CMMI® Economics 203: Model Tailoring

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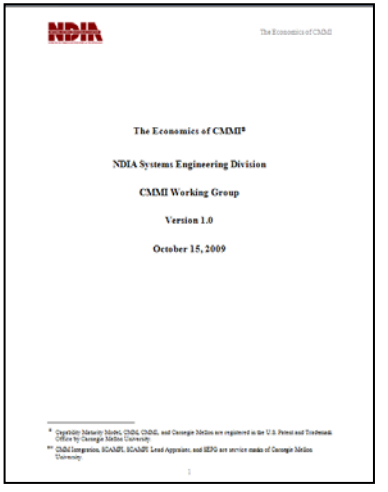
The Economics of CMMI

Overview:

- Developed by NDIA CMMI Working Group
- Guidance by industry, and for industry, on achieving business value through CMMI
- Suggested CMMI strategies and mechanisms, intended to be tailored much like the model itself



Section	Topics
Economical Implementation of CMMI ***(Implementers)***	• Use CMMI as an Integrating Framework • Develop and Deploy Processes Effectively • **Tailor CMMI Implementation Appropriately** • Implement CMMI in a Practical Way • Make an Informed Decision on High Maturity • Conduct Appraisals Economically

Administrivia

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Who I am:

- Chief Engineer, Jacobs Technology, Inc./ITSS
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Outline

- Common tailoring issues
- Influential factors
- Selection of Process Areas
- Level of detail
- OSP tailoring approaches
- SP implementation tailoring
- What about levels?
- The organizational change engine

Common Tailoring Issues

Common Issues	Recommendations
• Organizations adapting to CMMI, instead of adapting CMMI to their business.	Tailor CMMI model implementations to the business context. Adapt CMMI implementations to meet the needs of the business.
• Forcing a “one size fits all,” CMMI implementation on the diverse projects in the organization.	Recognize the needs of different types of projects. Allow and encourage project tailoring of the organization’s process.
• Adopting the CMMI without knowing “what you want to be when you grow up”	Focus on achieving organizational or project performance improvement/ quality goals.

