

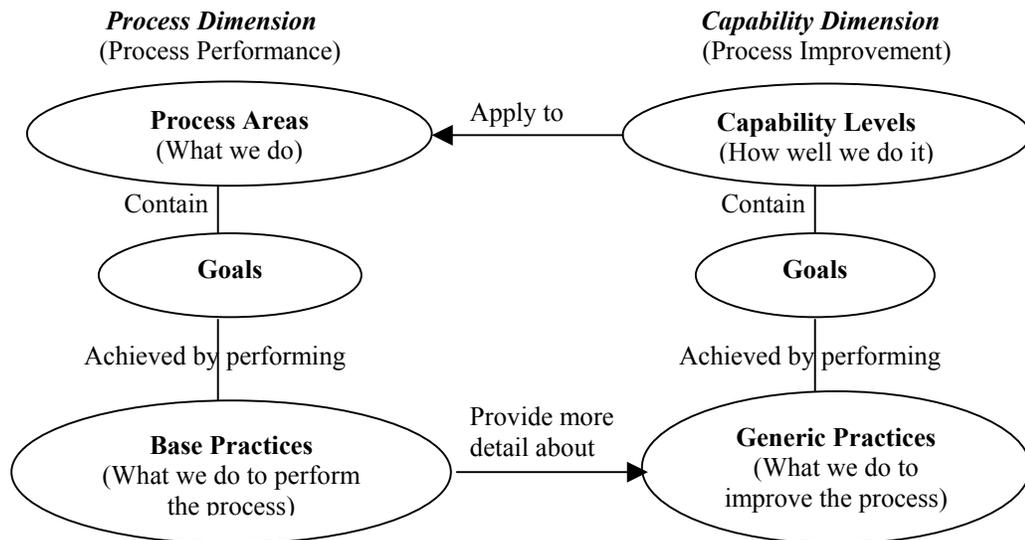
FAA-iCMM Version 2.0 – Quick Reference Summary

Linda Ibrahim – December 2002

Introduction: This document summarizes major features and content of the FAA-iCMM Version 2.0 (iCMM). It is provided as a quick reference for those using the iCMM to guide their process improvement efforts. Full details are provided in the iCMM, available at www.faa.gov/aio.

Context of Use: Any organization pursuing process improvement first examines its business objectives and the processes it performs to accomplish those objectives. Within this business context, the organization compares its practices to those in the relevant parts of the iCMM to identify areas where improvements might be pursued. The iCMM is used selectively, as applicable to the objectives of the organization. Associated with the iCMM are a variety of methods that can be used to measure organizational performance in relation to the iCMM. These are described in the FAA-iCMM Appraisal Method, available at www.faa.gov/aio.

General Structure of the iCMM: The practices in the iCMM are structured into 2 parts: the *process dimension*, with practices specific to performing a selection of processes, and the *capability dimension*, with practices that are used generically to improve the way any process is performed. Within the process dimension, practices are grouped into Process Areas, and within the capability dimension, practices are grouped into Capability Levels. Both Process Areas and Capability Levels contain goals expressing what should be achieved if their associated practices are performed. Some practices in the process dimension provide additional detail regarding practices in the capability dimension. This structure is illustrated below.



The Process Dimension: There are 23 process areas in the process dimension of the iCMM. Some of these process areas pertain to Management activities, some to Life Cycle activities, and some to Support activities. These process areas are numbered for convenience of reference. Most of these process areas are assigned a maturity level designation providing guidance on which process areas might be improved together, or next. These designations also offer iCMM maturity levels for the purpose of benchmarking with organizations that measure their accomplishments using the maturity levels of a variety of CMMs that are sources to the iCMM. Since the iCMM integrates many standards and models besides CMMs however, some process areas that are not in other CMMs are designated as “not staged” for benchmarking purposes.

The Capability Dimension: There are 6 capability levels in the capability dimension of the iCMM. Any of the processes in the process dimension may be being performed at any of these capability levels.

