



CMMI[®] Without Appraisals

Alan Gellis

alan.h.gellis@boeing.com

Defense, Space & Security

Boeing Military Aircraft

Mobility - Philadelphia

November 17, 2011

CMMI® Without Appraisals

- **At this time of economic challenges, many companies are looking at the cost of CMMI appraisals* as an area that needs to be evaluated. This paper explores some of the issues, challenges, and decisions involved in that evaluation and the resulting course of action.**
- **Because there are so many variations in company situations regarding market requirements, competition, their own capabilities, and their objectives, there is no single approach that is best for all.**
- **As a result, this paper is intended to explore the issues and choices in a way that may make it easier to reach sound decisions in individual situations.**

***As used in this paper, “Appraisals” refers to formal, Class A SCAMPI Appraisals.**

Starting Point – If you have a rating

- **Some companies currently have a rating achieved through a formal SCAMPI Class A appraisal. The issues they face include:**
 - **Maintaining the appraised level**
 - **Seeking a higher or lower level**
 - **Terminating appraisal activities**
 - **Expanding the area covered by their appraisal**
 - **Reducing the area covered by their appraisal**
 - **Maintaining the capability to pass an appraisal in the future if the need arises, while not having one now**

Starting Point – Without a rating

- **Some companies have not achieved a rating through a formal appraisal, or no longer have one. The issues they face include:**
 - **Evaluating their processes to see if they would qualify for a rating**
 - **Evaluating their performance to see if pursuit of a rating would be cost-effective as a way to improve**
 - **Evaluating their market, customer requirements, and competition to see if a rating is necessary now or in the future**
 - **Evaluating other methods and standards as a way to improve performance**

Evaluating the Market – First Steps

- **Before the evaluation of the market becomes a prime factor, a company must go through a thought process that evaluates these factors:**
 - **Process improvements are necessary**
 - **CMMI is a good way to achieve improvements**
 - **CMMI requires an evaluation to be effective**
 - **A Class A appraisal is a better evaluation than a more informal appraisal, or an unofficial review**
 - **Although process improvements and CMMI may eventually result in lower cost, there is an up-front cost to pursue an appraisal and formal rating. This cost will depend on how much will need to be changed to achieve the rating.**
 - **There may be better uses for the investment – e.g., factory improvements**

Evaluating the Market

- Once a company decides that market factors are “drivers” for a decision to pursue an appraised rating, it must consider these factors:
 - Does a customer currently require a rating?
 - Does a customer require use of CMMI equivalent processes (many phrases for this) without appraisals?
 - Not just mapping
 - Will a rating be a discriminator?
 - Do competitors have appraised ratings?
 - Are current processes “good enough” to get a rating?
 - What are cost and time to get to a rating, if needed?
 - What is risk of having to forego business if no rating? [Use risk management process]

If the Market is not a factor

- **Is the business software intensive?**
 - **If Yes, CMMI more likely to be necessary**
 - **If No, CMMI less likely to be necessary, but may still add value**
- **Is cost/ quality improvement a competitive or market factor?**
 - **If Yes, CMMI may be a good choice – must evaluate**
 - **If you say No, you probably don't understand your situation**
- **Can advantages of CMMI be achieved without appraisals? Whole set of issues!**

Can advantages of CMMI be achieved without appraisals?

- **If a company has superlative processes and execution, CMMI won't add – but may make management easier**
- **If a company has less competent processes and execution, CMMI can provide advantages**
 - **Better Quality; lower cost; customer satisfaction**
 - **Cost/ benefit test**
- **If a company's processes and execution are inadequate, anecdotal evidence suggests that following just a few CMMI practices may help – question of how much**
 - **Following “Good Requirements Definition” and Peer Reviews may be an “80% solution” at less than 80% cost – numbers are hard to substantiate, and would depend on starting point**
- **Other initiatives may be alternatives**
 - **ISO/AS9100, 6 Sigma, Baldrige**
 - **May cost as much; may have less “market value”**

Evaluating the “Real” cost of appraisals

- **People tend to lump related work into cost of appraisals;**
 - 1. Conducting the appraisal, itself, including cost of appraiser**
 - There is a real cost of an appraisal, but it can be managed or reduced
 - 2. Developing compliant processes**
 - Should be done, even without appraisals
 - 3. Managing compliant processes**
 - Should be done, even without appraisals
 - CMMI does not require micromanagement, excessive detail, or “churning” on improvements and details, but many people mistakenly think it does
 - 4. Process Training**
 - If done right, no extra costs – skill training is separate issue
 - 5. Preparation for appraisals, including artifact “systems”**
 - Many opportunities to reduce costs, use existing systems

Going for “a number” vs. real improvement

- **Despite all the advice against it, many companies go for an appraised level as a “qualification” they can publicize, and do not work to get real improvement**
- **Internal incentives often drive this behavior**
- **These companies don’t get the real advantages of CMMI even with an appraisal, so they will get even fewer without one**
- **To be useful, we need to confine our study to companies seeking real cost and quality improvement through process improvements, and their evaluation of the pros and cons of having formal appraisals**

“Lean” vs. CMMI

- It is possible to pursue CMMI, get an appraised Level 5, have effective and well managed processes, and still have high costs
- Lean is an additional discipline or technique that can help reduce costs and provide greater efficiency. Reduced costs make the cost/benefits test for appraisals easier to pass
- The best and most cost effective results occur when both CMMI and Lean are used together
- This is not easy to do and it can take a long time to get optimum results
- Dependencies:
 - Level and rate of expenditure on these initiatives
 - Leaders’ creativity and authority to make changes
- Cannot properly evaluate choices regarding appraisals without considering Lean component in both processes and appraisals

