Aligning CMMI & ITIL
Where Am I and Which Way Do I Go?
• Where Am I?
  – Current Situation
  – Process Improvement Objectives
• How Do I Get There?
  – CMMI
  – ITIL
  – Mapping, Commonalities, Differences
• What Do I Do Now?
• Conclusions
Where Am I?

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Satisfying market pressures:

- Increase quality of product and service delivery and support while reducing costs

Improve Customer Satisfaction
Proliferation of “quality” groups

Lacking communication & coordination with others

Creating unique process repositories, architectures, data stores

Focus on their own model, standard, regulatory mandate

Compete for limited corporate resources & budgets

Assessment

Training

Surveys

Metrics Collection

Ignoring linkage to business goals

mandate

while

that
Process Improvement Objectives

• Standardized approach to process definition and implementation in a variety of environments (product and service development)
  – Alignment to business needs
  – Proven best practices that deliver measurable results
  – Organizational structure for development of processes and procedures
  – Common language both internally and externally
How Do I Get There?

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• A structured collection of practices that describes the characteristics of effective processes
• Integration of common elements and best features of multiple CMMs, providing
  – Common terminology
  – Training
  – An integrated appraisal method (SCAMPI*)
• CMMI enables a functional integration of all disciplines required to develop a product or service

* SCAMPI^{SM} = Standard CMMI Appraisal Method for Process Improvement
CMMI Structure – Maturity Levels

1: Initial
- Disciplined Process
  - Standard, Consistent Process

2: Managed
- Predictable Process
  - All of our projects follow similar processes. We know what to do when.

3: Defined
- Continuously Improving Process
  - We know quantitatively in advance when projects are going well or not, and we intelligently adjust and improve.

4: Quantitatively Managed
- Things are getting under control – our schedules and plans now include most of what we have to do.

5: Optimizing

What Process??
Applicability of CMMI

- System & Software Development
  - Entire lifecycle or part thereof
  - All types of lifecycle methods
  - Including sustainment aspects of system development
    - Logistics, training, etc

- System & Software Maintenance

- Providing services
  - Training
  - Delivery/transportation
  - Infrastructure and Operations
• The "Information Technology Infrastructure Library" guidelines
• The 'library' has evolved to its current version, **ITIL v3**. The five volumes are:
  – ITIL Service Strategy;
  – ITIL Service Design;
  – ITIL Service Transition;
  – ITIL Service Operation;
  – ITIL Continual Service Improvement,

which can be obtained from the publishers, TSO Books ([www.tsoshop.co.uk](http://www.tsoshop.co.uk))
The ITIL volumes make up a comprehensive, non-proprietary and publicly accessible process-related library in the IT field. It covers:

- Descriptions and definitions of the various ITIL practices and disciplines
- Organizational structure and skill requirements
- Best practices and processes for planning, provision and support of IT services

ITIL is a registered trademark of the UK Government's Office of Government Commerce (usually known as the OGC)
Life Cycle Phases

- **Service Strategy**
  - Services Needs based on Business Goals, Utility and Warranty

- **Service Design**
  - Development of Services & Service Management Processes
  - Capabilities for transitioning new/changed services into operations

- **Service Transition**
  - Capabilities for managing service operations

- **Continual Service Improvement**
  - Quantitative understanding of services, adjusting and improving
ITIL Processes:

- Service Strategy
- Service Design
- Service Transition
- Service Operations
- Continual Service Improvement

Service Level Mgmt.
- Capacity Mgmt.
- Availability Mgmt.
- Continuity Mgmt.
- Service Catalogue Mgmt.
- Information Security
- Supplier Mgmt.

Transition Planning & Support
- Change Mgmt.
- Asset & Config. Mgmt.
- Release & Deployment Mgmt.
- Validation & Testing
- Evaluation
- Knowledge Mgmt.

