

# SCAMPI-B for Contract Monitoring—A Case Study of the Mission Planning Enterprise Contractors

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Defense

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# DoD Weapon Systems Acquisition Still a High Risk Area

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While DOD's acquisition process has produced the best weapons in the world, it also yields undesirable consequences in weapon system programs – cost increases, schedule delays, and performance shortfalls

Problems occur because weapon programs do not capture early on the requisite knowledge that is needed to effectively manage risks

Programs move forward with unrealistic cost and schedules estimates, lack clearly defined and stable requirements, use immature technologies, and fail to solidify design and manufacturing processes at appropriate junctures in development

As a result, programs require more resources than planned, the buying power of the defense dollar is reduced, and funds are not available for other competing needs

*Paul Francis, Director  
Acquisition and Sourcing Management  
U.S. Government Accountability Office  
May 18, 2004*



# Problem Statement

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- A statement of organizational process maturity or capability level does not guarantee performance to that same level of proficiency on an individual project
- Most DoD contractors claim high maturity/capability levels, yet from the perspective of the acquirer, systems engineering and program management practices are severely lacking
- Teaming arrangements further cloud the issue of process execution and proficiency
- Associated problems may not be evident until significant cost, schedule, or performance objectives have been missed at a late point in the program where corrective actions are very costly

*How can the acquirer gain the necessary insight into process execution and proficiency as well as reinforce desired behaviors?*



# The Mission Planning Solution and What was Learned

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A “simple” solution - solve the problem through contract requirements

- All contractors must be at least CMM maturity level 3 to bid on IDIQ software development contracts
- All winning contractors must achieve CMMI maturity level 3 NLT 24 months after contract award

Monitor the contracts to assure that CMMI requirement is met by deadline

Conduct a round of CMMI baseline SCAMPI-Bs for Contract Monitoring to assist process improvement toward meeting that goal

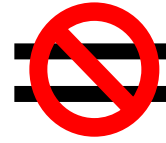
*The process of conducting 5 baseline SCAMPI-Bs for Contract Monitoring was an “eye opening” experience*



