



Air
Land
Sea
Space
Cyberspace

Innovation. In all domains.

Disruptive Appraisals Prohibited

Kelly Lanier
Maureen Wampner
Ralph Williams
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Agenda

- **The Past**
- How Did We Do It?
- Results
- The Future
- Summary

2005-2007 Appraisal Metrics

2005	Class C 1	7/25 - 7/29
	Class C 2	9/27-9/29
	Class C 3	10/10-10/12
	Class C 4	11/14-11/16
	Class C 5	12/6-12/8
	Class C 6	12-Dec
2006	Class C 7	1/16-1/18
	Class B 1	2/6-2/17
	Class C 8	4/4-4/5
	Class B 2	4/24-5/5
	Class B 3	7/10-7/21
	Class C 9	8/14-8/16
	Class B 4	9/11-10/13
2007	Class C 10	1/3-1/5
	Class C 11	1/29-2/2
	Class C 12	2/14-2/15
	Class C 13	2/26-3/2
	Class C 14	4/2-4/6
	Readiness Review	4/30-5/1
	SCAMPI	5/7-6/1

Task	2005-2007
CMMI Level	5
Regions	5
# SCAMPI Programs	39
# Artifacts in Evidence	10261
# Class C Appraisals	14
# Class B appraisals	4
# Document Requests During SCAMPI	207
# SCAMPI Findings	8
Length of SCAMPI	5 weeks

Set goal to reduce cost & program impact while sustaining CMMI Level 5

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Baseline

- NCS Common Process Architecture (CPA) is based on good Engineering practices
 - Not built around passing a CMMI appraisal
- Common Process Architecture execution is in place and remains stable
- Improvement priorities are based on strategic NCS business goals
 - Not driven by CMMI findings or CMMI compliance
 - Results deployed through NCS CPA

Consistent process execution minimizes appraisal preparation

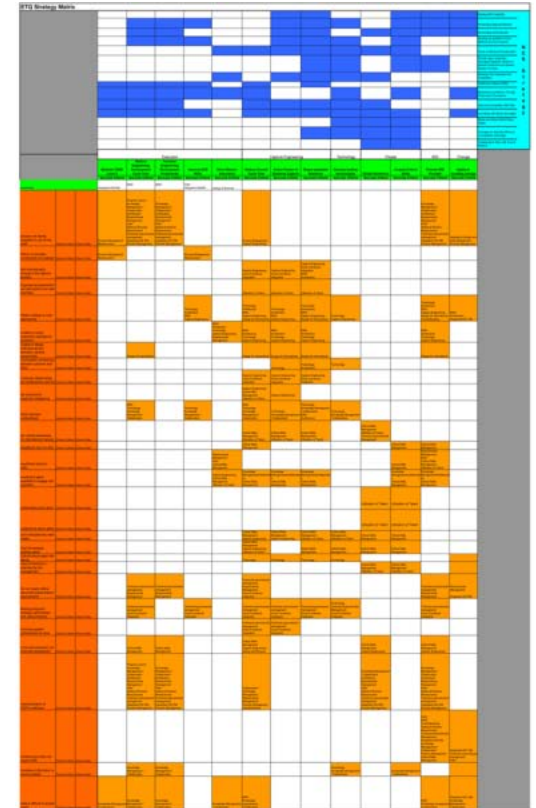
Process Ownership

- Engineering Disciplines **took ownership of their own processes**
 - Process changes, questions, and issues go back to the owning discipline
 - Discipline Directors **sponsored organizational improvement projects**

- **Removed traditional process group “crutches”** to encourage programs accountability for process execution
 - Large regional process groups responsible for program process “stuff”
 - Measurement teams responsible for entering and analyzing program metrics
 - Tailoring teams responsible for CPA tailoring and program work instructions

Emphasis on Improving Program Execution

- Regional Engineering Process Groups replaced with **Engineering Execution Centers** focused on improving program execution
 - Provides “bottoms-up” improvement
- Improvement projects determined by NCS Business Strategy and Engineering Strategy elements
 - **Engineering and Technology Strategy Matrix**
 - Provides “top-down” systemic improvements
- Process Management became a background task with a small set of resources



Improvements tied to Business and Engineering goals

Strengthened the Measurement Program

- *Enabled Program accountability and ownership* of their own metrics
- MEASUREthis!
- Leading Indicators Review with VPs
- Leading Indicator Deep Dives



Strong measurement program integral to program execution

Process Sustainment Monitoring

- Interim CPA Checks (iCPAs)
 - Smaller, still frequent
 - An issue in one region is an issue in all regions
- Identified a common, smaller set of documents for evidence
 - Pareto Principle
- Identified and resolved issues early
 - Started immediately after 2007 SCAMPI-A
- Eliminated backslide