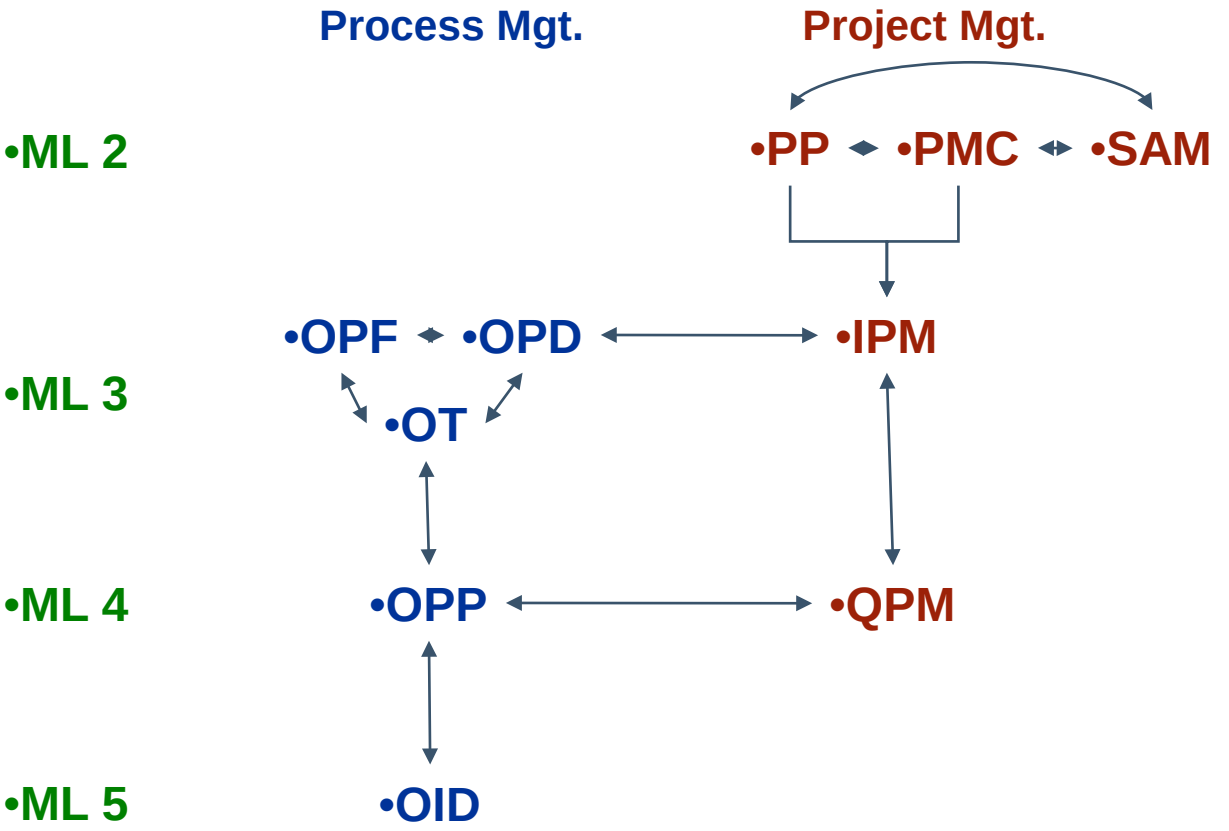
Factors that Influence Model Tailoring

- Organizational size
- Business objectives
- Customer market needs
- Project lifecycle models and development methods (e.g., incremental, spiral, agile)
- Problems the business may be experiencing
- Processes that are already being performed (whether documented or not)
- Company culture
- Process performance or product quality constraints

What Process Areas Should be Adopted?

- Consider organizational scope
  - One or two projects or services
  - An organization that manages projects or services
  - A geographically spread or virtual organization
- Consider maturity of current process culture
  - Chaotic culture points to broad “maturity level” sets of process areas
  - Mature culture may allow institutionalization of specific process areas (e.g. ISO Certification or Lean/Six Sigma)
- Consider business issues and objectives in the context of the organization
  - Uncontrolled requirements volatility points to REQM, RD in DEV model, others
  - Uncontrolled product defects may point to PPQA, CAR, VER, VAL in DEV, others as defects are analyzed
  - Uncontrolled service level breeches may point to SD, SSD and PPQA in SVC
- Be sensitive to Process Area relationships

Process Area Relationships



A Reasonable" Level of Process Detail

- Rule of thumb: "Two similarly trained and knowledgeable people could be expected to produce essentially the same outcome"
- Consider the level of tacit knowledge in the organization
- Consider the need to pass process knowledge among and between organizational elements and projects (now and in the foreseeable future)
- Consider the influence of technology
- For Services, consider any need for Service Continuity
- Consider another "rule of thumb": "If you're not sure the detail is needed, leave it out and see what happens"

OSP Tailoring Approaches

- More than one Organizational Standard Process (OSP) may be warranted
  - If sub-organizations do business in significantly different ways
  - Significantly different product or service domains
  - Different market places and pressures
  - Different customer cultures
- Tailoring of an OSP (OPD SP 1.3) may vary widely:
  - In some cases, NO tailoring may be an appropriate solution
  - Tightly controlled "rules based" tailoring in which outcomes are reached via decision criteria
  - Less control that allow a greater of responsiveness to project or service conditions (Warning)
- At CL/ML 4 and 5, Processes are Composed
  - QPM SP 1.2 "*Select the subprocesses that compose the project's defined process based on historical stability and capability data.*"

Implementation of a Specific Practice

- Review the business context of the organization, and ensure the implementation of the practice is true to that context
- Review the business objectives (performance goals, quality goals, issues), and ensure the implementation helps to achieve those goals
- Find the “reason” to implement the practice (decisions to implement “because the model says so” are too often regretted)
- Remember that an SP is an Expected Component of the model (you may write an Alternative Practice)
- Implementation of any SP must be consistent with implementation of related practices

What about Levels?

- **Capability Levels:**
  - **CL 0 (Incomplete) are not being performed, or only partially being performed**
  - **CL 1 (Performed) processes are being performed (but may not be recorded)**
  - **CL 2 (Managed) provides most institutionalization value**
  - **CL 3 (Defined) ensures process tailoring and improvement feedback to the organization**
  - **CL 4 (Quantitatively Managed) is applied to specific processes to be placed under process control**
  - **CL 5 (Optimizing) is applied to ensure relevant processes are fulfilling the business objectives of the organization**
- **Maturity Levels:**
  - **ML 1 (Initial) processes may not be recorded**
  - **ML 2 (Managed) ensures a prescribed set (depending on the model) of PAs are capable at CL 2 or above**
  - **ML 3 (Defined) ensures a prescribed set (depending on the model) of PAs are capable at CL 3 or above**
  - **ML 4 (Quantitatively Managed) ensure a prescribed set (depending on the model) of PAs are at CL 3, and at least one is at CL 4**
  - **ML 5 (Optimizing) ensure a prescribed set (depending on the model) of PAs is at CL 3 and at least one is at CL 5**

What Kind of "Change Engine" is Needed?

- Assertion: A Maturity Level 3 (or higher) organization has at its disposal a "change engine"
  - Organizational Process Focus
  - Organizational Process Definition
  - Organizational Training
  - Process and Product Quality Assurance
  - Measurement and Analysis
  - GP 2.6 (process control)
- This "change engine" may be designed to:
  - Help the organization react to changes in market conditions
  - Identify and solve institutionalization issues
  - Accomplish very specific business objectives
  - Improve decision making mechanisms
  - Be lean, fast, and efficient

For More Information….

NDIA CMMI Working Group

http://www.ndia.org/Divisions/Divisions/SystemsEngineering/Pages/CMMI_Working_Group.aspx

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