# What is SCAMPI-B for Contract Monitoring

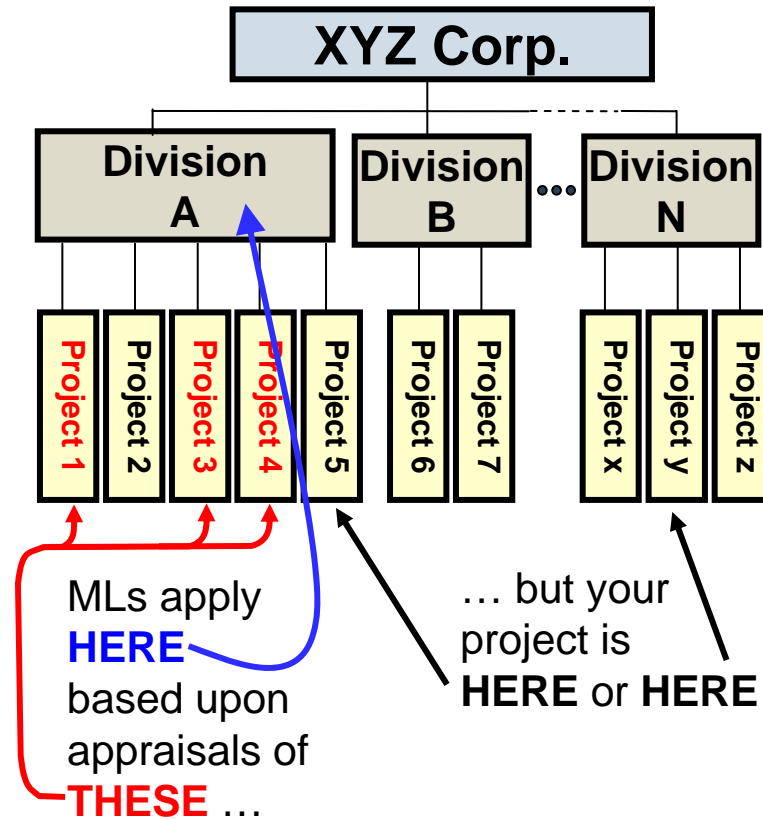


# High Maturity Organizations

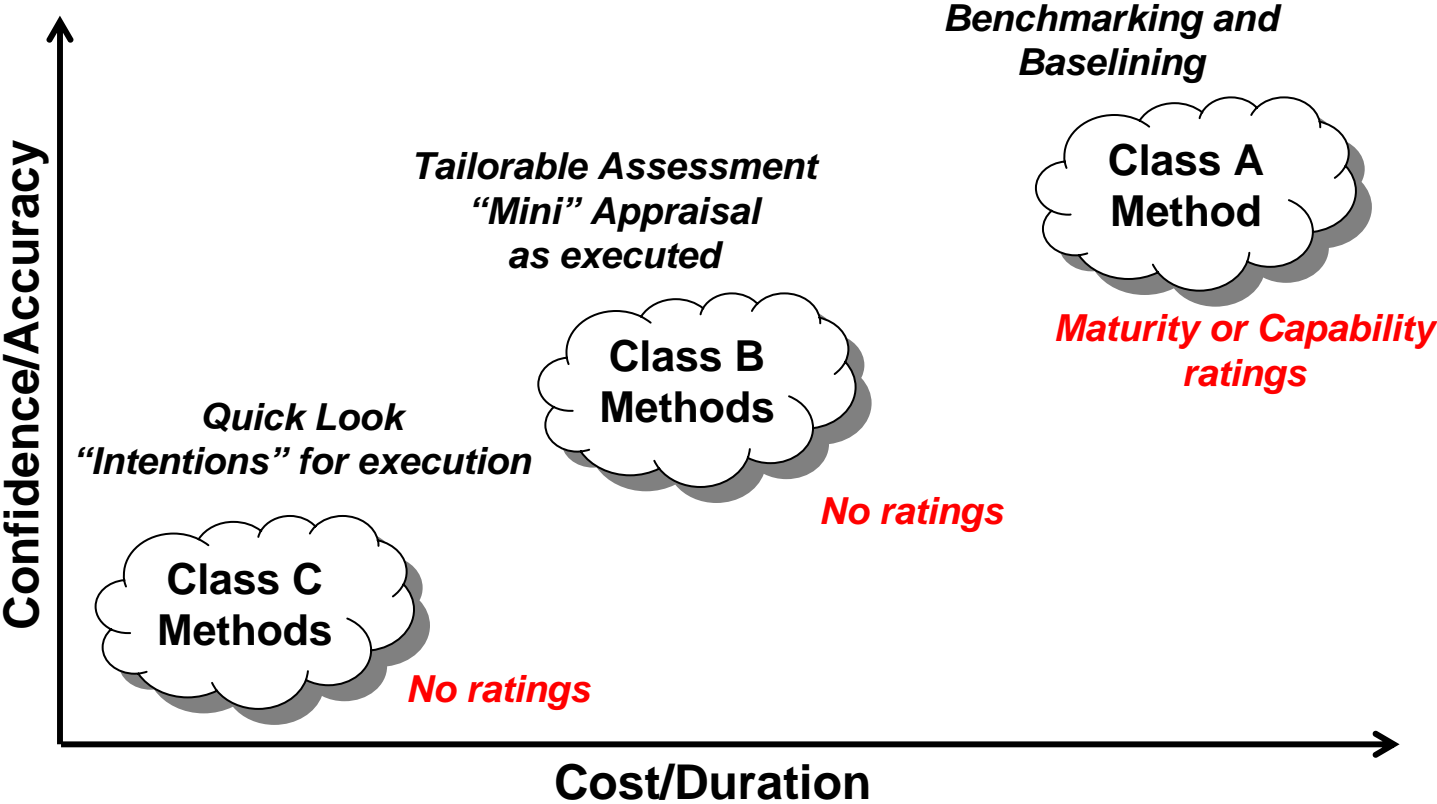


# High Maturity Projects

- Maturity Levels are indicators of organizational *potential performance*
- They describe how the next project may *perform* based on a sampling of existing projects
- Maturity Levels reside at the organizational level and are not an indication of how an individual project *is performing*



