



HARRIS

**Assured Communications™
Anytime. Anywhere.**

***Risk Mitigated
SCAMPISM Process***

***Gary Natwick, Debra Perry
Harris Corporation
November 19, 2008***



Aviation electronics



Space and ground satellite communications systems



Communications and information networks



Intelligence, surveillance, and reconnaissance



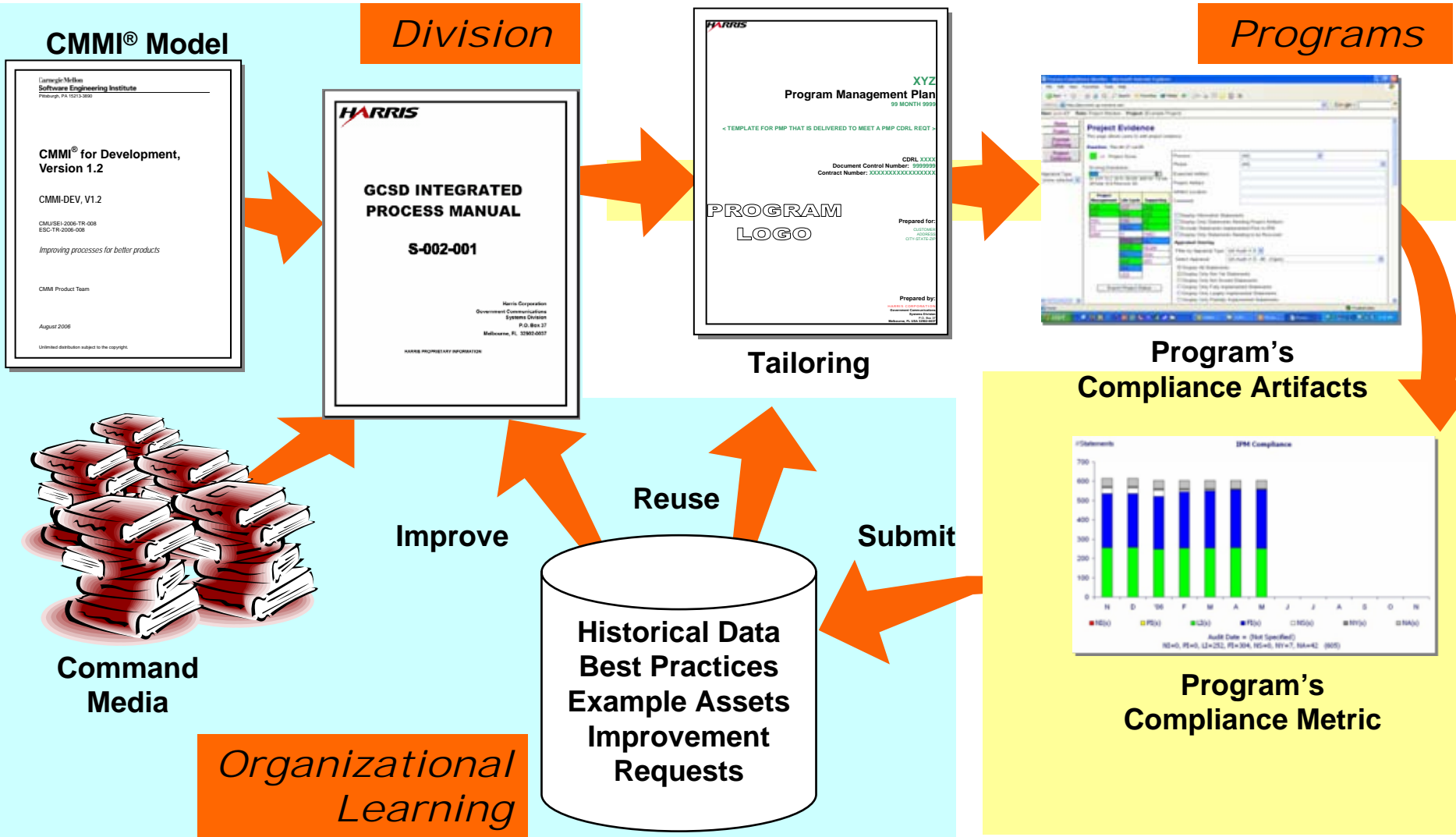
Operations and support services

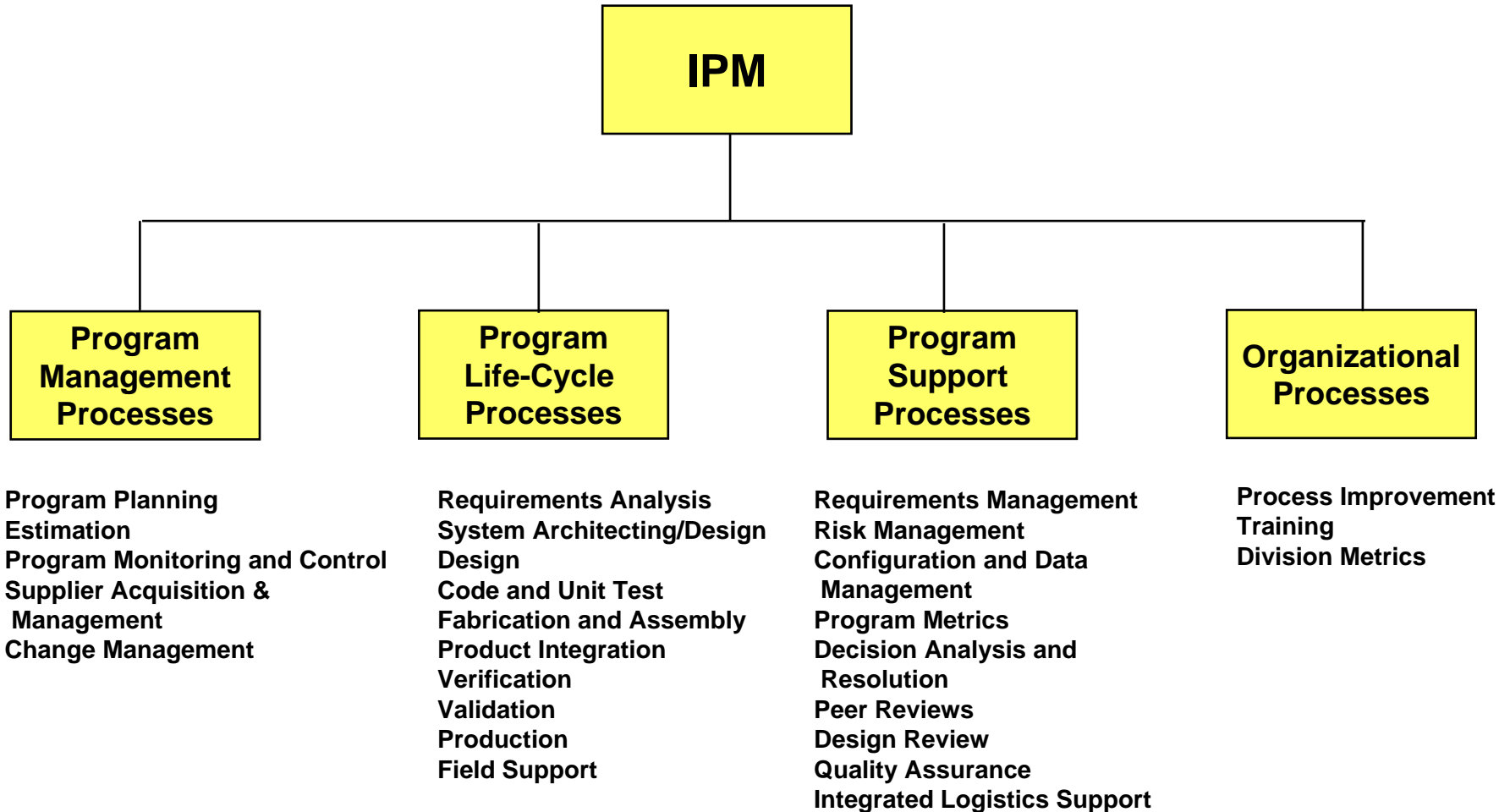
People – Innovation – Process

-
- Process background
 - Risk mitigation approach
 - Results
 - Conclusions

- Appraised CMMI[®]-SE/SW v1.1 Level 3 in November 2005
- Updated organizational integrated processes for CMMI[®]-DEV+IPPD v1.2 compliance
- Identified expected artifacts for process compliance
- Validated approach using SCAMPISM Class C appraisal
- Achieve CMMI[®]-DEV+IPPD Level 3 NLT November 2008