Maturity Level Definitions:

- **Maturity Level 2:** To achieve maturity level 2, all nine process areas staged at maturity level 2 must have satisfied capability levels 1 and 2 (or be not applicable) according to an iCMM appraisal.

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- **Maturity Level 3:** To achieve maturity level 3, all 20 process areas staged at maturity level 2 and maturity level 3 must have satisfied capability levels 1, 2, and 3 (or be not applicable) according to an iCMM appraisal.
- **Maturity Level 4:** To achieve maturity level 4, all 20 process areas staged at maturity level 2 and maturity level 3 must have satisfied capability levels 1, 2, and 3 (or be not applicable) and selected process areas additionally must have satisfied capability level 4 according to an iCMM appraisal.
- **Maturity Level 5:** To achieve maturity level 5, all 21 process areas staged at maturity levels 2, 3, and 5 must have satisfied capability levels 1, 2, and 3 (or be not applicable) and selected process areas additionally must have satisfied capability levels 4 and 5 according to an iCMM appraisal.

Generic Attributes: The iCMM contains a feature used to measure the results of process performance, independently of capability level. There are 2 generic attributes defined:

- *Usefulness:* the extent to which work products or services provide the needed benefits in actual use
- *Cost effectiveness:* the extent to which the benefits received are worth the resources invested.

Contents of this Document: The subsequent pages of this document summarize the Process Dimension and the Capability Dimension of the iCMM, listing their goals and practices.

<i>Process Dimension</i>			
<i>Category</i>	<i>Process Area</i>	<i>Maturity Level (ML) Staging</i>	<i>See page</i>
Management	PA 00 Integrated Enterprise Management	ML 3	3
	PA 11 Project Management	ML 2	6
	PA 12 Supplier Agreement Management	ML 2	6-7
	PA 13 Risk Management	ML 3	7
	PA 14 Integrated Teaming	ML 3	7
Life Cycle	PA 01 Needs	ML 3	3
	PA 02 Requirements	ML 2	3
	PA 03 Design	ML 3	4
	PA 06 Design Implementation	ML 3	4
	PA 07 Integration	ML 3	5
	PA 08 Evaluation	ML 2	5
	PA 09 Deployment, Transition, and Disposal	ML 2	5
	PA 10 Operation and Support	Not staged	6
Support	PA 04 Alternatives Analysis	ML 3	4
	PA 05 Outsourcing	ML 2	4
	PA 15 Quality Assurance & Management	ML 2	7
	PA 16 Configuration Management	ML 2	8
	PA 17 Information Management	Not staged	8
	PA 18 Measurement and Analysis	ML 2	8
	PA 20 Process Definition	ML 3	8
	PA 21 Process Improvement	ML 3	9
	PA 22 Training	ML 3	9
	PA 23 Innovation	ML 5	9

<i>Capability Dimension</i>		
<i>Capability Level Number</i>	<i>Capability Level Name</i>	<i>See page</i>
0	Incomplete	10
1	Performed	10
2	Managed: Planned and Tracked	10
3	Defined	10
4	Quantitatively Managed	10
5	Optimizing	10