Incident Mgmt.
- Problem Mgmt.
- Event Mgmt.
- Request Fulfillment
- Access Mgmt.
- Operational Activities Covered in other Phases

7 Step Improvement Process
- Service Reporting
- Service Measurement
- ROI for CSI
- Business Questions for CSI
- Service Level Mgmt.

Organizational Considerations

Technology Considerations

Principles for Each Phase

Challenges, Critical Success Factors & Risks

• Blue denotes new in ITIL v3
CMMI Process Areas:

- Requirements Mgmt.
- Requirements Dev.
- Project Planning, Project Monitoring & Control
- Integrated Proj. Mgmt.
- Quant. Proj. Mgmt
- Meas. & Analysis
- Org. Process Focus
- Org. Process Definition

- Configuration Mgmt.
- Product Integration
- Verification
- Validation
- Product & Process Quality Assurance

- Project Monitoring & Control
- Validation
- Causal Analysis & Resolution

- Measurement & Analysis
- Product & Process Quality Assurance
- Org. Process Focus/Definition
- Org. Process Performance
- Quantitative Project Mgmt.
- Causal Analysis & Resolution
- Org. Innovation & Deploy.
- Integrated Project Mgmt.

Generic Practices – Example Policies; Training

Organizational Training – by Role

Project Planning, Tracking and Control (PP, PMC)

Risk Management

Note: Mapping is not comprehensive – only major items
## CMMI vs. ITIL

<table>
<thead>
<tr>
<th>ITIL</th>
<th>CMMI</th>
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<tbody>
<tr>
<td>Embodies 20+ years of product or service development</td>
<td>✔️</td>
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<tr>
<td>Contains tried, tested and enhanced practices</td>
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<tr>
<td>Establishes process &amp; process improvement policy</td>
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<tr>
<td>Deals with roles and responsibilities</td>
<td>✔️</td>
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<tr>
<td>Ensures training and skills of resources</td>
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<tr>
<td>Provides guidance to measure performance</td>
<td>✔️</td>
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<tr>
<td>Helps to set process improvement objectives &amp; priorities</td>
<td>✔️</td>
</tr>
<tr>
<td>Helps to ensure stable, capable, and mature processes</td>
<td>✔️</td>
</tr>
<tr>
<td>Guides improving project &amp; organizational processes</td>
<td>✔️</td>
</tr>
<tr>
<td>With an appraisal/audit method to determine maturity/compliance for registration – both indicators of ability to deliver products and services</td>
<td>✔️</td>
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</table>
## ITIL vs. CMMI

<table>
<thead>
<tr>
<th>ITIL</th>
<th>CMMI</th>
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<tbody>
<tr>
<td>✓</td>
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Strategize a business service definition and catalog to drive process design, transition, operations and improvement

Establish and define process improvement infrastructure

Provide descriptive tools, technologies, techniques & standards

Defined roles and responsibilities with skill descriptions and training requirements

Plan and develop products/services

Integrate, deploy and transition product/services

Measure and improve product/service delivery

Benchmark via maturity or capability level

Provide industry recognition through registration
<table>
<thead>
<tr>
<th>CMMI Process Areas (Project Management)</th>
<th>Related Business Objectives of Services Organizations</th>
<th>ITIL Life-Cycle Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Planning</td>
<td>Maintain detailed service plans that include the budget and schedule needed to support the customer</td>
<td>Service Strategy</td>
</tr>
<tr>
<td>Project Monitoring &amp; Control</td>
<td>Manage the costs and schedule associated with the service</td>
<td>Service Strategy</td>
</tr>
<tr>
<td>Supplier Agreement Management</td>
<td>Effectively manage suppliers of tools or resources vital to the success of the service</td>
<td>Service Design</td>
</tr>
<tr>
<td>Integrated Project Management</td>
<td>Integrate the delivery of the service with other projects and stakeholders</td>
<td>Service Strategy; Service Design</td>
</tr>
<tr>
<td>Risk Management</td>
<td>Plan for current and future risks to the service project</td>
<td>All</td>
</tr>
<tr>
<td>Quantitative Project Management</td>
<td>Establish predictability in their services</td>
<td>Service Strategy; CSI</td>
</tr>
</tbody>
</table>