Integrated Compliance Approach





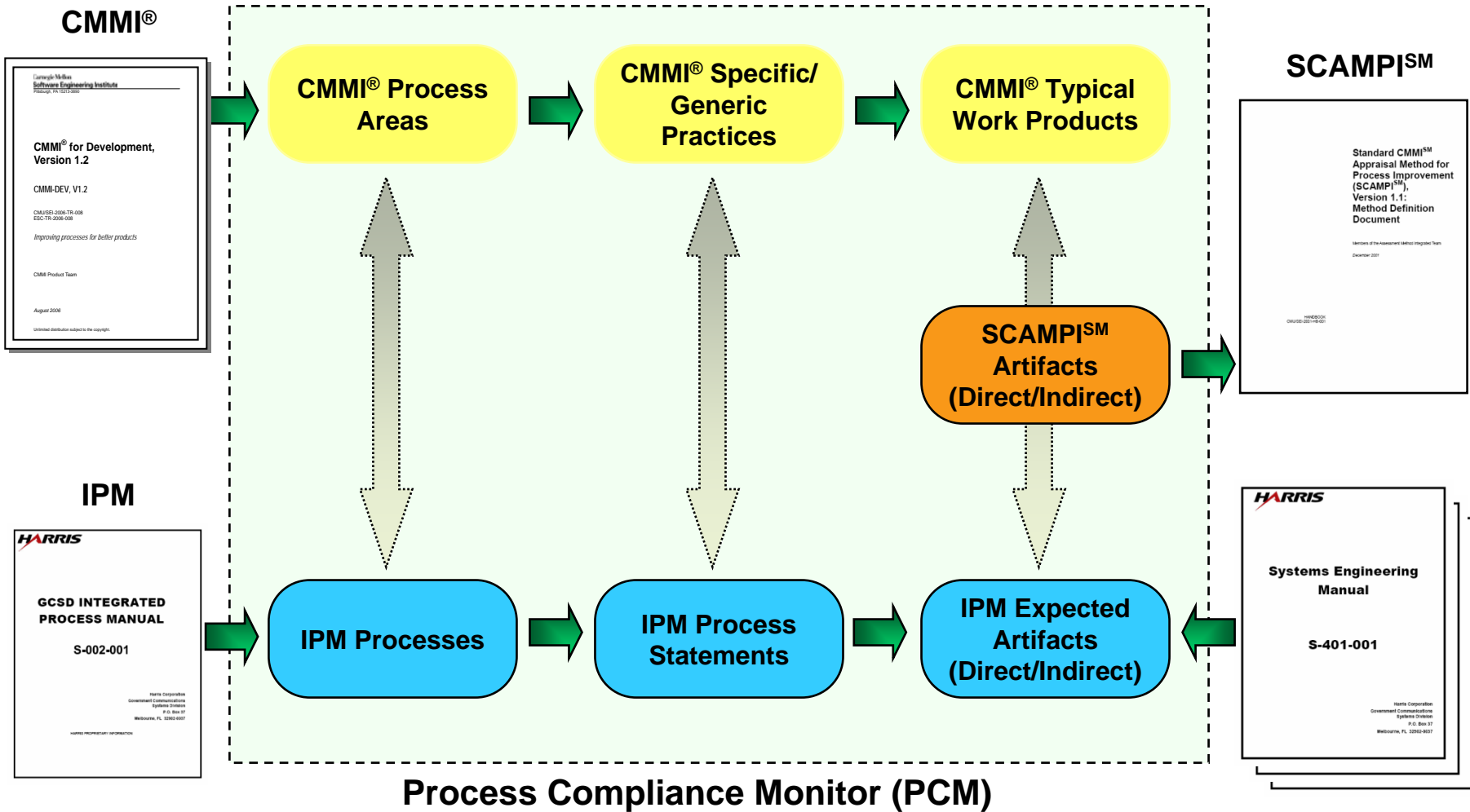
Where are artifacts required?



Overview A brief description of the process intent	
Entry Criteria State, Prerequisites, Criteria	Exit Criteria State, Criteria
Inputs Needed work products, resources	Outputs Resulting work products
Required Activities Mandatory tasks to implement the process	
Measures Process performance against plans	
Organizational Improvement Information Metrics, reusable work products	
Verification Process compliance oversight	
Tailoring Approved tailoring, process specific	
Implementation Guidance Common implementation descriptions	
Supporting Documentation and Assets Applicable organizational references	



Program artifacts needed to demonstrate IPM process compliance



Functional command media
Best practices

- SCAMPISM Class C
 - CMMI[®]-DEV+IPPD v1.2 model
 - Independent assessment
 - Planning
 - Preparation
 - Reviewed expected artifact for process compliance
- SCAMPISM Findings*
 - Process Definition Characterizations
 - Implementation Risk