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FAA-iCMM v2.0 Process Dimension: Process Areas, Goals, and Base Practices
PA 00 INTEGRATED ENTERPRISE MANAGEMENT
Goals
<ol style="list-style-type: none">1. Vision, mission, values, performance goals and objectives are established, maintained, and communicated to all employees.2. Strategies are developed and projects are launched that visibly support goal achievement.3. Projects are continued, changed, or terminated based on performance, within the capability of the organization, and with acceptable risk and potential benefit to the organization.
Practices
BP 00.01 Establish and Maintain Strategic Vision BP 00.02 Align to Achieve the Vision BP 00.03. Establish and Maintain Strategy BP 00.04. Develop and Deploy Action Plans BP 00.05. Review Performance BP 00.06. Act on Results of Review BP 00.07. Fulfill Public Responsibility
PA 01 NEEDS
Goals
<ol style="list-style-type: none">1. A statement of customer and other stakeholder needs and expectations is established and maintained.2. A description of the interaction of needed products and services with users in the intended environment is defined.3. Communication with the customer and other stakeholders is established and maintained.4. Customer satisfaction with products and services is determined and monitored.
Practices
BP 01.01 Identify Customers and Stakeholders BP 01.02 Elicit Needs BP 01.03 Analyze Needs BP 01.04 Establish and Maintain a Statement of Need BP 01.05 Communicate with Customers BP 01.06 Determine Customer Satisfaction
PA 02 REQUIREMENTS
Goals
<ol style="list-style-type: none">1. Requirements are derived from customer and other stakeholder needs.2. Requirements are unambiguous, complete, traceable, feasible, and verifiable.3. All requirements information is recorded and controlled to establish a baseline that is maintained throughout the life cycle.4. Plans, products, activities, and agreements are checked for consistency with requirements, and any inconsistencies are identified for correction.
Practices
BP 02.01 Identify Functional and Performance Requirements BP 02.02 Identify Nonfunctional Requirements and Constraints BP 02.03 Identify Key Requirements BP 02.04 Derive Requirements BP 02.05 Identify External Interface Requirements BP 02.06 Analyze Requirements BP 02.07 Record and Baseline Requirements BP 02.08 Analyze and Resolve Requirements Change Requests BP 02.09 Maintain Consistency and Traceability

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FAA-iCMM v2.0 Process Dimension: Process Areas, Goals, and Base Practices
PA 03 DESIGN
Goals
1. A product or service design that will meet the defined requirements is established and maintained. 2. The established product or service design is based on an evaluation of alternatives against criteria that represent the requirements.
Practices
BP 03.01 Identify and Prioritize Design Issues BP 03.02 Develop Design Structure BP 03.03 Develop Interface Specifications BP 03.04 Allocate Requirements BP 03.05 Define Interactions among Design Elements BP 03.06 Establish Component Specifications BP 03.07 Establish and Use a Strategy for Non-developmental Items BP 03.08 Establish and Maintain Design Description
PA 04 ALTERNATIVES ANALYSIS
Goals
1. Strategies are established and maintained that support the analysis of alternatives and structured decision-making. 2. Alternative solutions to selected issues are analyzed and solutions selected or recommended in accordance with established strategy and criteria. 3. Results and rationale of alternatives analysis are documented and communicated.
Practices
BP 04.01 Establish Analysis Strategy BP 04.02 Define the Problem BP 04.03 Select Analysis Method BP 04.04 Identify Alternative Solutions BP 04.05 Analyze Alternative Solutions BP 04.06 Select Solution BP 04.07 Communicate Analysis Results
PA 05 OUTSOURCING
Goals
1. Needs for outsourcing are determined. 2. Qualified suppliers are selected to provide solution or process components. 3. A productive communications environment is established and maintained with potential suppliers.
Practices
BP 05.01 Identify Needed Products or Services BP 05.02 Identify Competent Suppliers BP 05.03 Prepare for the Solicitation or Tasking BP 05.04 Choose Supplier BP 05.05 Communicate with Suppliers
PA 06 DESIGN IMPLEMENTATION
Goals
1. Solution component(s) are developed. 2. Documentation to support solution component(s) is established and maintained.
Practices
BP 06.01 Establish the Implementation Environment BP 06.02 Formulate Product or Service Components BP 06.03 Develop Documentation