Tailored the Appraisal Process and Mindset

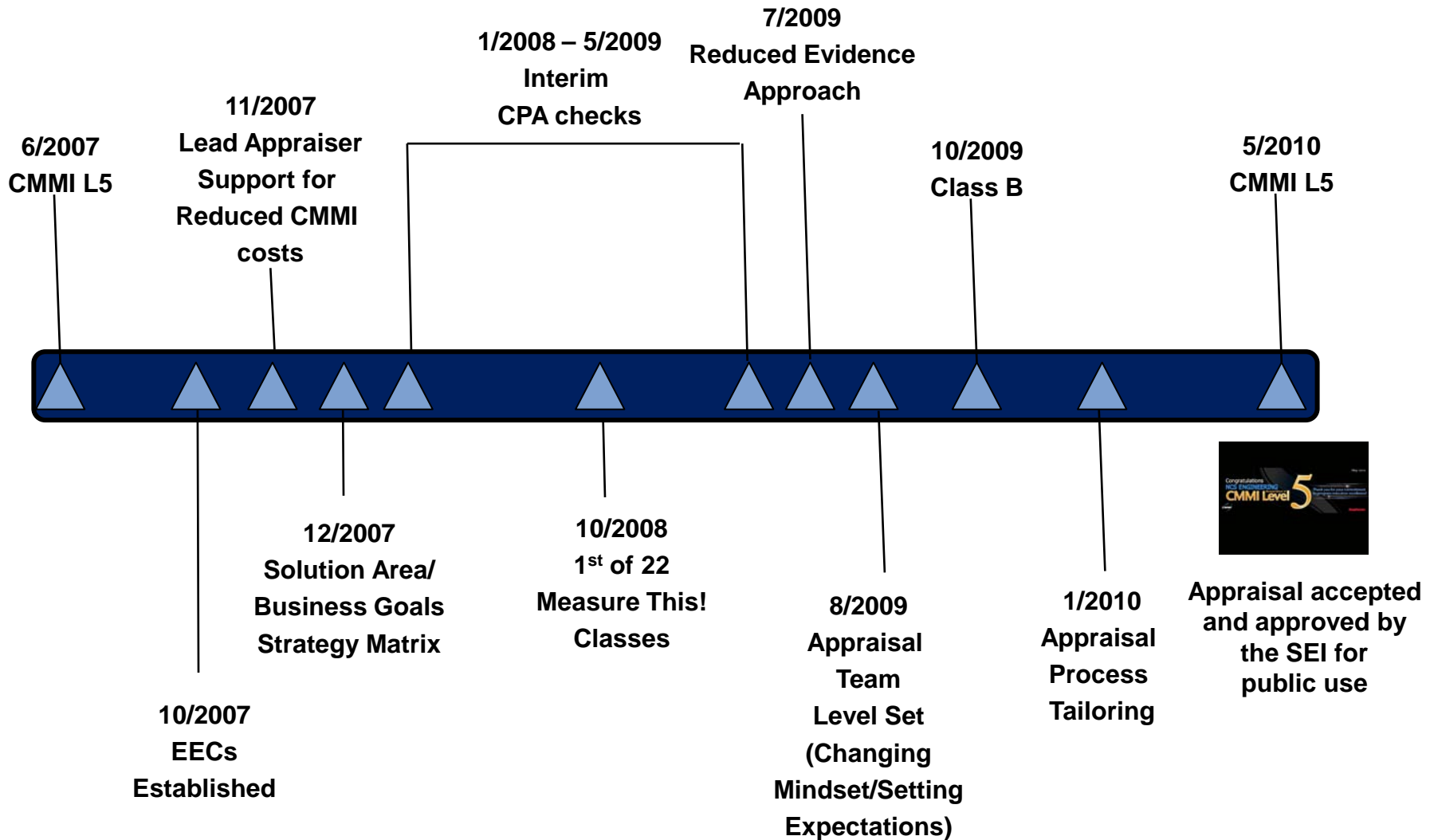
- Set Appraisal Team expectations
 - Some level of discovery will be required
 - Expected to be able to determine if CMMI practices were implemented by evidence and affirmations provided without “extreme annotation”
- Reduced unique evidence artifacts collected and reviewed 10,000+ to 1,600
 - Higher number of artifacts used to be a badge of honor for appraisal teams
- Validated evidence with internal appraisal team members rather than using full appraisal team
- Deleted unnecessary briefings to the organization
 - Opening briefing, Draft Findings
 - Eliminated :90 per program participant

Easier for programs rather than easier for the appraisal team

Tailored the Appraisal Process and Mindset

- Used “show and tell” format to allow programs to better explain their work
 - DOORS
 - Configuration Management Tools
 - Active Risk Manager
- Executed interviews in parallel using VTC
- Reduced full appraisal team review of appraisal evidence by 4 hours
 - Accepted Mini-Team “FI” recommendations
- Presented Final Findings via Netcast to allow appraisal participants to participate from their desks