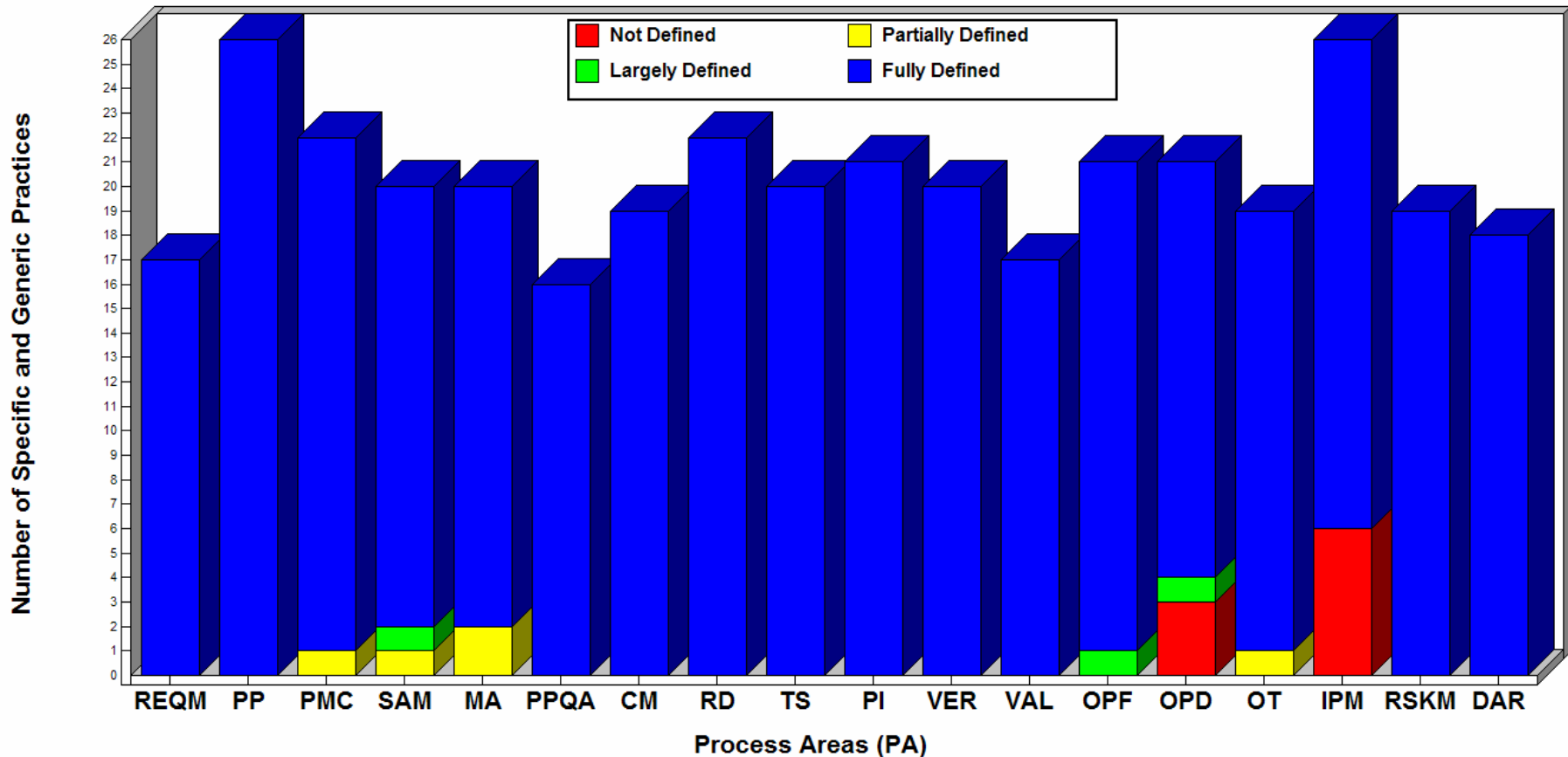
* Using Appraisal Wizard

Fully Defined (FD)	One or more direct artifacts are present and judged to be adequate; and At least one indirect artifact exists; and No weaknesses are noted.
Largely Defined (LD)	One or more direct artifacts are present and judged to be adequate; and At least one indirect artifact exists and; One or more weaknesses are noted.
Partially Defined (PD)	Direct artifacts are absent or are judged to be inadequate; and One or more indirect artifacts suggest that some aspects of the practice are defined; and One or more weaknesses are noted; - OR - One or more direct artifacts are present and judged to be adequate; and No other evidence (indirect artifacts) supports the direct artifact(s); and One or more weaknesses are noted.
Not Defined (ND)	Direct artifacts are absent or judged to be inadequate; and No other evidence (indirect artifacts) supports the practice implementation; and One or more weaknesses are noted.

SCAMPISM Definition Findings



Harris GCSD (Defined Process/Artifacts by Practice) - Apr 2007



	REQM	PP	PMC	SAM	MA	PPQA	CM	RD	TS	PI	VER	VAL	OPF	OPD	OT	IPM	RSKM	DAR
Not Defined	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	6	0	0
Partially Defined	0	0	1	1	2	0	0	0	0	0	0	0	0	0	1	0	0	0
Largely Defined	0	0	0	1	0	0	0	0	0	0	0	0	1	1	0	0	0	0
Fully Defined	17	26	21	18	18	16	19	22	20	21	20	17	20	17	18	20	19	18

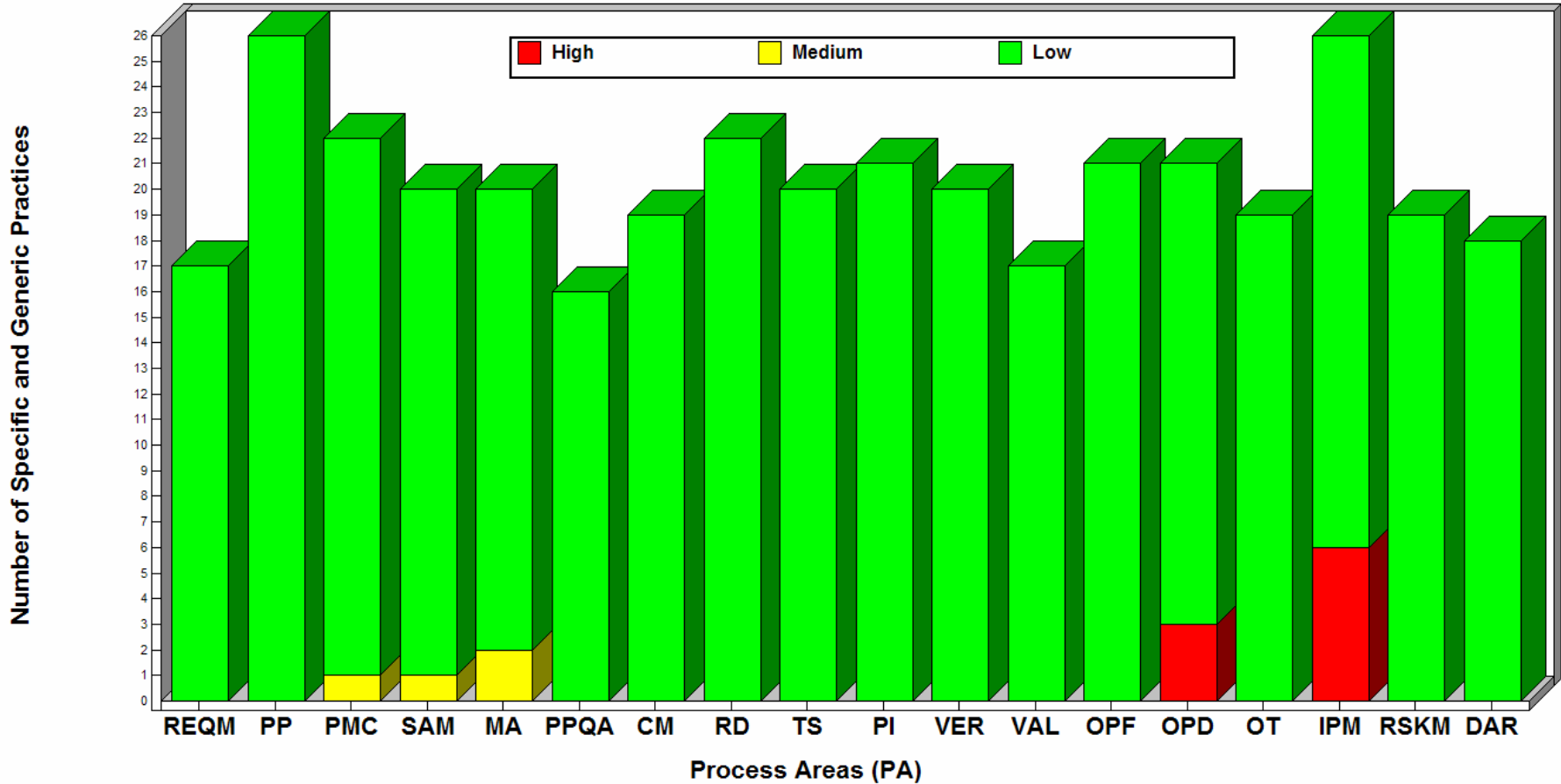
95% of CMMI[®] Practices have Fully Defined processes and artifacts

Red	The intent of the model practice is judged to be absent or poorly addressed in the set of artifacts identified – gaps or issues that will prevent goal achievement, if the deployment occurred in this way across the organizational unit, were identified.
Yellow	The intent of the model practice is judged to be partially addressed in the set of artifacts – some gaps or issues were identified, which might threaten goal achievement if the deployment occurred in this way across the organizational unit.
Green	The intent of the model practice is judged to be adequately addressed in the set of artifacts identified – in a manner that would support goal achievement, if the practice were deployed across the organizational unit.

