Complementary or Competing?

Achieving Synergy With

OPM3®, CMMI®, and ISO 9001-2000
About Harris RF Communications

ISO 9001-2000
CMMI®
OPM3®

Process Standards Comparisons
Synergy Concepts and Techniques
Benefits of Multi-Model Approaches
Closing Thoughts

Origin
Applicability
Architecture
Assessment Methods
Improvement Methods
No warfighter stands alone.
Always connected.
Always accounted for.

RFCD Vision

RFCD Mission
We are the best-in-class, global supplier of communications-based products and systems for military customers. Backed by superior customer support, our reliable, fully-integrated, secure wireless solutions help our customers achieve network integrity, pervasive connectivity and information dominance in their theater of operations.
Commercial Approach
High Product Mix
Low to High Volume
Build to Forecast
Industrial & Military Specifications
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ISO 9001-2000

CMMI®

OPM3®

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INTERNATIONAL STANDARD
ISO 9001

Third edition 2000-12-15

Quality management systems —
Requirements
Systèmes de management de la qualité — Exigences

© ISO 2000

A Generic Systems Process Standard

Based on 279 “Shall” Statements
Not all Absolute

Shall Statements Grouped into Sections

Includes Electronic and Hardcopy Formats

Application Includes, é
Any Type of Organization
Global
Multiple Industries
Certification is known in some countries as registration.

An independent, external body audits the organization's management system and verifies that it conforms to requirements specified in the standard (ISO 9001-2000).

<table>
<thead>
<tr>
<th>Initial</th>
<th>Transition</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Optional pre-assessment</td>
<td>- On going surveillance</td>
</tr>
<tr>
<td>- Registration assessment</td>
<td>- Upgrading the existing registration</td>
</tr>
</tbody>
</table>
Continual Improvement is both a 9001-2000 Quality Management Principle and a Requirement

- Continually Improve Effectiveness of the System
- Corrective Action
- Preventive Action

ISO 9004-2000 Guidelines Recommended Methods

- Financial Measurement
- Measurement of Process Performance throughout the Organization
- External Measurement, such as Benchmarking and Third-party Evaluation
- Assessment of the Perceptions of Customers and Other Interested Parties of Performance of Products Provided
- Measurement of Other Success Factors Identified by Management.
- Assessment of the Satisfaction of Customers, People in the Organization and Other Interested Parties
A Model-Based Process Standard

Consists of Generic and Specific Practices (437)

Practices Grouped into Process Areas

Includes Electronic and Hardcopy Formats

Application Includes, e.g.
- Product Development or Service
- Global
- Multiple Industries
## Process Areas

<table>
<thead>
<tr>
<th>Maturity Levels</th>
<th>Process Areas (PA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial (1)</td>
<td>Ad hoc, chaotic processes</td>
</tr>
<tr>
<td>Managed (2)</td>
<td>Requirements Management (REQM)</td>
</tr>
<tr>
<td>Defined (3)</td>
<td>Requirements Development (RD)</td>
</tr>
<tr>
<td>Quantitatively Managed (4)</td>
<td>Technical Solution (TS)</td>
</tr>
<tr>
<td>Optimizing (5)</td>
<td>Product Integration (PI)</td>
</tr>
<tr>
<td></td>
<td>Verification (VER)</td>
</tr>
<tr>
<td></td>
<td>Validation (VAL)</td>
</tr>
<tr>
<td></td>
<td>Organizational Process Focus (OPF)</td>
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<td></td>
<td>Organizational Process Definition (OPD) +IPPD</td>
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<tr>
<td></td>
<td>Organization Training (OT)</td>
</tr>
<tr>
<td></td>
<td>Integrated Project Management (IPM) +IPPD</td>
</tr>
<tr>
<td></td>
<td>Risk Management (RSKM)</td>
</tr>
<tr>
<td></td>
<td>Decision Analysis and Resolution (DAR)</td>
</tr>
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<td></td>
<td>Organizational Innovation and Deployment (OID)</td>
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<tr>
<td></td>
<td>Causal Analysis and Resolution (CAR)</td>
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<td></td>
<td>Organizational Process Performance (OPP)</td>
</tr>
<tr>
<td></td>
<td>Quantitative Project Management (QPM)</td>
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<tr>
<td>(2 PAs)</td>
<td>Continuous Process Improvement</td>
</tr>
<tr>
<td>(11 PAs)</td>
<td>Process Standardization</td>
</tr>
<tr>
<td>(2 PAs)</td>
<td>Quantitative Management</td>
</tr>
<tr>
<td>(7 PAs)</td>
<td>Basic Project Management</td>
</tr>
</tbody>
</table>
SG 1 Establish Estimates
   SP 1.1 Estimate the Scope of the Project
   SP 1.2 Establish Estimates of Work Product and Task Attributes
   SP 1.3 Define Project Life Cycle
   SP 1.4 Determine Estimates of Effort and Cost

