Evidence about the Benefits of CMMI® What We Already Know and What We Need to Know

Contributing Roles of Model Criteria and Appraisal Methods

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Four Questions

1. What does "systems engineering" mean to you?

2. What kinds of evidence does the community need about the benefits of software and systems engineering process improvement?
   - Are we missing anything?

3. What else is important to understand and interpret evidence about the impact of process improvement?

4. What kinds of evidence do people need for informing their business and technical decisions?

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Question 1:
What does "systems engineering" mean to you?

Lifecycle context

Multiple disciplines contribute to the spectrum of “systems engineering”

In the context of delivery capabilities, more than software engineering process capabilities must be evaluated:

- All disciplines that contribute to the delivery of products and services should be evaluated to provide a better understanding;
- Program risks often linked to non-software engineering processes,
- Acquisition processes contribute to integrated team delivery capability

Question 2: What else is important to understand and interpret evidence about the impact of process improvement?

Process capabilities should be assessed throughout project lifecycle;

- Acquisition organizations should evaluate and monitor developers' capabilities more than just as part of source selection:
  - Follow-on process capability monitoring is needed, ie., as part of contract performance monitoring
  - Unless customer demonstrates interest, disciplined process seems to be one of the first things to be sacrificed when projects encounter other pressures
- Sampling of projects for appraisals may be inadequate – all aspects of organizational units proposing to perform the work may need evaluation
- Measures for sustainment & improvement of process capabilities need to be shared among stakeholders for all to have insight

Better understanding of integrated team capabilities is needed – simply evaluating capabilities of individual organizations in the team does not provide insight to the capabilities of the integrated team

Question 2: What else is important to understand and interpret evidence about the impact of process improvement?

A full spectrum of appraisal methods need to be available to support the process capabilities assessment/evaluation

Various appraisal methods should be available to support the spectrum of information needs of various stakeholders

- On-going work to better delineate SCAMPI Class B & C guidance deserves broad community input & support
- Cost of SCAMPI Class A ‘Maturity Level’ Appraisals should be further reduced & guidance on reuse of appraisals is needed
- Guidance criteria for ‘delta’ appraisals should be offered to control application
- Guidance for combining CMMI-based appraisal & ISO audit in a single event should be provided

Question 3:
- What kinds of evidence does the community need about the benefits of software and systems engineering process improvement?
- Are we missing anything?

All disciplines that contribute to the delivery of products and services should be evaluated to provide a better understanding

- Software program risks are often linked to non-software engineering processes,
- Acquisition processes contribute to integrated team delivery capability,
- Some disciplines, such as safety and security, are not adequately addressed just through ‘good’ systems engineering – explicit criteria needed
- More explicit criteria is needed for work environments that support the various disciplines

Appraisal of integrated team process capabilities is needed

Question 4:
What kinds of evidence do people need for informing their business and technical decisions?

Information contributing to decision-making relative to mission or business objectives

Business cases

Guidance for combining criteria from CMMI with other models or standards

Incremental measures for process capabilities