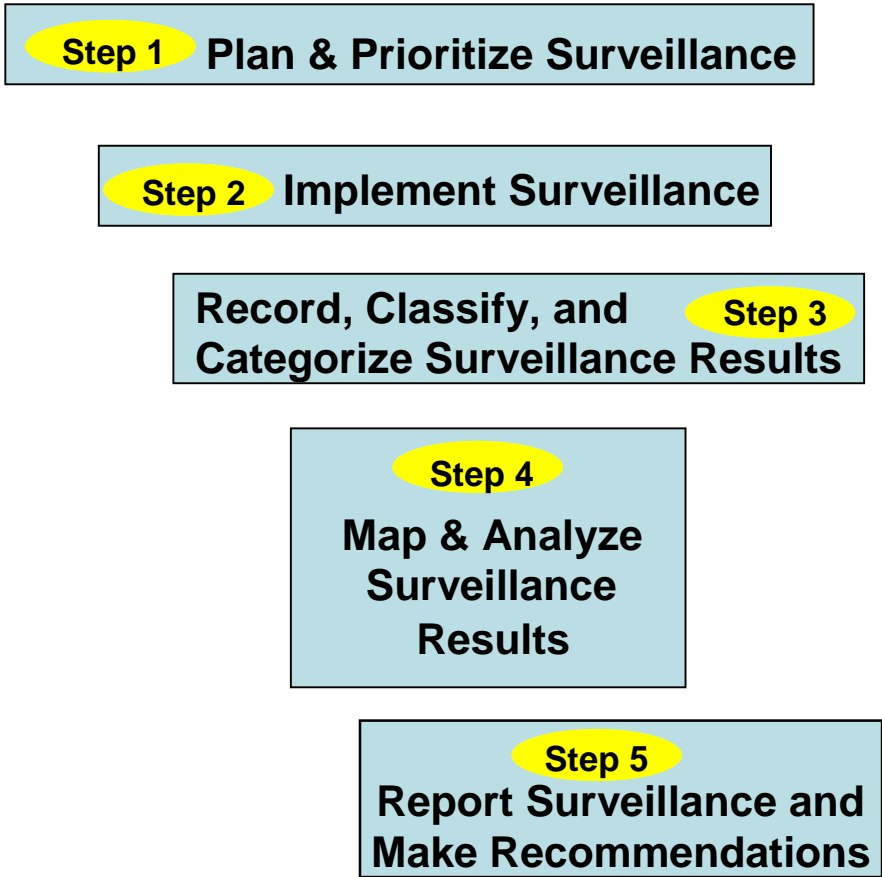
- **DCMA – Pittsfield Suppliers Time Line from CMMI Level 3 to CMMI Level 5**
- **Fundamentals of using CMMI Based Performance Management (CBPM) in a Performance Based Management (PBM) environment**
- **DCMA Pittsfield Method Description (CBPM methodology)**
- **Measurement Application using modified Practical Software Measurements (PSM) structure**
- **Surveillance Task/Action to CMMI Process Helper Guide**
- **DCMA Pittsfield Data Analysis and Use**

DCMA Pittsfield Suppliers Transition

- **CMM Level 3 - Prior to Nov 2003**
 - Data recorded and analyzed using a CMM Based surveillance application
- **CMMI Level 3 – Nov 2003 by contracted external assessment**
 - Data recorded and analyzed using CMMI CBPM surveillance application
- **CMMI Level 5 – Nov 2005 by contracted external assessment**
 - Increased scope of PA coverage & Continued Data recording and analysis using CBPM surveillance application

Institutionalization of a Process Change

- **Initiate** sponsorship and **establish** infrastructure
- **Define** Customer Outcomes (CO) and **transfer** to Memorandum of Agreement (MOA) elements
- **Determine** tasks/actions to be performed from MOA and **select** measurements to be collected/reported
- **Establish** priorities and **develop** measurement plan
- **Initiate** the measurement plan – **start** collecting and analyzing data
- **Report** DCMA surveillance analysis results to **influence** Customer Outcomes