SG 2 Develop a Project Plan
   SP 2.1 Establish the Budget and Schedule
   SP 2.2 Identify Project Risks
   SP 2.3 Plan for Data Management
   SP 2.4 Plan for Project Resources
   SP 2.5 Plan for Needed Knowledge and Skills
   SP 2.6 Plan Stakeholder Involvement
   SP 2.7 Establish the Project Plan

SG 3 Obtain Commitment to the Plan
   SP 3.1 Review Plans that Affect the Project
   SP 3.2 Reconcile Work and Resource Levels
   SP 3.3 Obtain Plan Commitment
<table>
<thead>
<tr>
<th>Requirement</th>
<th>SCAMPI A</th>
<th>SCAMPI B</th>
<th>SCAMPI C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Types of Objective Evidence Gathered</td>
<td>Documents and Interviews</td>
<td>Documents and Interviews</td>
<td>Documents or Interviews</td>
</tr>
<tr>
<td>Ratings Generated</td>
<td>Goal Ratings Required</td>
<td>No Ratings Allowed</td>
<td>No Ratings Allowed</td>
</tr>
<tr>
<td>Organizational Unit Coverage</td>
<td>Required</td>
<td>Not Required</td>
<td>Not Required</td>
</tr>
<tr>
<td>Minimum Team Size</td>
<td>4</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Appraisal Team Leader Requirements</td>
<td>SCAMPI A Lead Appraiser</td>
<td>SCAMPI B and C Team Leader</td>
<td>SCAMPI B and C Team Leader</td>
</tr>
</tbody>
</table>

SCAMPI = Standard CMM® Appraisal Method for Process Improvement
Continual improvement is the focus of CMMI®.

- CMMI® is a "roadmap" for improvement through its maturity levels.
- All process areas have improvement practices.
- Improvement approach is gradual.

CMMI® provides improvement guidelines for first time adopters and organizations transitioning from other process standards.

CMMI® based appraisals are used to guide process improvement.
A Model-Based Process Standard

Based on 586 Best Practices

Best Practices are Broken Down into a Series of Capabilities (or Steps)

Available CD-ROM and On-Line

Application Includes, etc.
  - Any Type of Organization
  - Global
  - Almost any Industry
Organizational Project Management, its maturity, relative Best Practices, and how to use OPM3®

Development of an improvement plan

Sequence of developing Capabilities aggregating to Best Practices

Comparison of current maturity state with the model

Includes methods for evaluating Best Practices and Capabilities
Best Practice 1010
Project Initiation Process Standards are Established

Capability 1010.020
The Organization assembles, develops, purchases or otherwise acquires a Project initiation process.

Outcome 1010.020.10
Project Initiation Process is documented and communicated to all necessary stakeholders

Key Performance Indicator
A Documented Project Initiation Process Exists
BP 3060 - Select Projects Based on Organizational Best Interests

Align portfolio org. objectives and strategy

Prioritize projects based on strategic business objectives

Prioritize projects according to short-term org. objectives

Select projects supporting sponsor best interests
“…groupings to provide structure and a framework for the OPM3® Model so that the relationship between Best Practices and Capabilities could be better understood.”

OPM3® Knowledge Foundation

**Domains:**

Portfolio, Program or Project (PPP)

**Improvement Stages:**

Standardize, Measure, Control or Continuously Improve (SMCI)

**Project Management Processes:**

Initiate, Plan, Execute, Control, and Close
Step 1. Prepare for Assessment
Know the model.

Step 2. Perform Assessment
Use Self and Comprehensive Assessments initially.

Step 3. Plan for Improvements
Rank the improvement needs.

Step 4. Implement Improvements
Monitor and control change (s).