SCAMPISM Risk Findings



Harris GCSD (Practice Implementation Risk)

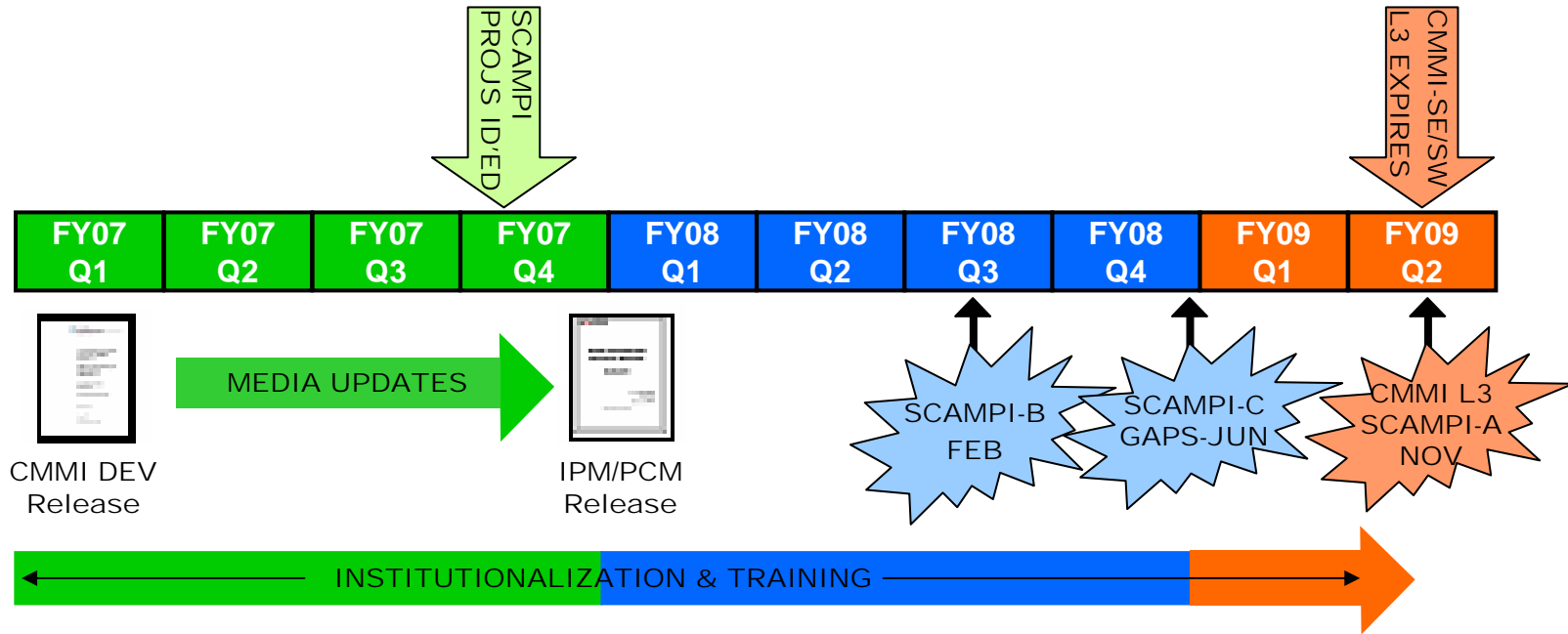


	REQM	PP	PMC	SAM	MA	PPQA	CM	RD	TS	PI	VER	VAL	OPF	OPD	OT	IPM	RSKM	DAR
High	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	6	0	0
Medium	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0
Low	17	26	21	19	18	16	19	22	20	21	20	17	21	18	19	20	19	18

- Develop SCAMPISM success roadmap
- Assess risk level after each SCAMPISM
 - Evidence completeness
 - Organizational confidence
- Adjust SCAMPISM plan

- FY2007 (July 2006 – June 2007)
 - Resolve organizational process corrective actions from SCAMPISM
 - Obtain organizational sponsorship
 - Select independent SCAMPISM Lead Appraiser
 - Select Focus/Non-Focus programs
- FY2008 (July 2007 – June 2008)
 - Develop SCAMPISM Plan
 - Class B for risk reduction
 - Class C for gap awareness
 - Class A for maturity compliance
 - Complete SCAMPISM Class B and C appraisals
 - Perform risk assessment and update SCAMPISM plan
 - Resolve appraisal corrective actions
- FY2009 (July 2008 – June 2009)
 - Resolve appraisal corrective actions
 - Complete SCAMPISM-A before November 2008

Roadmap to Next Appraisal



- SCAMPI-B
 - Jan 16-23 Readiness Review
 - Feb 4-13 On-Site Overview, Evidence Reviews & Interviews
 - Feb 14 Final Findings

- SCAMPI-C (B+4 mo to on-site)
 - May 5-8 Readiness Review
 - Jun 23-27 On-Site Gap Reviews
 - Jun 27 Final Findings

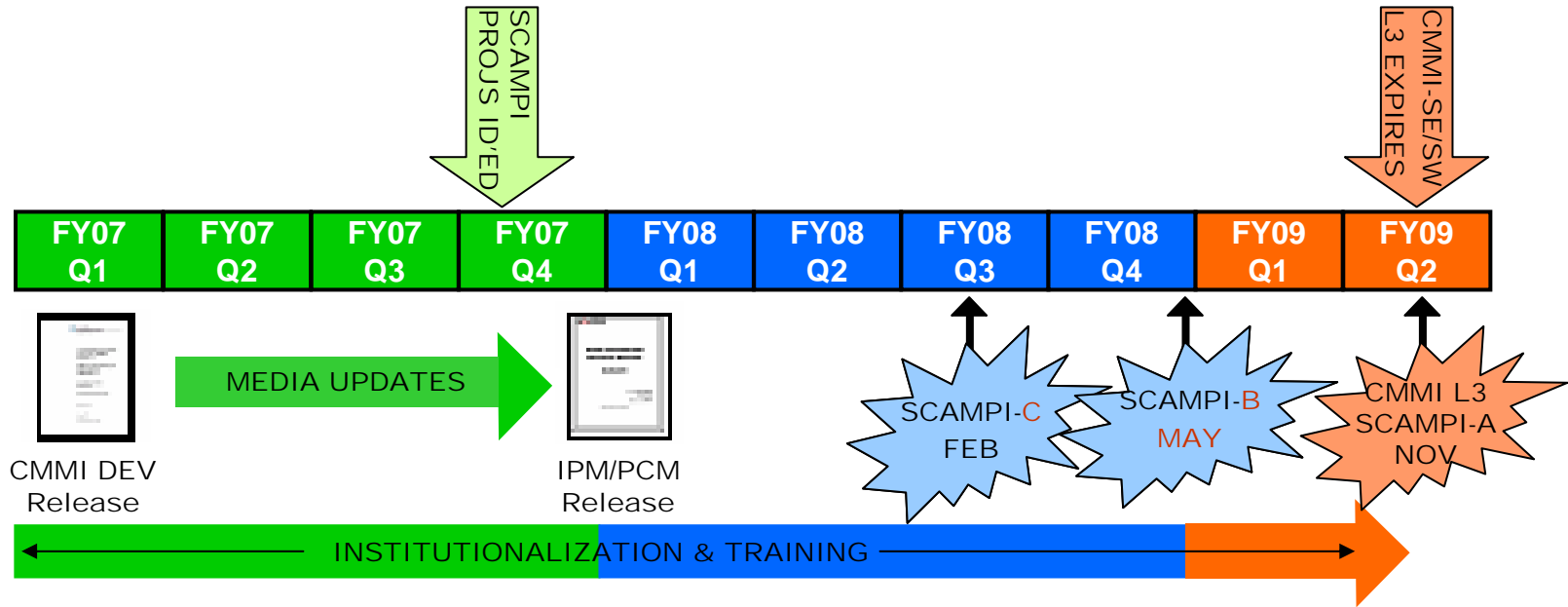
- SCAMPI-A (C+4 mo to on-site)
 - Sep 10-14 Readiness Review
 - Oct 29-Nov 7 On-Site Overview, Evidence Reviews & Interviews
 - Nov 8 Final Findings