# Standard CMMI Appraisal Method for Process Improvement (SCAMPI)





# SCAMPI-B for Contract Monitoring Ground Rules - 1

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Use the process model – CMMI

- Interview questions based on model

Appraisal of process performance and adherence

Focus on risk assessment – risks associated with process performance, adherence, and capability



# SCAMPI-B for Contract Monitoring Ground Rules - 2

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Observe strict confidentiality

- Results not attributable to individuals or interview groups

Approach SCAMPI collaboratively

Results in actionable findings by Program Office and/or Contractor

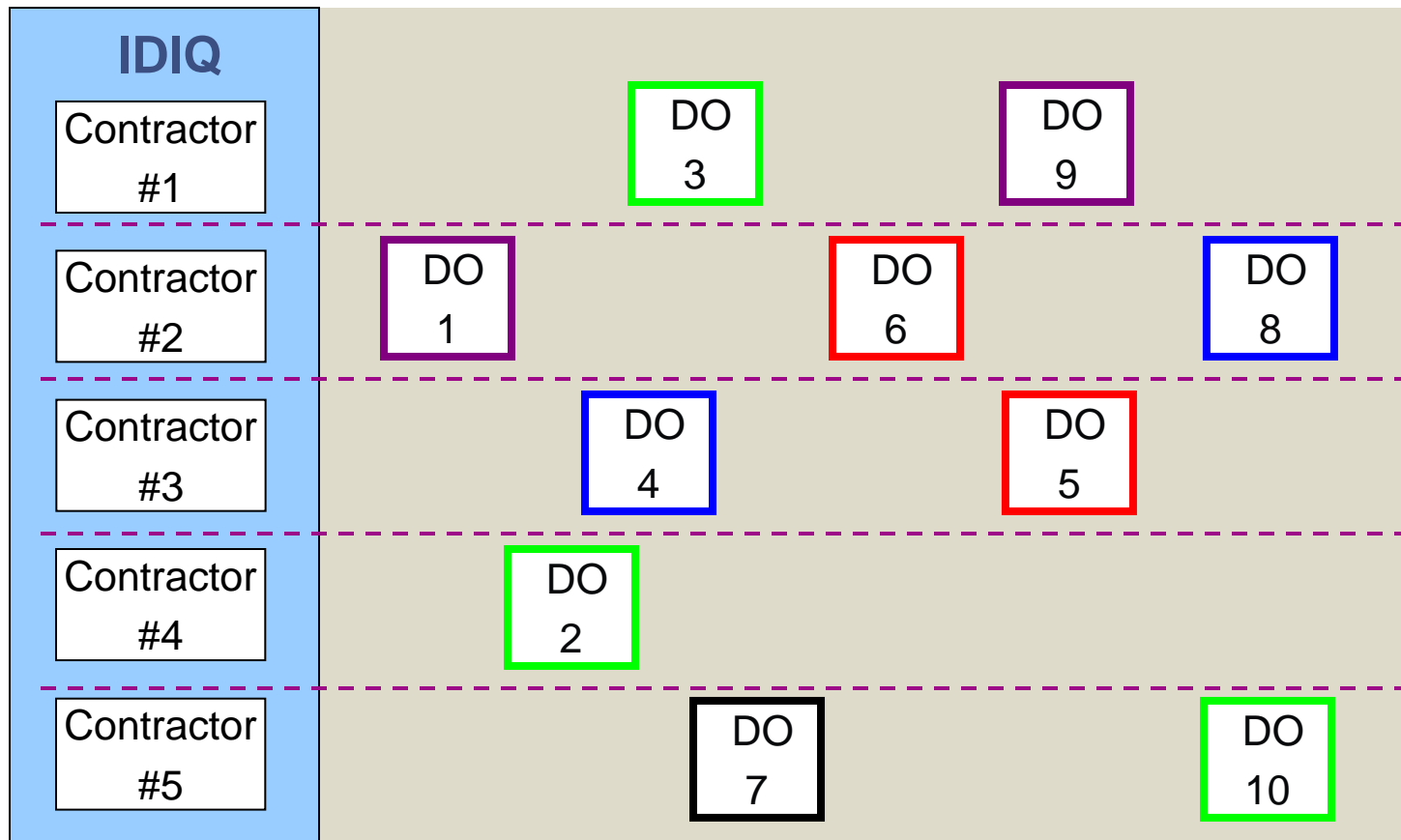


# SCAMPI-B for Contract Monitoring for MPEC



# Mission Planning Contracting Structure

## Delivery Orders



# How SCAMPI-B for Contract Monitoring was Employed for MPEC - 1

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Used appraisals to baseline compliance with CMMI requirement

- Demonstrate capability *or*
- Develop findings which yield improvement opportunities



One project would be selected from each contractor as a 'representative' of all Mission Planning projects for that contractor



# How SCAMPI-B for Contract Monitoring was Employed for MPEC - 2

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Appraisal findings would be used to assess progress toward meeting this the 24 month CMMI requirement

- Results to be factored into future DO competitions

Appraisal finding to be used for contract monitoring to identify areas of risk in project execution

Appraisal findings resulted in request for Process Improvement Plans from the contractors