Step 5. Repeat the Process
Return to Steps 1 or 3.
Organizational Project Management Maturity Increases along a Continuum

- OPM3® provides multiple perspectives for assessing maturity
  1) Along the SMCI
  2) Along the PPP
  3) Progression of capabilities leading to best practices
  4) Initiating, planning, executing, controlling and closing
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CMMI®

OPM3®

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## Process Standard Comparisons

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<tr>
<th></th>
<th>OPM3® (PMI)</th>
<th>CMMI® (SEI)</th>
<th>ISO 9001-2000 (ISO)</th>
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<tbody>
<tr>
<td><strong>Format</strong></td>
<td>Model-Based</td>
<td>Model-Based</td>
<td>Standard</td>
</tr>
<tr>
<td><strong>Appraisal Method</strong></td>
<td>Assessment</td>
<td>Appraisal</td>
<td>Registration</td>
</tr>
<tr>
<td><strong>Measurement</strong></td>
<td>Maturity Continuum</td>
<td>Maturity/Capability Level</td>
<td>One Set of “Shall” Requirements</td>
</tr>
<tr>
<td><strong>Implementation Guidance</strong></td>
<td>Implementation Guidance</td>
<td>Institutionalization and Implementation Guidance</td>
<td>No Implementation Guidance</td>
</tr>
<tr>
<td><strong>Application</strong></td>
<td>Narrow (Project Management)</td>
<td>Narrow (Product Development)</td>
<td>Broad (Cross Functional)</td>
</tr>
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**Format**: Model-Based, Standard

**Appraisal Method**: Assessment, Appraisal

**Measurement**: Maturity Continuum, Maturity/Capability Level

**Implementation Guidance**: Implementation Guidance, Institutionalization and Implementation Guidance

**Application**: Narrow (Project Management), Narrow (Product Development), Broad (Cross Functional)
## Process Improvement Stages

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<tr>
<td>Level 1</td>
<td>Standardize</td>
<td>Initial</td>
<td></td>
</tr>
<tr>
<td>Level 2</td>
<td>Measure</td>
<td>Managed</td>
<td></td>
</tr>
<tr>
<td>Level 3</td>
<td>Control</td>
<td>Defined</td>
<td>ISO 9004-2000 High Level Guidelines for Process Improvement</td>
</tr>
<tr>
<td>Level 4</td>
<td>Continuously Improve</td>
<td>Quantitatively Managed</td>
<td></td>
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<tr>
<td>Level 5</td>
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Core Organizational Process Requirements

- Built on ISO 9001-2000 and CMMI®
- Process Requirements are focus of change
  - Not the model
- Audits, Appraisals, Lean, Six Sigma, etc., are improvement methods

Unified Process Improvement Efforts

- All models support process improvement for groups and interfaces among groups
- All models have focus and non-focus areas
- All models have best practices

Institutionalization / Standardization of Practices

- Strongest in CMMI® with Generic Practices

ML = Maturity Level
Process Maturity

- Six Sigma
- Lean Product Development
- Process Redesign
- Speed
- Efficiency
- Compliance
- Accuracy
- Process Improvement
- Interfaces
- Systems
- Business Process
- Productivity
- Reengineering

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Outcomes and Benefits

- Planned Multi-Model Approaches Unifies and Disciplines Diverse Process Improvement Efforts
  - Promotes and aligns Leadership understanding and commitment
  - Avoids redundancies and overlaps in process improvement ($$$)
    - Encourages coordination and resource optimization
  - Helps to eliminate self-optimizing silos and process overlaps
    - Encourages efficient subprocess ordering and interfaces
  - One model enables another model
  - Helps to capture the overall business process framework

- Assessments Provide Answers to Organizational and Business Process Maturity
  - Does the process contribute to value-added work flows?
  - Does the process contribute to organizational/business objectives?
4 Pillars of Wisdom

¢ “Don’t pay for the same real estate twice.”

¢ “Don’t take down a fence until you know why it was put up.”

¢ “….build it and he will come.”

¢ “Change before you have to.”
Mark Scott is the Senior Manager for Process, Productivity and Improvement at Harris Corporation’s RF Communications Division, Rochester, N.Y. He has 10 years practical experience leading and assessing model-based process improvements for project/program management, engineering, quality assurance, and supply chain organizations. Scott currently leads RF Communications’ CMMI® and OPM3® initiatives, and is responsible for integrating these process frameworks into the division’s ISO 9001-2000 Quality Management System (QMS). Along with a Master Degree in Organizational Management, Scott is a PMI licensed OPM3® assessor, a Six Sigma Black Belt, and a Harris candidate for the Carnegie Mellon University, Software Engineering Institute, CMMI® lead appraiser program.

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Acknowledgements


Leslie Hill, “Project Management Body of Knowledge (PMBOK®) and the Capability Maturity Model Integration (CMMI®)”, Presentation, Rochester, N.Y., 2004.