- Preliminary review of artifacts before the SCAMPISM Readiness Review

	Project												Division Processes
Task	GCS D	1	2	3	4	5	6	7	8	9	10	11	
Percent (%)													
Direct Artifacts exist	88%	88%	86%	96%	90%	93%	90%	90%	96%	96%	99%	99%	98%
Indirect Artifacts exist	85%	85%	93%	89%	96%	91%	90%	92%	95%	97%	100%	88%	97%
Artifacts identified as CMMI relevant	70%	70%	70%	85%	50%	79%	77%	82%	95%	80%	66%	94%	90%

- Assessed evidence preparation risk
 - Not enough relevant artifacts available (70%)
 - SCAMPISM interviews a low risk from prior experience
- FY2008 (July 2007 – June 2008)
 - Updated SCAMPISM Plan
 - Class C for gap awareness
 - Class B for risk reduction
 - Class A for maturity compliance
 - Complete SCAMPISM Class C and B appraisals
 - Perform risk assessment and update SCAMPISM plan
 - Resolve appraisal corrective actions
- FY2009 (July 2008 – June 2009)
 - Resolve appraisal corrective actions
 - Complete SCAMPISM-A before November 2008

Roadmap to Next Appraisal







REVISED

- SCAMPI-C
- ✓ Jan 16-23 Readiness Review
- Feb 4-13 On-Site Evidence Reviews & Interviews
- Feb 14 Final Findings

- SCAMPI-B (C+4 mo to on-site)
- Apr 14-18 Readiness Review
- May 12-21 On-Site Evidence Reviews & Interviews
- Jun 27 Final Findings
- May 22 Final Findings

- SCAMPI-A (B+4 mo to on-site)
- Sep 10-14 Readiness Review
- Oct 29-Nov 7 On-Site Evidence Reviews & Interviews
- Nov 8 Final Findings

- Established as a risk mitigation to focus on the number of artifact issues identified prior to the SCAMPISM Readiness Review

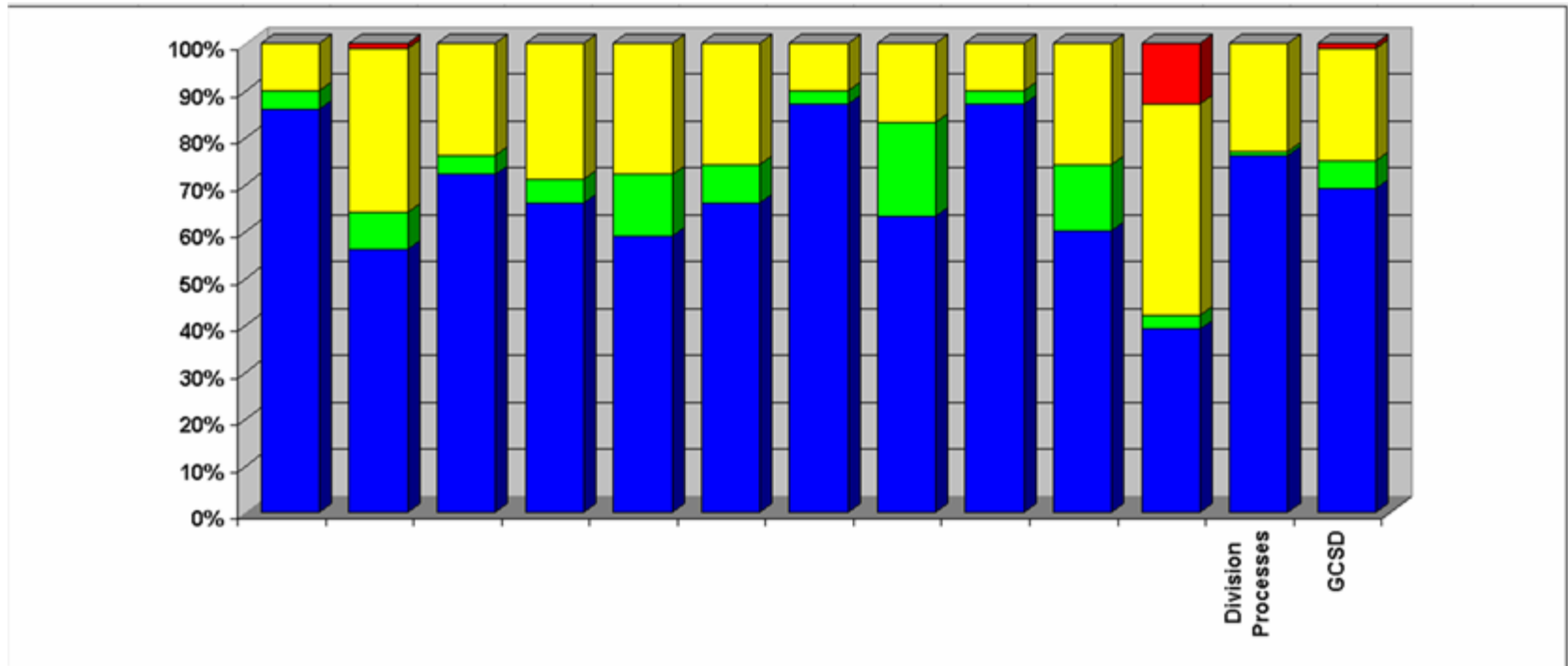
-  Complete – Ample Direct and Indirect artifacts present
-  Sufficient - Direct and Indirect present but need verbal confirmation
-  Partial - Direct or Indirect missing or outstanding issue/need
-  None - Direct and Indirect missing