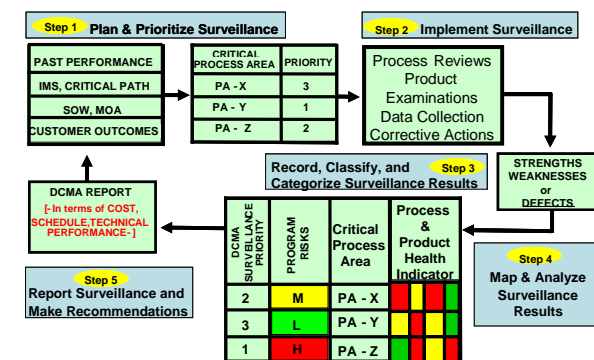
Plan and Prioritize Surveillance – Step 1

Customer Outcomes (CO) establishes Memorandum of Agreement (MOA) between Program Management Office (PMO) and DCMA

- Analyze identified factors to determine and prioritize Critical Process Areas and Practices

- MOA specified tasks/actions
- Past Performance
- Integrated Master Schedule
- Critical Path
- Statement of Work

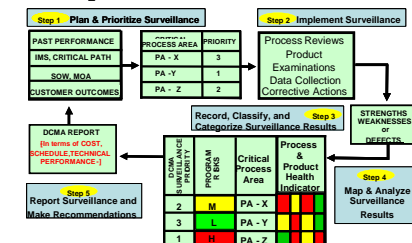
- Develop DCMA Surveillance Plan

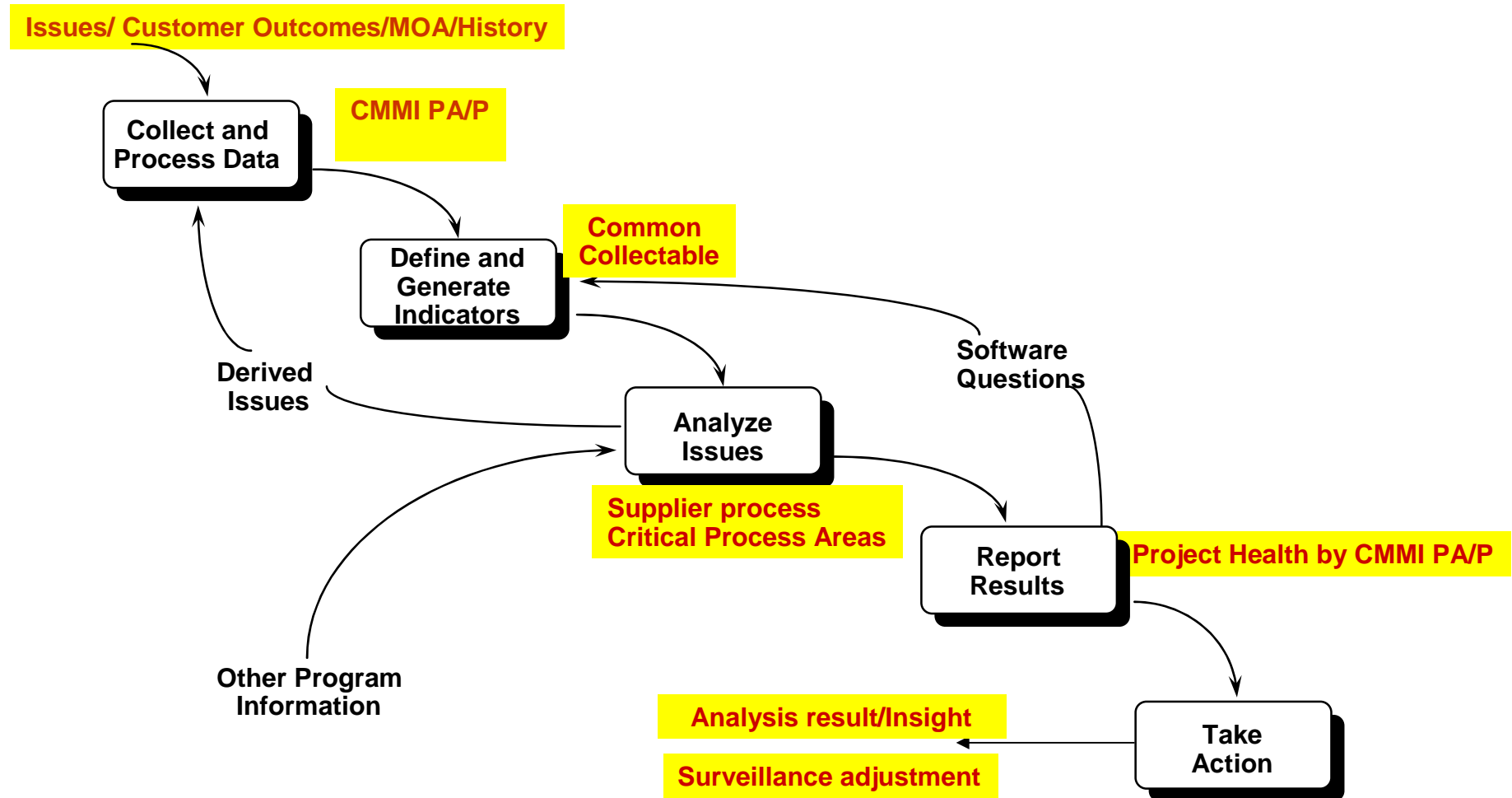


Implement Surveillance - Step 2

Perform Process Reviews, Product Examinations

- If necessary, issue Contractor Corrective Action (CAR) or Process Improvements (CIO)
- Tasks/actions for Process Reviews and Product Examinations determined in Planning and Prioritization
- Tailored PSM Measurement Application Process in Measurement Plan
- Practices observed determined By DCMA CMMI Helper Guide
- Record strengths as well as weaknesses

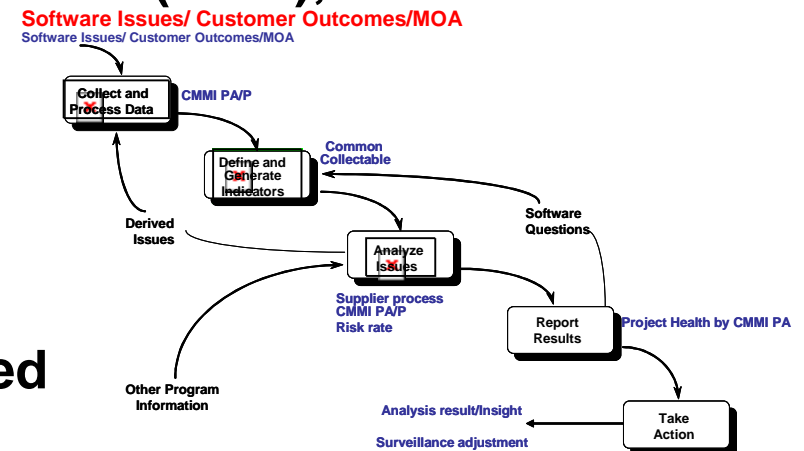




Reference: www.psmc.com

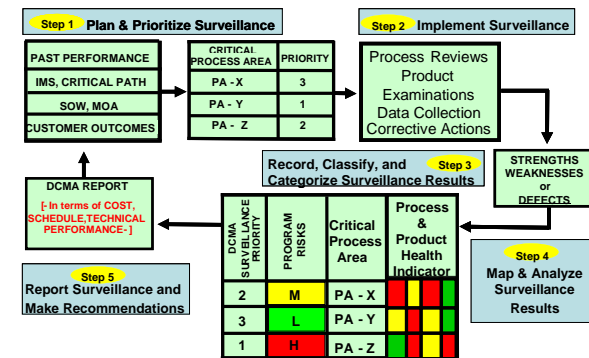
Tailoring the PSM Process

- Memorandum of Agreement (MOA) is the primary driver for measurement requirements to satisfy Customer Outcomes (CO)
- The supplier's process defines how the software is to be measured throughout the life-cycle
 - Reconciliation of available metrics possible
- **Collect**, record, and analyze data to satisfy MOA derived tasks/actions, CMMI Process Areas/Practices (PA/P), and identified issues
- Apply independent analysis
- Use a structured approach to ensure analysis results are related to established Customer Outcomes



Recording of surveillance in established CMMI Based - Performance Management database

- **Classification and weighting of surveillance results**
- **Categorize surveillance to related element**
 - **Customer Outcome (CO)**
 - **Memorandum of Agreement Task (MOA)**
 - **CMMI PA/P**
 - **Supplier Process**
 - **Process Risk**
 - **Development/Production Phase**
 - **Strength or Weakness**



CBPM database establishment

Each database record links the following:

- Date and individual
- Project
- Supplier Development/Production Process
- DCMA task/action
- Customer Outcome – Memorandum of Agreement element
- CMMI Process Areas/Practices
- Observations
- Defect with weight
- Root Cause with weight
- Corrective Action or Improvement Opportunity