Three Year Timeline



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Appraisal Cost Comparison

2005	Class C 1	7/25 - 7/29	2008	iCPA 1	4/7-4/18	-12%
	Class C 2	9/27-9/29		iCPA 2	6/16-6/27	
	Class C 3	10/10-10/12		iCPA 3	7/28-8/8	
	Class C 4	11/14-11/16		iCPA 4	9/15-9/26	
	Class C 5	12/6-12/8		iCPA 5	12/1-12/12	
	Class C 6	12-Dec				
2006	Class C 7	1/16-1/18	2009	iCPA 6	3/2-3/6	-59%
	Class B 1	2/6-2/17		iCPA 7	3/10-3/12	
	Class C 8	4/4-4/5		iCPA 8	5/4-5/8	
	Class B 2	4/24-5/5		iCPA 9	7/13-7/17	
	Class B 3	7/10-7/21				
	Class C 9	8/14-8/16				
	Class B 4	9/11-10/13		iCPA 9	7/13-7/17	
2007	Class C 10	1/3-1/5	2010	Class B	9/28-10/16	-76%
	Class C 11	1/29-2/2		Review	3/10-3/11	
	Class C 12	2/14-2/15		SCAMPI	5/3-5/14	
	Class C 13	2/26-3/2				
	Class C 14	4/2-4/6				
	Readiness Review	4/30-5/1				
	SCAMPI	5/7-6/1				

Achieved 62% Reduction in Cost in 2010

Measureable Improvements

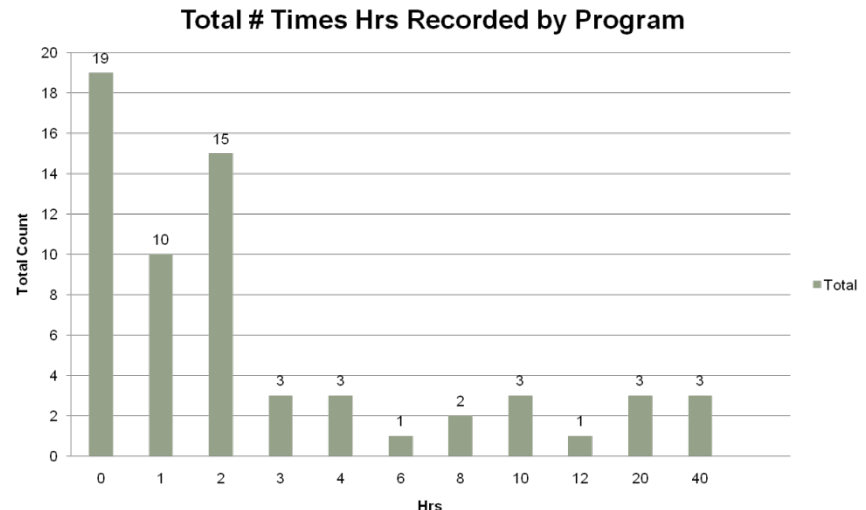
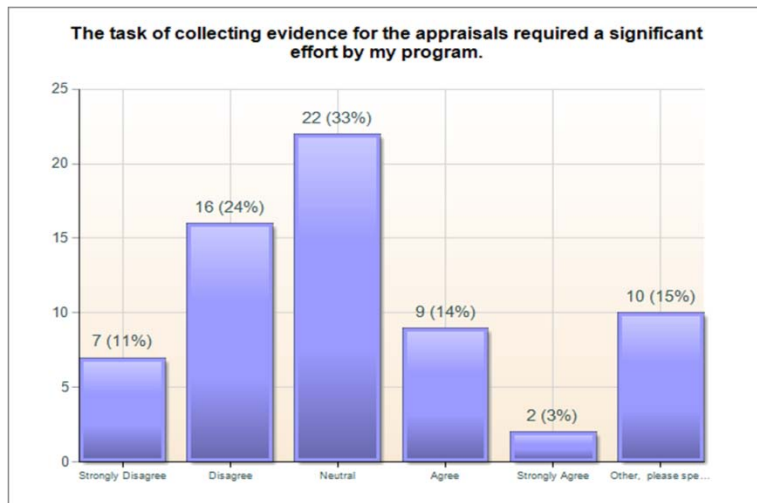
	2007	2010
CMMI Level	5	5
Regions	5	5+Satellite
# SCAMPI Programs	39	21
# Artifacts in Evidence	10261	1596
# Class C Appraisals	14	9
# Class B appraisals	4	1
# Document Requests During SCAMPI	207	21
# SCAMPI Findings	8	0
Length of SCAMPI	5 weeks	8.5 days

84%
Evidence
Reduction

75%
Fewer
Class Bs

Reduction in Program Impact

- “The appraisal approach you guys took this time around was much less stressful on our program”
- “I had heard that being an appraisal program was a lot of work, but it hasn’t been a big deal at all”
- “I didn’t have any program managers yelling at me about the appraisal impact this time around”
- “I didn’t even realize we were having an appraisal”



Approximately how many hours did you spend on Collecting evidence for the appraisal?

Quotes and survey results from the programs



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The Future

- We will use this approach for all future appraisals
- Business standards of program execution naturally result in success without employing disruptive efforts to prepare for and conduct appraisals

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Summary

- CPA execution remained stable after the 2007 SCAMPI A
- Focused on improving program execution rather than achieving CMMI Level 5
 - Emphasis on managing with metrics
 - Discipline and program ownership
 - Process not separate from program execution
- Partnered with our lead appraiser to tailor the appraisal process to be as minimally invasive and cost effective as possible
- Changed appraisal mindset to minimize impact on programs

Reduced appraisal costs & program impact while sustaining CMMI Level 5