* Using Appraisal Wizard

SCAMPISM Evidence Findings



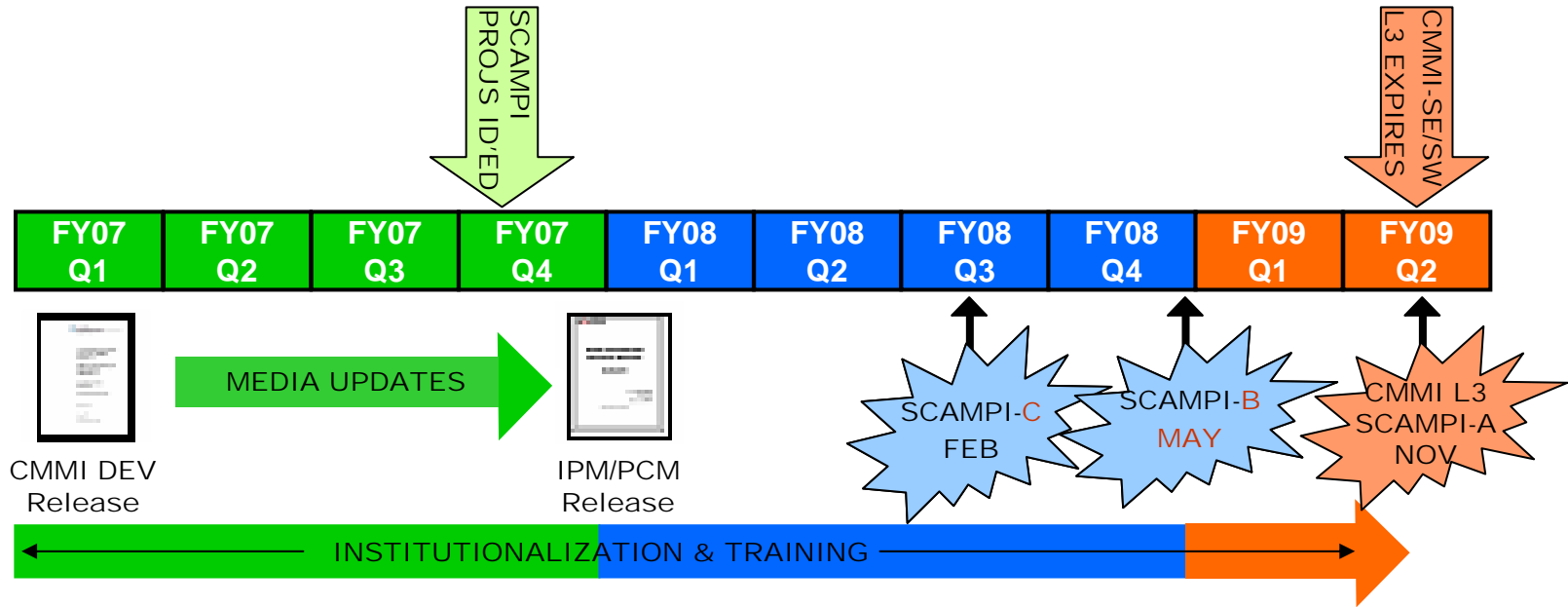
February 2008



CMMI Practices	Focus Projects				Non-Focus Projects							Organizational	
Percent													
Complete	86%	56%	72%	66%	59%	66%	87%	63%	87%	60%	39%	76%	69%
Sufficient	4%	8%	4%	5%	13%	8%	3%	20%	3%	14%	3%	1%	6%
Partial	10%	35%	24%	29%	28%	26%	10%	17%	10%	26%	45%	23%	24%
None	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	13%	0%	1%
Number													
Complete	261	169	218	199	47	62	91	59	63	52	30	61	1,312
Sufficient	12	24	12	16	10	7	3	19	2	12	2	1	120
Partial	30	107	73	88	22	24	11	16	7	23	34	19	454
None	0	3	0	0	0	0	0	0	0	0	10	0	13
Total	303	303	303	303	79	93	105	94	72	87	76	81	1,899

- Assessed evidence preparation risk
 - Add appraisal team member
 - SCAMPISM interviews a low risk from prior experience
- FY2008 (July 2007 – June 2008)
 - SCAMPISM Plan
 - Class C completed
 - Class B for risk reduction
 - Class A for maturity compliance
 - Complete SCAMPISM Class B appraisal
 - Perform risk assessment and update SCAMPISM plan
 - Resolve appraisal corrective actions
- FY2009 (July 2008 – June 2009)
 - Resolve appraisal corrective actions
 - Complete SCAMPISM-A before November 2008

Roadmap to Next Appraisal



REVISED

- SCAMPI-C
 - ✓ Jan 16-23 Readiness Review
 - Feb 4-13 On-Site Evidence Reviews & Interviews
 - Feb 14 Final Findings

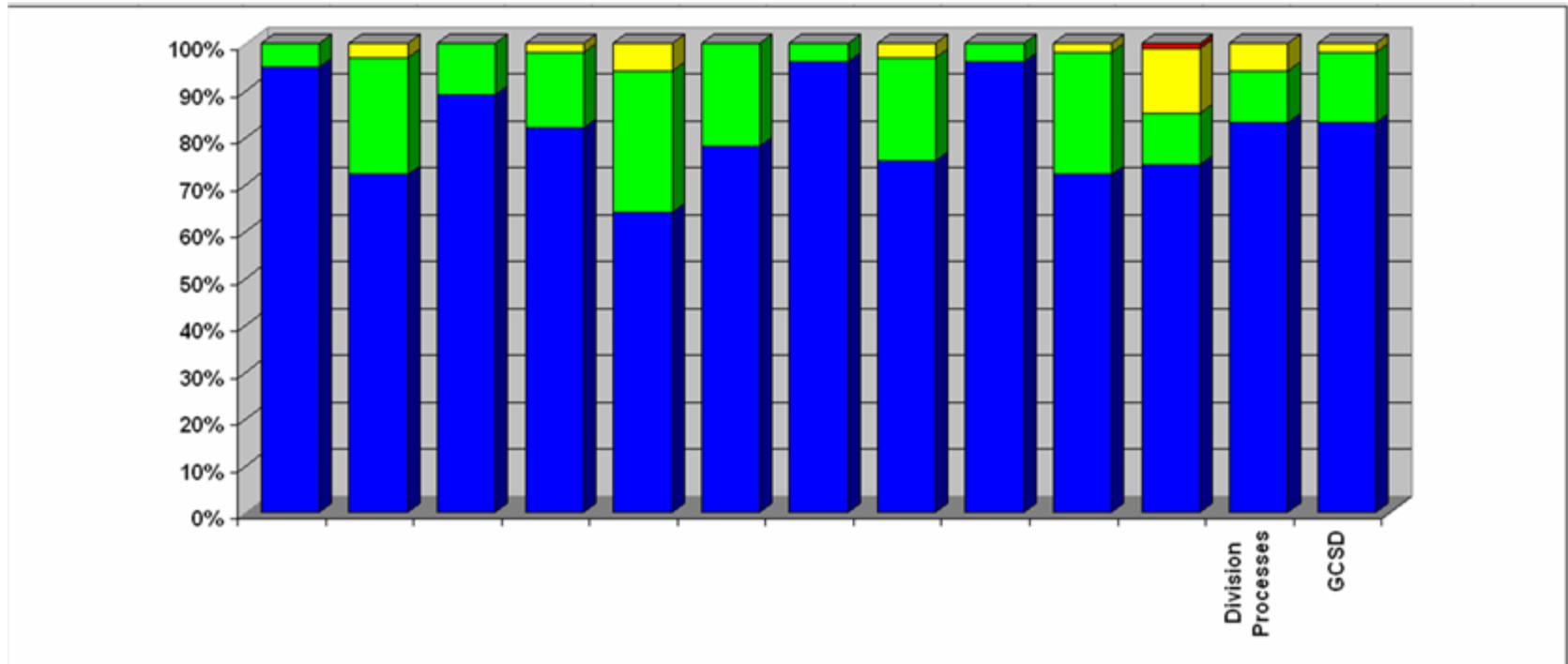
- SCAMPI-B (C+4 mo to on-site)
 - Apr 14-18 Readiness Review
 - May 12-21 On-Site Evidence Reviews & Interviews
 - May 22 Final Findings

- SCAMPI-A (B+4 mo to on-site)
 - Sep 10-14 Readiness Review
 - Oct 29-Nov 7 On-Site Evidence Reviews & Interviews
 - Nov 8 Final Findings