Large/Diverse company considerations

- **A large/diverse company may have very different operations at different locations:**
 - **Some may do development where CMMI is appropriate**
 - **Some may only do “cookie cutter” manufacturing where traditional quality control approaches work better**
- **A large company has opportunity to develop common processes at low cost on a small scale, and then deploy them across the company – but one size does not always fit all**
- **A company may have some areas with customers and markets that require ratings, and others that do not**
- **If not careful, a large company can find increased bureaucracy and overhead costs across its businesses, rather than efficiencies of scale**
- **A strategy is needed that matches the company’s needs – no universal approach here**

Different CMMI Constellations

- **Most of the material in this presentation was written with CMMI for Development in mind, but it would also apply, in general, to CMMI for Acquisition and CMMI for Services, with a little change in emphasis**
- **The main issue is whether the activity is being pursued and performed via disciplined processes, and whether it can benefit from an organized approach to that effort**
- **Historically, it has taken many companies several years to get their process sets developed and performed with sufficient skill and discipline to be ready for a CMMI appraisal. This would be the case with each of the Constellations, depending on individual company situations**
- **The first step is a determination that a company wants to work to processes at the level of sophistication of the CMMI Constellations, and then embark on a journey of improvement**

Is a simple checklist possible?

- **It would be nice to have a simple checklist to see whether a company should seek an appraised CMMI level through a formal appraisal, but this is not possible**
- **Except for the situation where a customer requires it, all of the other situations involve some evaluation and discretion, and a checklist is inadequate for them**
- **If a company is not interested in process discipline as a way to manage and improve its business, CMMI never comes up, so we can ignore those cases**
- **If a company only makes hardware and is convinced that a standard such as ISO 9001 or AS9100 is adequate, CMMI also does not come up**
- **In all other cases, we are dealing with cost/ benefit/ risk issues, and must do an evaluation accordingly**

The risk situation

- **If there is a significant risk that a customer will require a CMMI level as a condition to bid, and that business is important to a company, it is hard to justify not pursuing the necessary appraised level. The issue becomes how to pursue it efficiently, and that gets into Lean considerations.**
- **If a customer requires “CMMI-like” processes, but no appraisal, and competitors have ratings, there is a risk of self-deception by thinking your processes are “good enough” when they are not. In this case, not having an appraised level presents a higher risk than spending the money on an appraisal and not needing it. This is a risk evaluation/ management situation.**
- **If a customer requires a CMMI rating within some period after award, the question becomes, “Why wait?” This is not just a cost issue, but recognition that the transition to CMMI processes and the appraisal that follows can add a measure of disruption that can adversely affect contract performance. However, this is a judgment call. This is also a risk evaluation/ management situation.**

The hard question

- It is easy for companies not faced with any customer CMMI requirements to say something such as “We have good processes that are CMMI ‘compliant’, so if we just follow them without having an appraisal, we get all of the advantages and we don’t have to incur the costs of an appraisal.”
- But –
- The processes are usually not compliant and not managed as well as they should be, so this is a form of self-deception. In practice, a CMMI appraisal may be the only good way to validate your processes
- That gets to the hard question, “Can we afford not to have a CMMI appraisal?”

The complex answer to the hard question

- If a company has asked itself, “Can we afford not to have a CMMI appraisal?”, then the answer depends on:
 - Having good processes and process management
 - Having a corporate will to do better, and to do it in a disciplined way
 - Having the desire and ability to apply a Lean approach so that an appraisal will cost no more than is absolutely necessary
- If all of these are present, it probably pays to have the appraisal
- If not all are present, it probably will be costly to have an appraisal, and the choice of having the appraisal will depend on whether the company wants to choose this path toward process improvement

Conclusion

- **Except for the situation where having an appraised CMMI rating is a customer's condition for getting necessary new business, there are choices involved in deciding whether to undertake the appraisal**
- **Those choices depend on a number of factors, including**
 - **The nature of the business (e.g., software or not)**
 - **The current state of their processes (good or not)**
 - **The corporate will to improve, and to pursue CMMI**
 - **The ability to apply a Lean approach to processes and appraisals to reduce the costs of appraisals**
 - **Whether the company will be content with self-appraisals of their processes, with the recognition that they almost certainly won't be as good as if validated by a formal appraisal**

Conclusion (continued)

- **The Thought process:**
 - **You need to improve both processes and execution**
 - **That can be done either with or without help from a proven system**
 - Without the help – inconsistent results, hard to maintain
 - With help of a proven system – better results if done right
 - CMMI can be the system of choice, but must be done right. Type of business can influence this choice.
 - **CMMI can be used with or without appraisals**
 - Hard to validate approach without appraisals – temptation is to declare victory with insufficient data. Management must make up for what is lost with no appraisals. Is there really a saving this way?
 - Having appraisals in one area and using same processes elsewhere ignores the factor of execution that is improved with appraisals
 - Appraisals give basis for correcting where needed; validation
 - Real cost of appraisals must consider both effort and value added
 - Cost can be reduced with a Lean approach. (This is not necessarily easy or quick, but should be considered in the thought process.)
 - Using CMMI by adopting only a few practices or processes will add a little value, but will still leave considerable room for improvement
 - Why do this, when full adoption gives better results?
 - **Path to improvement must be selected**

Conclusion (continued)

- **There is no single answer that fits all situations**
- **Arriving at the right answer depends on going through an evaluation process**
- **It is hoped that this presentation will assist those considering whether to have a formal appraisal to arrive at the right decision for them**
- **Just remember that CMMI without formal appraisals is not really CMMI, and if this is your choice, you must be prepared to live with the shortcomings**

