



Applying PSM to FAA's Process Improvement Initiative

PSM User's Group Conference

Breckenridge, Colorado

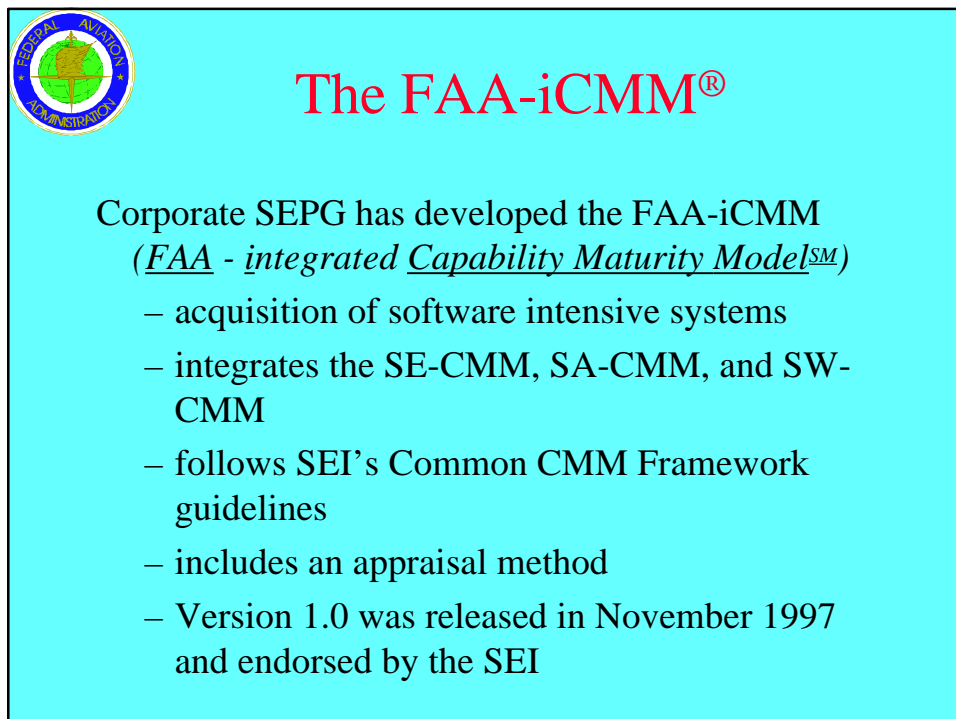
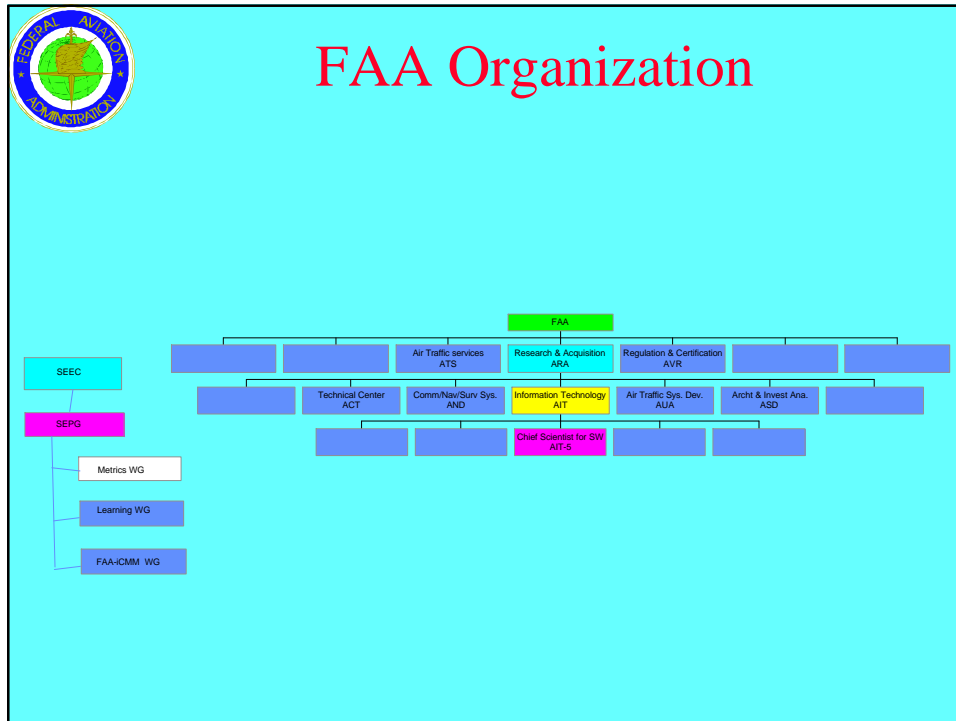
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Agenda

- Overview of FAA Organization
- Process Improvement Initiative
- FAA tailoring of the PSM
- Measuring Processes, Programs, & Products
- PSM training at the FAA
- Lessons learned





FAA-iCMM Goals and Expected Benefits

More *effective* process improvement

- one model across AMS
- corporate perspective for FAA-wide improvement
- integrated processes and process improvement
- one model, one architecture, consistent terminology, common process assets, common goals

More *efficient* process improvement

- less costly, less confusing
- 23 process areas (not 52)
- one appraisal (not 3)



The FAA-iCMM Architecture

FAA-iCMM uses the continuous architecture which is structured in 2 aspects:

- Domain aspect (what we do)
- Capability aspect (how well we do it)

FAA-iCMM also provides staging

- Maturity levels (what to focus on next)

(FAA-iCMM architecture is becoming known as the “continuous with staging” architecture)



FAA's Goal

- We are striving to achieve maturity level 2 on the FAA-iCMM by December 1999, and maturity level 3 on the FAA-iCMM by December 2001.
- We are striving to have 3 process areas at level 2 capability this FY98.