SCAMPISM Evidence Findings



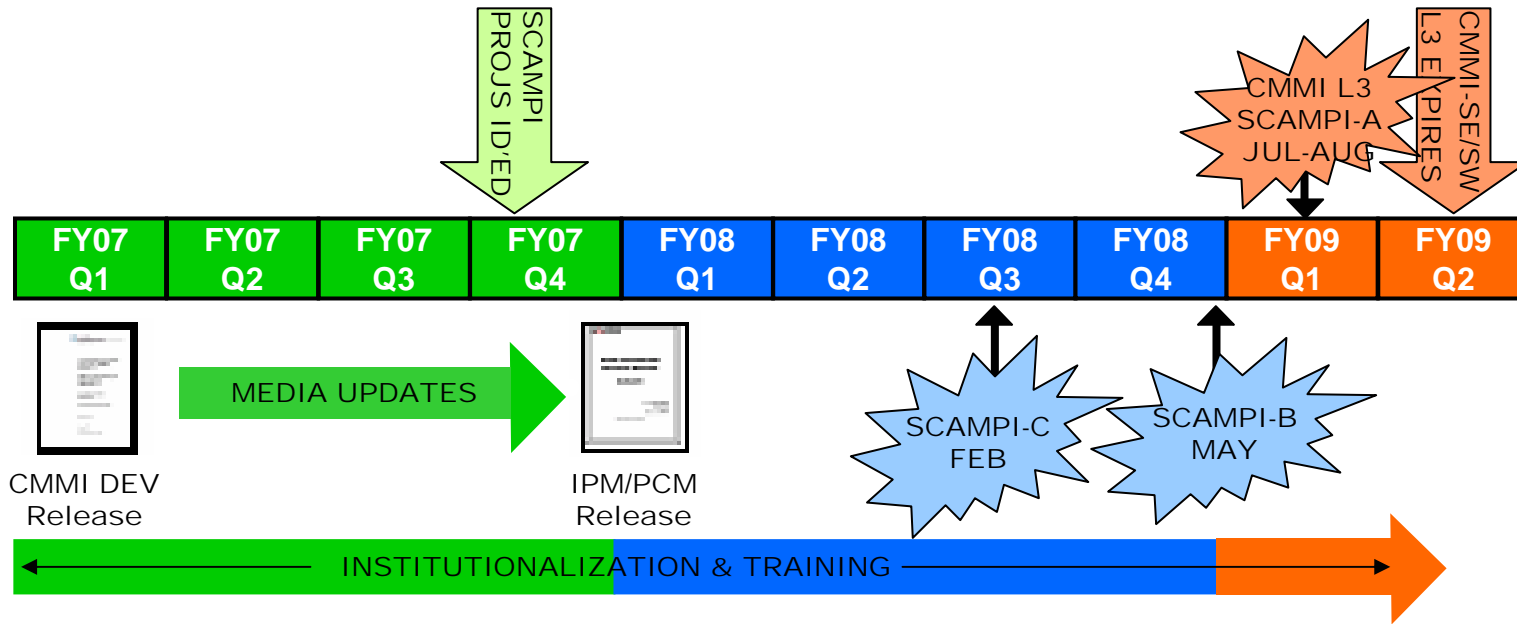
April 2008



CMMI Practices	Focus Projects				Non-Focus Projects							Organizational	
	1	2	3	4	5	6	7	8	9	10	11	12	13
Percent													
Complete	95%	72%	89%	82%	64%	78%	96%	75%	96%	72%	74%	83%	83%
Sufficient	5%	25%	11%	16%	30%	22%	4%	22%	4%	26%	11%	11%	15%
Partial	0%	3%	0%	2%	6%	0%	0%	3%	0%	2%	14%	6%	2%
None	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%
Number													
Complete	287	218	270	251	50	73	101	70	69	62	56	67	1,574
Sufficient	16	76	32	47	24	20	4	21	3	23	8	9	283
Partial	0	9	1	5	5	0	0	3	0	2	11	5	41
None	0	0	0	0	0	0	0	0	0	0	1	0	1
Total	303	303	303	303	79	93	105	94	72	87	76	81	1,899

- Assessed evidence preparation risk
 - Valid artifacts improved significantly (98%)
 - SCAMPISM interviews a low risk from prior experience
- FY2008 (July 2007 – June 2008)
 - Develop SCAMPISM Plan
 - Class C completed
 - Class **B On-Site no longer needed**
 - Class A for maturity compliance
 - Resolve appraisal corrective actions
- FY2009 (July 2008 – June 2009)
 - Resolve appraisal corrective actions
 - Complete SCAMPISM-A in **July 2008**

Roadmap to Next Appraisal



ACCELERATED

- SCAMPI-C
- ✓ Jan 16-23 Readiness Review
- ✓ Feb 4-13 On-Site Evidence Reviews
- ✓ Feb 14 Final Findings

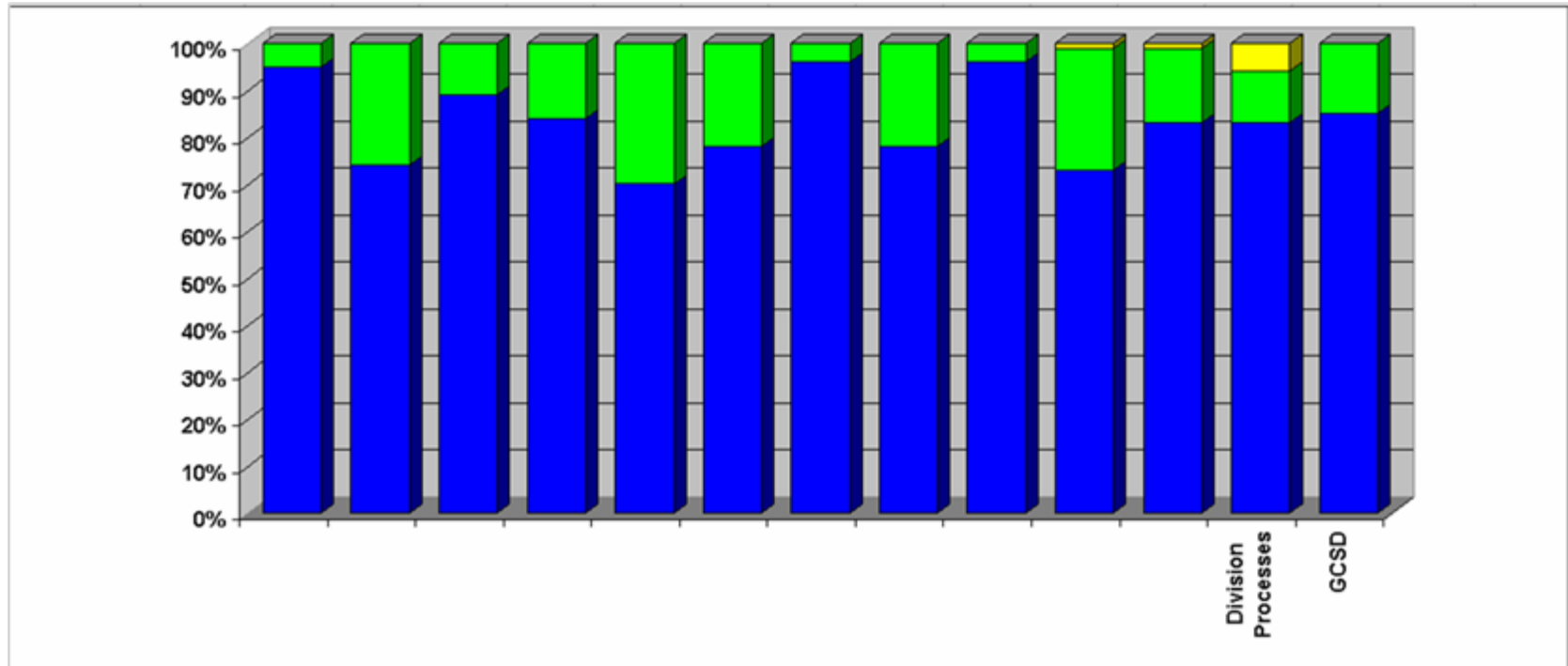
- SCAMPI-B
- ✓ April 14-18 Readiness Review
- ~~May 12-21 On-Site Evidence~~
- ~~Reviews & Interviews~~
- ~~May 22 Final Findings~~

- SCAMPI-A (~~B+4 mo to on-site~~)
- ~~Jul 14-16 Readiness Review~~
- ~~Jul 21-31 On-Site Evidence~~
- ~~Reviews & Interviews~~
- ~~Jul 31 Final Findings~~