CBPM database establishment



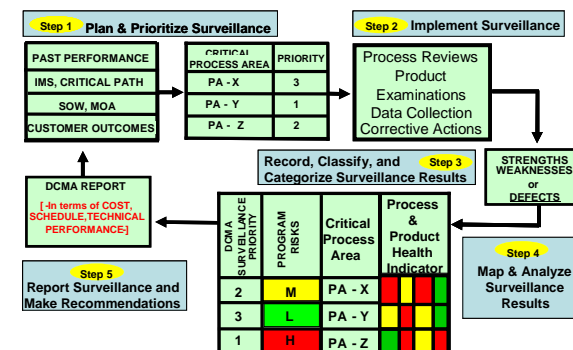
Capturing Surveillance Results

Facility Name	Initiator	Team	PA Weighting
EUPN - GD	Rochelo, C.	EUPN	2
Program Name	Project Name		Observation Time
Fire Control	FC SW-Aux Sys - WSIT		
Process Name	SWF - Technical/Design Review		2
Process Risk	1	1=None, 2=Low, 3=Moderate, 4=High	Mandatory Y
Date mmm-dd-yyyy	Part or Item Number	Description or Location Name	Analysis Time
Sep-14-2006	Test Readiness Review		1
PBM Element	s-Focus Team, IPT, DDT, Working Group participation		
Customer mandated in QALI. Perform a Process Review of all customer mandated task in the QALI. % of Planned tasks performed. Includes weekly SW test status meetings and Design			
Product/Service/Task	Practice	Process Area	
_Test Readiness Review (TRR)	CM\SP 1.1	_CM	
_Configuration Management		Risk Rating	M
Identify the configuration items, components, and related work products that will be placed under configuration management.			

Capturing Surveillance Results

WBS/Audit Point		FC-08 Software/Firmware			Add CAR	Add CIO
Lot Size	Sample Size/ Audits	Observations	Number Accepted	Number Rejected	CAR Number	CIO Number
1	1	30	0	1	2006 0450	I V 2006
Remarks	Observation activity performed in accordance with appropriate Software Risk Management Plan. CAR 2006-0450 issues as a					
Defect # 1	Defect # 2	Defect # 3	Defect # 4	Defect # 5		
SOF01	N/A	N/A	N/A	N/A		
Defect # 1 Amt	Defect # 2 Amt	Defect # 3 Amt	Defect # 4 Amt	Defect # 5 Amt		
1	0	0	0	0		
Def 1 Weight	Def 2 Weight	Def 3 Weight	Def 4 Weight	Def 5 Weight		
1						
Root Cause 1	Root Cause 2	Root Cause 3	Root Cause 4	Root Cause 5		
Relation/Handli						
RC Weight 1	RC Weight 2	RC Weight 3	RC Weight 4	RC Weight 5		
1						
Previous Record	Next/Add Record	Save and Exit	Print Record	Delete Record		

- Results mapped to CMMI Process Area Practices
- Analyze Data
- Supplier Critical Process Areas evaluated
 - Other linked elements analyzed
 - Appraise Applicable Critical Process Areas
 - Define Strengths or Weaknesses
- Program Risks reassessed



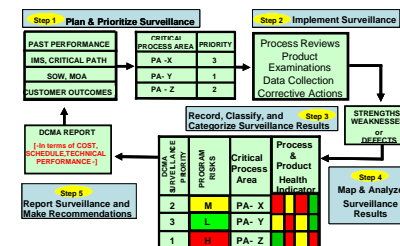
- Generate Report**

- Supplier processes that did/did not have an issue
- CMMI Process Areas & Practices that did/did not had an issue (strengths and weakness)
- Customer Outcomes observations performed
- Memorandum of Agreement observations performed
- DCMA Tasks performed
- Observed issues and opportunities
- Root Cause of issues