Adapted from CMU/SEI-2003-TN-005
<table>
<thead>
<tr>
<th>CMMI Process Areas (Support)</th>
<th>Related Business Objectives of Services Organizations</th>
<th>ITIL Life-Cycle Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Configuration Management</td>
<td>Control technical and management work products</td>
<td>Service Transition</td>
</tr>
<tr>
<td>Process &amp; Product Quality Assurance</td>
<td>Ensure their services meet quality objectives and customer requirements</td>
<td>CSI; Service Transition</td>
</tr>
<tr>
<td>Measurement and Analysis</td>
<td>Understand measures of cost, profitability, &amp; cost of quality</td>
<td>Service Strategy; CSI</td>
</tr>
<tr>
<td>Decision Analysis and Resolution</td>
<td>Make informed and justifiable selections of products or techniques for their customers</td>
<td>Service Design</td>
</tr>
<tr>
<td>Causal Analysis and Resolution</td>
<td>Track service issues to root causes and eliminate them</td>
<td>Service Operation; CSI</td>
</tr>
</tbody>
</table>

Adapted from CMU/SEI-2003-TN-005
<table>
<thead>
<tr>
<th>CMMI Process Areas (Engineering)</th>
<th>Related Business Objectives of Services Organizations</th>
<th>ITIL Life-Cycle Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Requirements Management</td>
<td>Develop and manage their service requirements</td>
<td>Service Strategy; Service Design; (Service Operations)</td>
</tr>
<tr>
<td>Requirements Development</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technical Solution</td>
<td>Provide services that provide technical stability and support all aspects of product development and fielding</td>
<td>Service Design; (Service Operations)</td>
</tr>
<tr>
<td>Product Integration</td>
<td>Ensure that interfaces are compatible prior to their integration</td>
<td>Service Transition; Service Operation</td>
</tr>
<tr>
<td>Verification</td>
<td>Confirm that performed services satisfy their service requirements</td>
<td>Service Transition; (Service Operation)</td>
</tr>
<tr>
<td>Validation</td>
<td>Evaluate the suitability of acquired products &amp; services</td>
<td>Service Design; (Service Transition &amp; Operation)</td>
</tr>
</tbody>
</table>

Adapted from CMU/SEI-2003-TN-005
<table>
<thead>
<tr>
<th>CMMI Process Areas (Process Management)</th>
<th>Related Business Objectives of Services Organizations</th>
<th>ITIL Life-Cycle Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organizational Process Focus</td>
<td>Build and maintain a service culture</td>
<td>Service Strategy; CSI</td>
</tr>
<tr>
<td>Organizational Process Definition</td>
<td>Implement and improve processes to support predictable successful execution</td>
<td>Service Strategy; Service Design; CSI</td>
</tr>
<tr>
<td>Organizational Training</td>
<td>Train staff members to perform service functions</td>
<td>All</td>
</tr>
<tr>
<td>Organizational Process Performance</td>
<td>Measure effectiveness &amp; performance of processes</td>
<td>Service Strategy; CSI</td>
</tr>
<tr>
<td>Organizational Innovation &amp; Deployment</td>
<td>Introduce new service methods, technologies, &amp; functions</td>
<td>Service Strategy; CSI</td>
</tr>
</tbody>
</table>

Adapted from CMU/SEI-2003-TN-005
What Does It All Mean?
What Do I Do Now?
“Projects” at Several Levels

To use CMMI and ITIL together,

• Define an “Project” at three levels
  1. Creation of Service Offering – treat your service catalogue and service portfolio as its own project (ITIL & CMMI)
  2. Definition of a development project (CMMI)
  3. Manage service operations – identifying the service catalogue item(s) as project
     • ITIL to define
     • CMMI to appraise
## Minimum Deliverables Table