SCAMPISM Evidence Findings



July 2008



CMMI Practices	Focus Projects				Non-Focus Projects							Organizational	
	1	2	3	4	5	6	7	8	9	10	11	12	13
Complete	95%	74%	89%	84%	70%	78%	96%	78%	96%	73%	83%	83%	85%
Sufficient	5%	26%	11%	16%	30%	22%	4%	22%	4%	26%	16%	11%	15%
Partial	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	6%	0%
None	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Number	287	223	271	256	55	73	101	73	69	63	63	67	1,601
	16	80	32	47	24	20	4	21	3	23	12	9	291
	0	0	0	0	0	0	0	0	0	1	1	5	7
	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	303	303	303	303	79	93	105	94	72	87	76	81	1,899

- Objective Evidence (OE)
 - 21,123 artifacts available for review
 - 11,937 artifacts reviewed (56.5% of what was available)
 - 1 Additional OE request
- Face to face interactions
 - 34 Meetings
 - Site briefings (1)
 - Interview sessions (20)
 - Preliminary findings briefings (2)
 - Project briefings (12)
 - 1 Follow-up interview

Practice Characterizations*



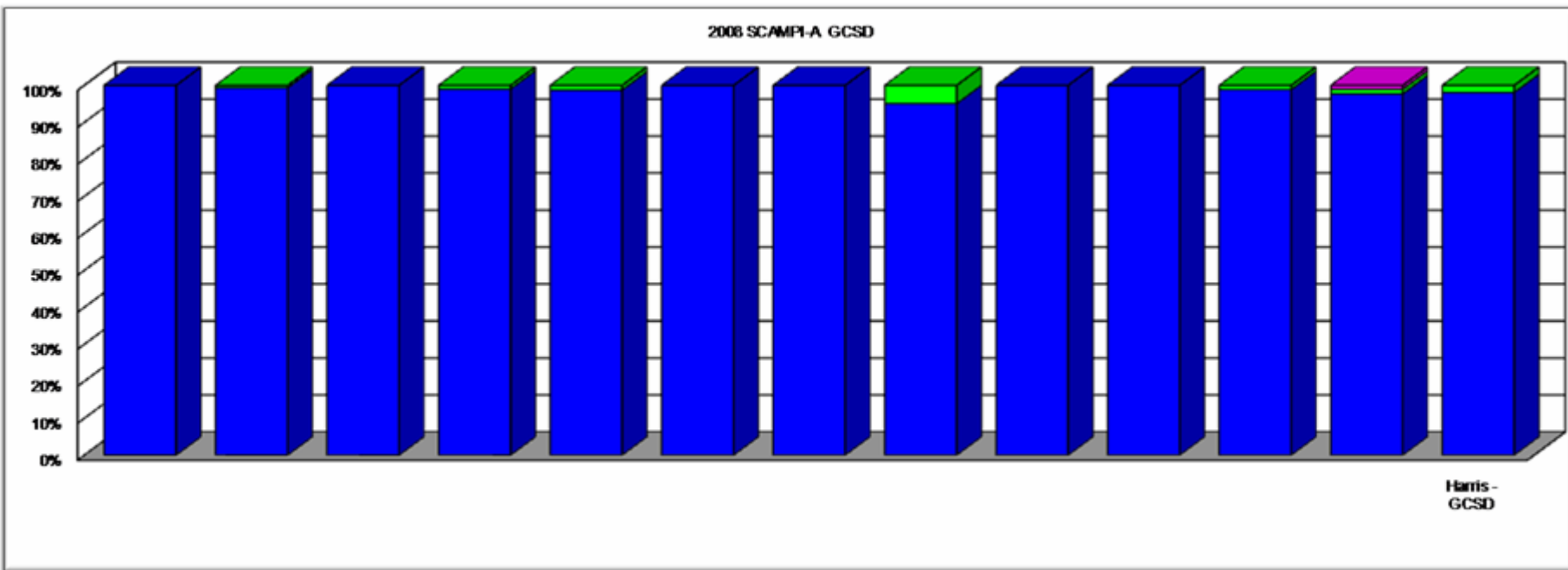
Fully Implemented (FI)	<p>Direct artifacts present and adequate Supported by indirect artifact and/or affirmation No weaknesses noted</p>
Largely Implemented (LI)	<p>Direct artifacts present and adequate Supported by indirect artifact and/or affirmation One or more weaknesses noted</p>
Partially Implemented (PI)	<p>Direct artifacts absent or judged inadequate Artifacts or affirmations indicate some aspects of the practice are implemented One or more weaknesses noted</p> <p style="text-align: center;">OR</p> <p>Direct artifacts present and adequate No other evidence supports direct artifacts One or more weaknesses noted</p>
Not Implemented (NI)	<p>Direct artifacts absent or judged inadequate No other evidence supports the practice One or more weaknesses noted</p>
Not Yet (NY)	<p>Project has not yet reached the stage in life cycle</p>

* Using Appraisal Wizard

SCAMPISM On-Site Results



	Focused Projects					Non-Focused Projects					Harris - GCSD		
FI	100%	99%	100%	99%	99%	100%	100%	95%	100%	100%	99%	97%	98%
LI	0%	1%	0%	1%	1%	0%	0%	5%	0%	0%	1%	1%	2%
PI	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
NI	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
NY	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%
Totals:	303	303	303	303	79	93	105	81	94	72	87	76	364



Goal and Process Area Ratings



PA SG1 SG2 SG3 GG2 GG3

Level 5	Causal Analysis and Resolution Organizational Innovation and Deployment	PA	SG1	SG2	SG3	GG2	GG3
Level 4	Quantitative Project Management Organizational Process Performance						
	Decision Analysis and Resolution	●	●				●
	Risk Management	●	●	●	●		●
	Integrated Project Management + IPPD	●	●	●	●		●
	Organizational Training	●	●	●			●
	Organizational Process Definition + IPPD	●	●	●			●
	Organizational Process Focus	●	●	●	●		●
	Validation	●	●	●			●
	Verification	●	●	●	●		●
	Product Integration	●	●	●	●		●
	Technical Solution	●	●	●	●		●
Level 3	Requirements Development	●	●	●	●		●
	Configuration Management	●	●	●	●		●
	Process and Product Quality Assurance	●	●	●			●
	Measurement and Analysis	●	●	●			●
	Supplier Agreement Management	●	●	●			●
	Project Monitoring and Control	●	●	●			●
	Project Planning	●	●	●	●		●
Level 2	Requirements Management	●	●				●

HARRIS (GCSD)
SCAMPISM A
31 July 2008

● Satisfied
● Not Satisfied

- Risk mitigation approach can benefit cost and schedule
 - Eliminated a SCAMPISM On-site
 - 3 ½ months ahead of schedule
- Risk assessment techniques
 - Process definition characterizations
 - Evidence state ratings
 - Practice characterizations
- Lessons learned
 - Plan early and develop a roadmap
 - Assess risk level after each SCAMPISM
 - Evidence completeness
 - Organizational confidence
 - Be flexible
 - Schedule
 - Management
 - Lead Appraiser and appraisal team
 - Intangible benefit
 - Saved stress on the programs

Harris Corporation
P.O. Box 37
Melbourne, Florida 32902-0037

<http://www.harris.com/>
SEI Partner

Gary Natwick gnatwick@harris.com

- SEI-Authorized Introduction to CMMI® Instructor
- SEI-Authorized SCAMPISM Class A Lead Appraiser (former)
- SEI-Authorized SCAMPISM Class B&C Team Leader (former)
- Harris SEI Partner Business & Technical Point of Contact

Debra Perry dperry@harris.com

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