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FAA-iCMM v2.0 Process Dimension: Process Areas, Goals, and Base Practices
PA 07 INTEGRATION
Goals
<ol style="list-style-type: none">1. A strategy for integrating the product and service elements is defined.2. Readiness of product and service elements for integration is verified.3. The product or service is integrated in accordance with the integration strategy.
Practices
BP 07.01 Develop Integration Strategy BP 07.02 Confirm Readiness of Product and Service Elements BP 07.03 Review and Coordinate Interface Definitions BP 07.04 Assemble Product and Service Elements BP 07.05 Confirm Integrated Product or Service Operation
PA 08 EVALUATION
Goals
<ol style="list-style-type: none">1. The evaluation approach, requirements, methods, and environment are established to provide an objective basis for determining whether the products and services meet requirements and can be accepted.2. Evaluations are performed as planned.3. Analyses are conducted on results of evaluations to support acceptance or corrective actions.
Practices
BP 08.01 Develop Evaluation Strategy BP 08.02 Develop Evaluation Procedures BP 08.03 Establish and Maintain Evaluation Environment BP 08.04 Evaluate Incremental Work Products BP 08.05 Verify End-products BP 08.06 Validate End-products BP 08.07 Analyze Evaluation Results
PA 09 DEPLOYMENT, TRANSITION AND DISPOSAL
Goals
<ol style="list-style-type: none">1. Customer/ stakeholder operation and support facilities are prepared to accept the delivery, placement and transition of the product or service into use.2. Customer/ stakeholder operation and support personnel are prepared to accept delivery, placement and transition of the product or service into use.3. Customer/ stakeholder operation and support organizations demonstrate their capacity to support the product or service upon assumption of responsibility.4. Continuity of operational performance is maintained.5. The replaced product or service is deactivated, disposed and/or dispensed of, as appropriate.
Practices
BP 09.01 Develop, Deploy, and Maintain a Strategy for Deployment, Transition and Disposal Activities BP 09.02 Prepare Facility and Infrastructure Environment BP 09.03 Oversee Configuration of Product or Service BP 09.04 Demonstrate Support Capability BP 09.05 Transition Product or Service BP 09.06 Deactivate and Dispose Replaced Product and/or Dispense with Service

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FAA-iCMM v2.0 Process Areas, Goals, and Base Practices

PA 10 OPERATION AND SUPPORT

Goals

1. The product, system, or service is operated and monitored.
2. Methods are established and used to sustain required service levels and to detect the need for corrective action.
3. Operational support is provided and needed corrective actions are deployed.

Practices

BP 10.01 Operate the System, Product or Service
BP 10.02 Monitor and Evaluate Capacity, Service, and Performance
BP 10.03 Confirm Availability of Parts and Personnel
BP 10.04 Perform Preventive Maintenance
BP 10.05 Analyze Failures
BP 10.06 Take or Initiate Corrective Action
BP 10.07 Provide Customer Support

PA 11 PROJECT MANAGEMENT

Goals

1. Project plans are established, maintained and executed to provide required products and services that reflect customer and stakeholder needs.
2. Estimates of the project's planning parameters are established and maintained to support resource estimates.
3. Commitments related to the project are established and maintained.
4. Progress of the project is evaluated against its plans.
5. Corrective actions are taken when appropriate and managed to closure.

Practices

BP 11.01 Define Project Objectives, Scope, and Outputs
BP 11.02 Define the Activities and Life Cycle Approach
BP 11.03 Estimate Planning Parameters
BP 11.04 Estimate Project Resource Requirements
BP 11.05 Establish Schedules
BP 11.06 Establish and Maintain Plans
BP 11.07 Establish Commitment
BP 11.08 Organize to meet Project Objectives
BP 11.09 Direct the Project
BP 11.10 Monitor Project Performance
BP 11.11 Review and Analyze Project Performance
BP 11.12 Take Corrective Action

PA 12 SUPPLIER AGREEMENT MANAGEMENT

Goals

1. The documented agreement is kept consistent with the acquirer's requirements and relevant laws, policies, regulations, and other applicable guidance.
2. Supplier performance, processes, products and services are reviewed and monitored to identify problems and to ensure that products and services conform to requirements.
3. Measurements are used to track the supplier's performance.
4. Communications between the acquirer and the supplier are established and maintained to foster a cooperative and productive agreement environment.
5. Acceptance of deliverable products or services is based on the supplier meeting the terms and conditions described in the agreement.