- Way ahead to fix findings in representative project
- Way ahead to fix similar known deficiencies in all Mission Planning work



# Program Office Changes Resulting from SCAMPI-B for Contract Monitoring



# Results Changed the Way the Program Office Does Business - 1

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- Contractor Process Improvement Plans and status are tied to contractor award fee
- RFP language has been modified to better reflect the program office desire for CMMI compliance across development teams – including subcontractors
- Based on input from appraisals, the program office is reviewing/modifying the standard CDRL list to get best ROI
- Business and technical rules for MP developers have been modified





# Results Changed the Way the Program Office Does Business - 2



- Program Office is modifying internal processes to better take advantage of information provided through contractor's standard processes (e.g. metrics)

*“In light of significant personnel cuts, we need to provide a smart way to provide a laser-like focus to our key issues. SCAMPI-B for Contract Monitoring reviews and EVM analysis provide that focus for us.”*

*Steven A. Cote, GS-15, DAF  
Deputy Director, 951st Electronic Systems Group*



# Lessons Learned



# Positive Lessons / Benefits - 1

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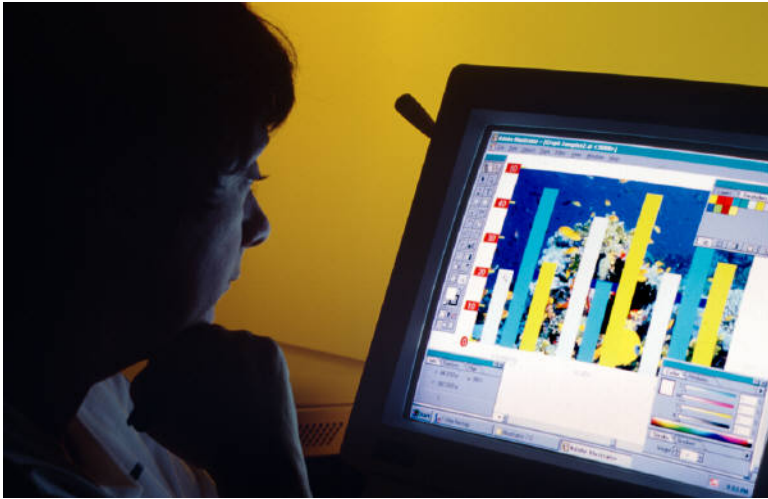
Overcoming common misperceptions program offices have about CMMI

- What does a maturity level mean – *how is it attained*
- Need to *understand the scope* of previous appraisals and certifications
  - Organizational unit appraised



