CMMI Survival Guide
Just Enough Process Improvement
Suzanne Garcia, Richard Turner

CMMI est une marque de service de l’Université Carnegie Mellon

Content

• Improvement and Learning
• Organizational Adoption Readiness and Fit Analysis
• CMMI Assumptions of an ideal organization
• Adoption Commitment
• Stages of Learning
**Definition of Process**

A process is a set of practices performed to achieve a given purpose; it may include tools, methods, materials, and/or people.

**Primary Components of Business Performance**

- Processes can create synergy between environment, people and technology

Source: SEI

Improvement and Learning

- **Knowledge** can be **explicit and written** or **tacit and observed**.

- **Individuals**, in an organization, know ways of doing their jobs that are **more effective** than their **peers**.
  - Individual knowledge is an **asset** that is **not** intentionally or explicitly available to others.
  - If the individual **writes up guidance** that can be shared, the knowledge becomes available to others.

- There may be **no organizational intention** of using it.

- **Processes** are a means of **capturing** knowledge and **passing** it on to others,

Adapted from: Garcia, 2006.

---

Stages of Learning

1. **Individual learning** – knowledge resides within **individuals** and may be **informally shared** with others in an **ad hoc fashion**.

2. **Group learning** – knowledge is explicitly **collected and shared** within **groups** such as teams or projects, supporting better performance within the group.

3. **Organizational learning** – Group-based knowledge is **collected and standardized**, and **mechanisms** exist that encourage its use **across many groups**.

4. **Quantitative learning** – The organizational **knowledge transfer and use** is **measured** and **decisions** made are based on **empirical information**.

5. **Strategic learning** – Knowledge collection, transfer, and use is **rapid across** the organization; strong, deep and wide **channels** for applying innovation are available and their use is **intrinsic** in the organization’s behavior.

Stages of Learning closely parallel CMMI organizational **maturity levels** as well as other model scales.

Organizational Adoption Readiness

and Fit Analysis

• First, you need to understand the assumptions of the model (or standard).

• Then, look at the “fit” of your organization’s conditions with the assumptions that are built into model/standard you’re planning to use.
  – As part of approaching process improvement

• Factors evaluated by this technique
  – Non-technical factors (in the organization) that have historically affected (either positively or negatively) adoption of practices/technologies similar to the one being contemplated.

Adapted from: Garcia, 2006.

Organizational Adoption Readiness

1. Business strategy – how well aligned is the model being contemplated with the overall business strategy of the organization?

2. Reward System – How well has the organization constructed reward systems that encourage use of the new practices and discourage continuation of old practices?

3. Sponsorship – How well does sponsoring management for new practice adoption “walk their talk” by recognizing and reinforcing use of the new practices?

4. Work practices – How easily does the organization historically implement work practice changes related to adoption of the model?

Organizational Adoption Readiness

5. **Values** – How well does the organization **match** its own **company values** to the values implied by **practices** they have adopted in the **past**?

6. **Skills** – Does the organization traditionally **ensure** that employees have relevant technical **experience** and/or project management experience related to **adopting new practices**?

7. **Structure** – How well has the organization historically recognized the (potential) **need** for **new roles and responsibilities** when new practices were implemented?

8. **History**—What **lessons** has the organization **internalized** (for good or ill!) related to **past history** of new practice **adoption**?

---

CMMI Assumptions – An Ideal Organization*

- **Strategy**
  - **Improving** organizational **effectiveness** is a **priority**.
  - **Improving** effectiveness of **processes** to achieve better performance is an **accepted** approach.

- **Work Practices** (model/standard is composed of work practices)
  - Addressed through a model/standard **gap analysis**.

- **Sponsorship**
  - Consistent **support** for the improving old or implementing new practices is exhibited by the organization’s **leadership**.
  - Penalties for avoiding the new practices are consistently applied,
  - Sponsorship is sufficiently **broad** to include all **processes** and activities to be improved.

* If all these elements were present, you wouldn’t CMMI

---

CMMI Assumptions – An Ideal Organization

**Reward system**
- The organization rewards participation in **overall efficiency** over **individual department** efficiency,
- The organization rewards improvement in **skills** related to process management and support,
- The organization rewards **fire prevention**, more than **firefighting**,
- The reward system will support incentives for **high-performance teams** (if IPPD is to be implemented).

**Structure**
- Clear definition of roles/ responsibilities/authorities exists,
- Management is a role that is responsible for effectiveness of the processes in use within the organization,
- Activities can be rationalized and organized around the concept of **projects**.

**Values**
- Measurements are used to **improve** the organization’s performance, not punish individuals,
- Participative management is encouraged,
- Mistakes are tolerated, as long as they **lead to improved processes/performance**,
- Long term improvement is worth short term effort, even if ROI is obtained later.

**Skills**
- Project planning and management skills (enough to manage a process improvement project) are available
- Organization change management skills are available

**History**
- Helpful if other practice-based technologies have been successfully adopted with this management/leadership team.

Example of a Gap Analysis

Goal Satisfaction

Level 2 Level 3 Level 4 Level 5

Fully-Satisfied (Average) Partially-Satisfied (Average) Not-Satisfied (Average)

Goal Variance

Minimum CMMI Satisfaction

Assessment Date

Fit Analysis Form

<table>
<thead>
<tr>
<th>Factor</th>
<th>Your Score*</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reward System</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sponsorship</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Values</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skills</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Structure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>History</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note 1: 1 = low fit; 5 = high fit
Note 2: For individual risks or issues, write them on sticky notes, one per sticky note

RISKS: something that *might* happen that would have a defined consequence.
Nominal form: Given that <condition>, there is a possibility that <consequence>

ISSUES: something that is happening right now and needs to be dealt with to improve the fit

Bar Chart showing individual response variations

- Helps you understand the variation in responses of the individuals

Radar Chart- Adoption Readiness

- Helps you see where are the strengths and weaknesses

Adoption Readiness

Adoption Commitment Curve

- *Stages* que les individus et les groupes traversent lorsqu'ils abordent l'adoption d'une nouvelle pratique/technologie

*Adapted from Patterson & Corner, "Building Commitment to Organizational Change", 1982.*
Solution Selling

- Latent Pain
- Pain
- Impact
- Vision


---

CMMI Staged Representation

<table>
<thead>
<tr>
<th>Level</th>
<th>Focus</th>
<th>Process Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 Optimizing</td>
<td>Continuous Process Improvement</td>
<td>Organizational Innovation and Deployment Causal Analysis and Resolution</td>
</tr>
<tr>
<td>4 Quantitatively Managed</td>
<td>Quantitative Management</td>
<td>Organizational Process Performance Quantitative Project Management</td>
</tr>
<tr>
<td>1 Initial</td>
<td>Project Management</td>
<td>Quality Productivity Risk Rework</td>
</tr>
</tbody>
</table>

Reference

• *Capability Maturity Model® Integration (CMMI®) for Development, Version 1.2*, Software Engineering Institute, August 2006.

• [www.sei.cmu.edu](http://www.sei.cmu.edu)

References