Practices (see also next page)

BP 12.01 Use Planning documents
BP 12.02 Review and Monitor Agreement Performance
BP 12.03 Maintain Supplier Agreement Integrity
BP 12.04 Monitor Supplier's Plans, Processes, Activities and Products

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FAA-iCMM v2.0 Process Areas, Goals, and Base Practices
Practices (PA 12 Supplier Agreement Management – continued)
BP 12.05 Foster Cooperative and Collaborative Environment. BP 12.06 Analyze and Direct Agreement Activities BP 12.07 Administer Supplier Agreement BP 12.08 Determine Product or Service Acceptance

PA 13 RISK MANAGEMENT
Goals
1. A risk management strategy is established and used that includes the plans, methods and parameters for management of risk. 2. Risks are identified and assessed for their likelihood and consequence. 3. Risk mitigation is performed when analysis indicates action. 4. Risk mitigation actions are monitored to determine their effectiveness and corrective action is taken as needed.
Practices
BP 13.01 Develop Risk Management Approach BP 13.02 Identify Risks BP 13.03 Assess Risks BP 13.04 Develop Risk Mitigation Plans BP 13.05 Implement and Monitor Risk Mitigation Plans

PA 14 INTEGRATED TEAMING
Goals
1. Integrated teams composed of appropriate disciplines and stakeholders are established and maintained. 2. Team processes and methods are established and maintained for effective coordination, collaboration, communication, conflict resolution and decision-making.
Practices
BP 14.01 Develop and Communicate Team Goals BP 14.02 Establish and Maintain Integrated Teams BP 14.03 Establish and Maintain a Collaborative Workplace BP 14.04 Establish Coordination and Communication Methods BP 14.05 Establish Resolution Methods BP 14.06 Communicate Integrated Team Activity Results

PA 15 QUALITY ASSURANCE AND MANAGEMENT
Goals
1. Adherence of work products, services, and activities to applicable standards, procedures, and requirements is verified objectively. 2. Noncompliance issues are tracked and those that cannot be resolved at the project level are addressed by senior management. 3. Affected groups and individuals are informed of quality assurance activities, and results. 4. Causes of defects are sought out, identified, prioritized, corrected, and methods of elimination are evaluated. 5. Quality improvement opportunities are initiated with the appropriate stakeholders.
Practices
BP 15.01 Establish a Quality Management System BP 15.02 Monitor Process Compliance BP 15.03 Monitor Product and Service Quality BP 15.04 Record and Report Results BP 15.05 Analyze Quality BP 15.06 Initiate Quality Improvement BP 15.07 Evaluate the Effect of Changes

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PA 16 CONFIGURATION MANAGEMENT

Goals

1. Configuration items that are to be managed are identified.
2. Configuration items are controlled and managed throughout the life cycle.
3. Status of configuration items is recorded and reported to all stakeholders.
4. The integrity of baselines and work products is assured.

Practices

BP 16.01 Establish a Configuration Management Strategy
BP 16.02 Identify and Baseline Configuration Items and Interim Work Products
BP 16.03 Establish and Maintain a Repository for Work Product Baselines
BP 16.04 Control Changes
BP 16.05 Record and Report Configuration Status
BP 16.06 Conduct Configuration Audits and Inspections

PA 17 INFORMATION MANAGEMENT

Goals

1. An infrastructure is established and maintained to provide the mechanisms and media needed to support the information management at project, organization and enterprise levels.
2. Information is managed in accordance with established requirements and strategy.
3. Information is stored and protected from loss, damage, and unwarranted access.
4. Timely access to information is available to those that need it.

Practices

BP 17.01 Establish Information Management Strategy
BP 17.02 Establish Information Management Capability
BP 17.03 Store Information
BP 17.04 Share Information
BP 17.05 Protect Information
BP 17.06 Establish Information Standards

PA 18 MEASUREMENT AND ANALYSIS

Goals

1. Measures related to goals, objectives and major issues are established.
2. Measurement data are collected, analyzed, and results are reported.
3. Measurement data and results are stored for use.