# Positive Lessons / Benefits - 2

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## More savvy consumers

- **Monitoring** is more necessary than people think
- CMMI compliance and appraisal finding resolution should be tied into program office business activities
  - Award Fee Criteria (powerful motivator)
  - Business and Technical Rules
  - Proposal Evaluation Criteria



# Positive Lessons / Benefits - 3

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Appraisal results can be used to assist program management

- PMRs can *focus on areas of concern* based on findings

***Uncovering program risks*** is more important than specific maturity levels



***Real-time contract monitoring is key***



# Hard Lessons / Ongoing Challenges - 1

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## Spirit vs. letter of the model

- Assure *intent of the model* is met versus using “checklist” mentality
- Determine consistent approach to dealing with corporate “process lawyers”
- Shouldn’t judge “goodness,” but you should judge “*reasonableness*”



# Hard Lessons / Ongoing Challenges - 2

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Variability in the process itself, within the allowable scope of the method, can itself modify results

- Teams take on personalities based on membership (team members and lead appraisers)
- Different personalities can provide inconsistent results
- Need to ensure that decision criteria are ***consistently applied***
- Having a core group as a subset of each appraisal team provided a ***consistent methodology*** and ***interpretation of evidence***



# Future Directions



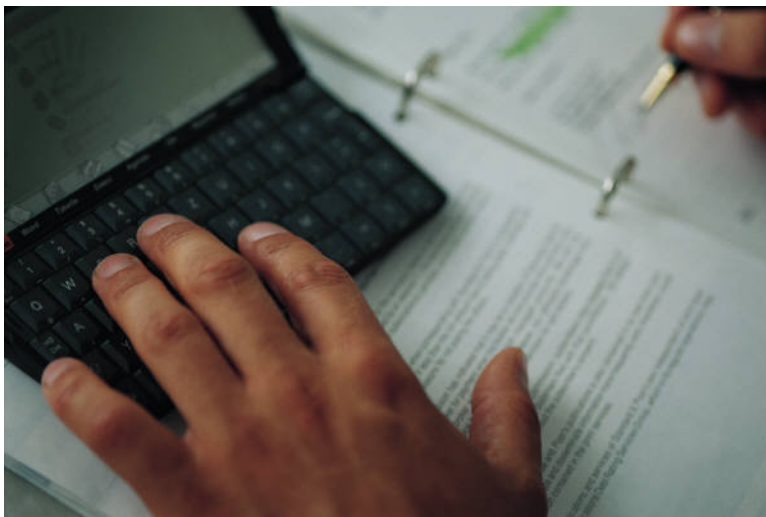


# Way Ahead -1

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Mission Planning is reviewing options for verification of the November 2006 CMMI Maturity Level 3 requirement

- Accept results of contractor SCAMPI As?
  - Review of detailed appraisal results



- Conduct Program Office sponsored SCAMPI As?
  - Requires core team to re-appraise contractors
- Verify completion of all process improvement activities outlined in approved Process Improvement Plan



# Way Ahead - 2

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How do we “maintain” the process improvement/process maturity focus to ensure consistent levels of performance/execution?

- The Program Office is working to develop a multi-year plan for continual assessment/monitoring
  - Additional appraisal for all contractors (cost/benefit)
  - “Spot check” areas of known deficiency
  - Appraisals for projects with performance issues
  - Appraisals for projects that fall within another organizational unit than “representative” project



# Way Ahead - 3

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Beginning to analyze SCAMPI-B for Contract Monitoring results against product quality to determine if there are correlations

- Could impact risk management/corrective actions in the future



# Summary



# Summary - 1

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SCAMPI-Bs for Contract Monitoring were very positive for Mission Planning

- Provided insight into contractor processes and potential program risks

Consistency is key

Appraisal results have become a useful source of data to assist in program management activities

- PMs can focus attention on areas of the project that have highest risk due to inconsistent (or non-existent) standard processes



# Summary - 2

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SCAMPI-Bs for Contract Monitoring started as a way to do a “quick check” of contractor CMMI requirement compliance – and have now become a powerful management tool

*Savvy consumers can utilize SCAMPI-Bs for Contract Monitoring as part of their management “tool box”*



# Contact Information

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