Performance Goal # 10

“Increase to FAA-Capability Maturity Model (CMM) Level 2 (or equivalent) by December 1999, and to level 3 by December 2001, the process maturity of 75% of selected major software-intensive programs.”



FAA Process Improvement Performance Measures

- FAA - iCMM appraisals
- Program performance metrics which include the Executive Level Metrics
- Staff Surveys of selected Programs



Key Issues* for FAA Executives

- Contractor Costs/Earned Value
 - within budget?
- Schedule Milestones
 - on schedule?
- Stability in Requirements
 - requirements stable?
- Product Quality
 - defects too high? fixing problems timely?
- SW Size Growth
 - size estimates on track?
- Project Risk Performance Parameters
 - performance risks status?

[continued on next slide]

* general form: 6 months historical, 6 months projection - planned vs actual



Tailoring the PSM for FAA

PSM focus

Software
Developer
DOD
Project

FAA focus

Systems
Acquisition
FAA - related
Process,
Project, &
Product



PSM applies to Processes too

- identify issues - project and process
- state questions which address issues
- classify and prioritize for process measurements
- determine process measures
- develop *process* Measurement Plan, integrates with *project* Measurement Plan
- Use it!
- assess and revise



Why Process Measurements?

- you can't show process improvement unless you measure it!
- it provides a baseline/benchmark
- it can show where things aren't working well - to prioritize improvement areas
- it provides data for future planning



Process Measurements can answer...

- have you raised the capability level of your process areas?
- are you doing more with less?
 - less resources [\$, effort,...]
 - shorter cycle-time, schedules
 - less defects
 - less rework



Measurement at the FAA

- Typical Project/Program focus
 - *e.g., the Project Management PA indicates need for measures related to size, effort, cost, quality*
- Process Measurement
 - *statusing all Process Areas per GP 2.11*
 - general - *e.g., effort, cost, cycle-time*
 - PA specific - *e.g., requirements allocated, verified*
- Process Improvement performance measures
 - *e.g., productivity, effectiveness, defect types*



FAA Measurement training

- 1 day PSM course - Project staff and Process Action Teams for Process Improvement
 - learn methodology [*required for workshop*]
- 2 half-day workshops
 - can focus on selected project process issues
 - to identify specific measures and draft plan to implement
 - Project leads, process owners/users, measurement rep are attendees
- follow-up: review plans, assist in implementation, assess results




Lessons so far

- **Workshops:**
 - keep management there until issues prioritized
 - be sure they know their processes before class - including the trainer
 - have a measurement example worked out as a template - related to FAA issues
 - include a template for the measurement plan
- **PSM overview:**
 - tailor terminology, focus [e.g. case study] to FAA culture
 - keep class size under 20



PSysM issues approach

- Schedule & progress
 - **are process activities and associated products getting done as scheduled?**
- Resources & Cost
 - **is effort expended as planned for process activities?**
- Growth & Stability [*+ Performance*]
 - **are the process activities descriptions changing?**
- Product Quality
 - **is the product recycled [rework] due to poor quality?**
 - **are product defects injected in this process?**
- Development [*life cycle process*] Performance
 - **effectiveness, efficiency adequate?**
- Technical Adequacy [*effectiveness*]
 - **can technology/tools improve effectiveness, efficiency?**
- [*Customer/user satisfaction*]
 - **is the customer satisfied with the approach and status of the project/system doing what the customer**



Linking FAA-iCMM Base Practices to P SysM Issues

FAA-iCMM PAs: level 2	Schedule & Progress	Resources & Cost	Growth, Stability, Performance	Product Quality	Life Cycle Process	Technology Effectiveness	Customer/ User Satisfaction
1: Needs		1.02	1.01, 1.02				1.01, 1.04, 1.05
2: Requirements	2.02, 2.08	2.02, 2.09	2.02, 2.03, 2.07, 2.08	2.06, 2.09			2.01
5: Outsourcing	5.02, 5.03	5.03	5.05	5.05	5.02, 5.03		
8: Sys Test/Evaluation	8.01, 8.04	8.01		8.01, 8.02, 8.03, 8.05, 8.06			8.02, 8.05, 8.06
9: Transition	9.02	9.02, 9.06		9.01	9.03		
11: Project Management	11.01, 11.03, 11.04, 11.07, 11.08, 11.09, 11.10	11.03, 11.07, 11.08, 11.09, 11.10	11.03, 11.07, 11.08, 11.09, 11.10	11.07, 11.08, 11.09, 11.10	11.02, 11.03, 11.05, 11.06, 11.07	11.03, 11.05	11.06, 11.10
12: Contract Management	12.02	12.02		12.02			12.02
15: QA & Management	15.04		15.02, 15.03, 15.04, 15.05	15.02, 15.03, 15.04, 15.05	15.01, 15.02, 15.03, 15.04, 15.05, 15.06		15.06
16: CM	16.01, 16.04, 16.05		16.02, 16.03, 16.04	16.06	16.01		
			1] revised		2] revised	3] revised	4] new