Practices

BP 18.01 Establish Measures Based on Goals
BP 18.02 Collect Relevant Measurement Data
BP 18.03 Store Data and Results
BP 18.04 Analyze Measurement Data
BP 18.05 Communicate Results

PA 20 PROCESS DEFINITION

Goals

1. The set of standard processes is established and maintained.
2. Guides for tailoring the standard processes are established and maintained.
3. Goals, performance data, and other assets that support the processes are collected, maintained, and communicated.

Practices

BP 20.01 Establish Standard Processes
BP 20.02 Develop Tailoring Guidelines
BP 20.03 Maintain Process Assets
BP 20.04 Coordinate and Communicate Process Definition

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PA 21 PROCESS IMPROVEMENT

Goals

1. Goals for processes improvement are established and progress towards them is evaluated.
2. Process improvement activities are coordinated across projects and the organization.
3. Improvements are deployed, monitored, and sustained within the project and organization.

Practices

BP 21.01 Identify Process Improvement Goals
BP 21.02 Establish Process Improvement Program
BP 21.03 Appraise Process
BP 21.04 Establish an Action Plan
BP 21.05 Implement Improvements
BP 21.06 Confirm Improvements
BP 21.07 Sustain and Deploy Improvement Gains
BP 21.08 Monitor Performance

PA 22 TRAINING

Goals

1. Training needs are solicited and identified.
2. Required training is provided.
3. Training effectiveness is assessed.

Practices

BP 22.01 Identify Training Needs
BP 22.02 Establish Training Plan
BP 22.03 Establish Training Mechanism
BP 22.04 Train Individuals
BP 22.05 Establish and Maintain Records
BP 22.06 Assess Training Effectiveness
BP 22.07 Establish Learning Environment

PA 23 INNOVATION

Goals

1. Agile adaptation to change is driven by the organization's knowledge of its products, processes, technologies, and core competencies.
2. The organization's products, services, processes, and work environment are continually evaluated for suitability to use identified improvements and innovations.
3. Selected technologies are deployed to relevant parts of the organization in accordance with the organization's objectives and goals.

Practices

BP 23.01 Maintain New Technology Awareness
BP 23.02 Select New Technologies
BP 23.03 Prepare for Infusion
BP 23.04 Infuse New Technologies
BP 23.05 Manage Innovation

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FAA-iCMM v2.0 Capability Dimension: Capability Levels, Goals, and Generic Practices

CAPABILITY LEVEL 0: INCOMPLETE

One or more of the goals of the process area are not achieved. (No goal or generic practices at this level)

CAPABILITY LEVEL 1: PERFORMED

Goal: The process achieves the goals of the process area.

Practices

- 1.1 Identify Work Scope
- 1.2 Perform the Process

CAPABILITY LEVEL 2: MANAGED: PLANNED AND TRACKED

Goal: The process is institutionalized as a managed (planned and tracked) process.

Practices

- 2.1 Establish Organizational Policy
- 2.2 Document the Process
- 2.3 Plan the Process
- 2.4 Provide Adequate Resources
- 2.5 Assign Responsibility
- 2.6 Ensure Skill and Knowledge
- 2.7 Establish Work Product Requirements
- 2.8 Consistently Use and Manage the Process
- 2.9 Manage Work Products
- 2.10 Objectively Assess Process Compliance.
- 2.11 Objectively Verify Work Products
- 2.12 Measure Performance
- 2.13 Review Performance with Higher-level Management
- 2.14 Take Corrective Action
- 2.15 Coordinate with Stakeholders

CAPABILITY LEVEL 3: DEFINED

Goal: The process is institutionalized as a defined process.

Practices

- 3.1 Standardize the Process
- 3.2 Establish and Use a Defined Process
- 3.3 Improve Processes

CAPABILITY LEVEL 4: QUANTITATIVELY MANAGED

Goal: The process is institutionalized as a quantitatively managed process.

Practice: 4.1 Stabilize Process Performance

CAPABILITY LEVEL 5: OPTIMIZING

Goal: The process is institutionalized as an optimizing process

Practice: 5.1 Pursue Process Optimization