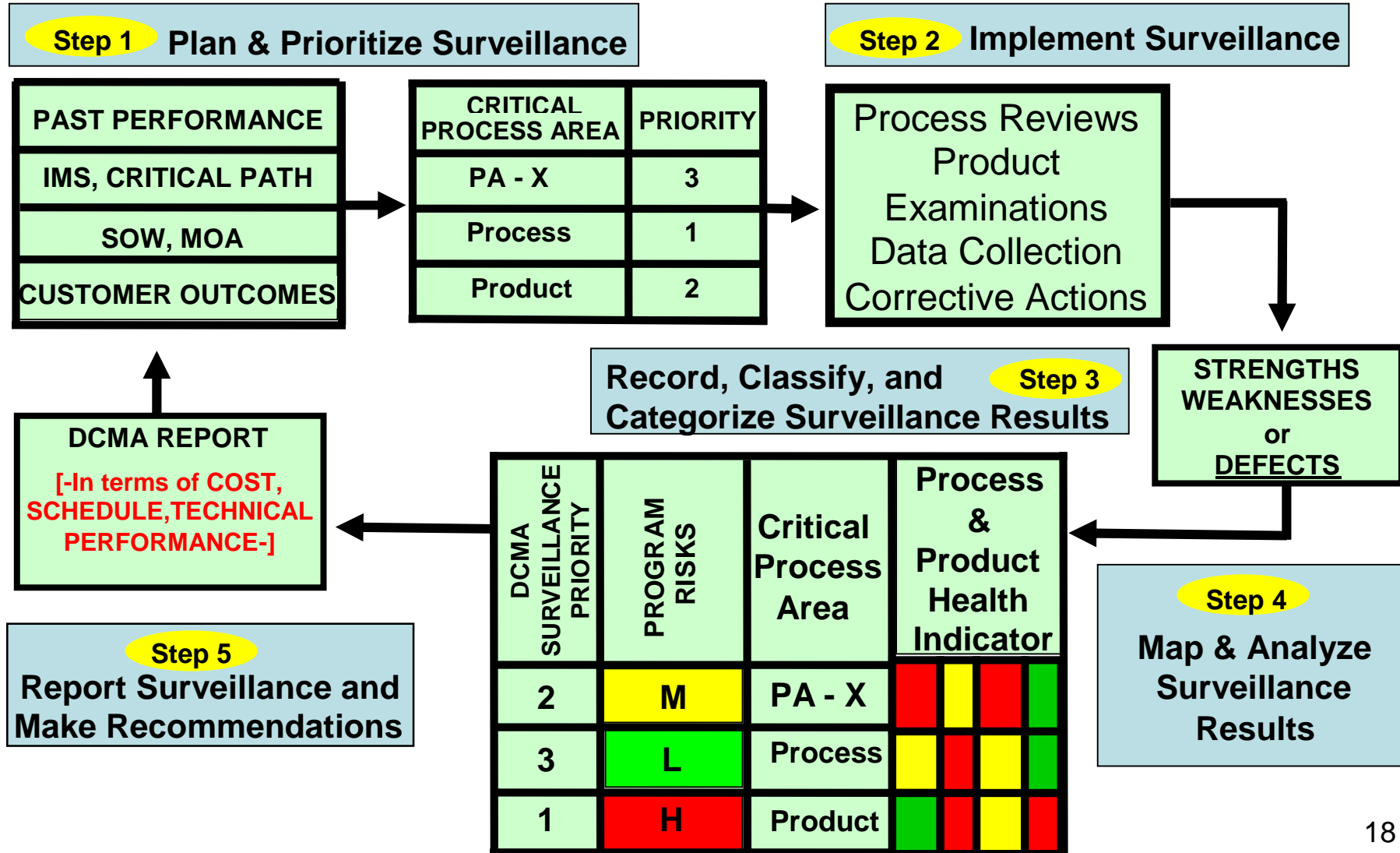
Defined by Customer

- Recommend adjustments to Customer Outcomes**

- Adjustments made to Surveillance**
 - Helper Guide CMMI PA/P to Task



CMMI Based - Surveillance Framework



Benefits of Strategy (Used)

- **CMMI Based – Performance Management (CBPM) developed as a structured surveillance method designed to promote program success via critical process area - based program insight. CBPM helps to:**
 - **Identify and prioritize** the critical processes of the program
 - **Objectively evaluate** those processes, relative to the CMMI
 - **Identify and assess** suppliers' process related risks along with other program measures
 - **Collect, analyze and report** process-related risk information and the impact to the program and its' products
- **Supplier's process capability, subsequent adherence and performance can be continuously evaluated and monitored**

**Another innovative DCMA approach for
utilizing
CMMI for software surveillance**

**“Practical Use of DCMA’s CMMI based Risk
Management”**

By Gary Sigmund

Track 5, Wednesday at 1:30

Question ?

Or later

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