<table>
<thead>
<tr>
<th>Lifecycle Phases and Associated Core Processes</th>
<th>Large Projects &gt; 1000 hours - New Engagement</th>
<th>Medium Projects (200 - 999 hours, App Enhancement, Incident</th>
<th>IM/AM Combined</th>
<th>Contract Amendment</th>
<th>Small Projects (&lt; 200 hours), Service Requests</th>
<th>IM Projects</th>
<th>IM/AM Combined</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Initiating Phase</strong></td>
<td>✓ High level estimate (with rationale)</td>
<td>✓ High level estimate (with rationale)</td>
<td>✓ CQ ticket or Change ticket</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>✓ High level Requirements/Design</td>
<td>✓ High level Requirements/Design</td>
<td>✓ Meeting minutes</td>
<td></td>
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<tr>
<td></td>
<td>✓ Risk log, Meeting minutes</td>
<td>✓ Risk log, Meeting minutes</td>
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<tr>
<td></td>
<td>✓ Project contract (e.g., SOW, SOS)</td>
<td>✓ Project contract (SOW, SOS pool hours)</td>
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<tr>
<td></td>
<td>✓ Peer review (estimate, reqts, designs, risks)</td>
<td>✓ Peer review (estimate, reqts, design, risks)</td>
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<td></td>
<td></td>
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<tr>
<td></td>
<td>✓ CQ or Change ticket</td>
<td>✓ CQ or Change ticket</td>
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<tr>
<td><strong>Planning Phase</strong></td>
<td>✓ Project Mgmt Plan (PMP) (with project glossary, lifecycle, tools, project schedule, WBS, risk plans)</td>
<td>✓ Project Mgmt Plan (PMP) (with project glossary, lifecycle, tools, project schedule, WBS, risk plans)</td>
<td>✓ Project Mgmt Plan (PMP) (e.g., annual plan, service line)</td>
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<tr>
<td></td>
<td>✓ Project Monitoring and Control Plan (could be incorporated into the PGP)</td>
<td>✓ Project Monitoring Plan and Control Plan (could be incorporated into the PGP)</td>
<td>✓ Configuration Management Plan (e.g., annual plan, service line)</td>
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<tr>
<td></td>
<td>✓ Configuration Management Plan</td>
<td>✓ Configuration Management Plan</td>
<td>✓ Peer review records for PGP, Configuration Management Plan, and Detailed estimate</td>
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<tr>
<td></td>
<td>✓ Detailed project estimate (effort, schedule, cost, size)</td>
<td>✓ Detailed project estimate (effort, schedule, cost, size)</td>
<td>✓ CQ ticket or Change ticket</td>
<td></td>
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<tr>
<td></td>
<td>✓ Peer review records for PGP, Configuration Management Plan, and Detailed estimate</td>
<td>✓ Peer review records for PGP, Configuration Management Plan, and Detailed estimate</td>
<td>✓ Meeting minutes</td>
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<td></td>
<td>✓ Project budget</td>
<td>✓ Project budget</td>
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<td></td>
<td>✓ Meeting minutes, Issues Log, Risk Log</td>
<td>✓ Meeting minutes, Issues Log, Risk Log</td>
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• Think of commonalities of CMMI and ITIL instead of the differences – great synergy

• Think of the CMMI as the “what” and ITIL as the “how”
  – ITIL - where it provides detailed processes, techniques, templates and tools

• Keep “Maturity” as the goal (or Capability)
  – Utilize CMMI process improvement infrastructure (e.g., Executive Steering Committee, Process Engineering Group, etc.) to facilitate continual service improvement – as defined in CSI volume
  – Use CMMI to assess what is being done
ITIL Pages

- ITIL Online; the official ITIL Page [http://www.itil.co.uk](http://www.itil.co.uk)
- Service Management Institute [http://www.itsmi.com](http://www.itsmi.com)
- Where you can get the ITIL books [http://www.itilbooks.com/](http://www.itilbooks.com/)
- ITIL Community [www.itilcommunity.com](http://www.itilcommunity.com)
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