



## Capability Maturity Models ... What they truly are!

Raghav S. Nandyal  
*Chief Executive Officer*

SITARA Technologies Pvt. Ltd.  
'Sri Hari Krupa', #54 6<sup>th</sup> Main Road, Malleswaram Bangalore KA - 560 003  
Email: raghav\_nandyal@SITARATECH.com  
URL: <http://www.SITARATECH.com>

*'All models are wrong, but a few are useful'.*

This is true of the Capability Maturity Models (SW-CMM, People CMM, SA-CMM and CMMI) as well. A different way to look at these models is to understand that they are more of an organizational development model and not merely yet another quality model. Taking a 'quality model' view of these frameworks will only limit their applicability and use within organizations. In fact these frameworks are meant for the CEO, not just for a QA manager or HR manager. And therefore the right stakeholder and owner for a SPI initiative should be the CEO of the Company. Chances are that best results and outcomes from SPI is possible if and only if it is run as a 'CEO's initiative'. If there is anybody in the organization who needs to understand the CMMI or CMM inside out, it should be the CEO! I come to this conclusion after introspecting and looking at high maturity organizations with which I was involved, as a practitioner, coach and consultant.

There is also a big question surrounding – 'We have been successful all these years. This is the way we have been doing business. So why do we need to change?' Chances are you don't need to change as much as you need to understand what is it that has truly contributed to your assumption of what success means to you. Do you know enough about your core competencies that you can sustain it for now and in the future and are in a position to make money by selling on your competencies? If the answer to this question is an unquestionable 'yes', then chances are that most of what the CMMs advocate, you may have already been practicing or have honed into practice. If anything, CMM is all about building an organizational culture of consistent performance with best practices that have been compiled from experience and organizational wisdom a.k.a commonsense! Needless to emphasize that CMMs are a good compilation of industry best practices for how to manage organizational change and therefore organizational transformation with a core competency orientation.

Now, what is core competency? Core competency is a bundle of skills, technologies and process abilities that enable a Company to provide a particular benefit to customer.



Within the CMMs, there is an explicit mention of **commitment to perform**, implying management commitment to building organizational capability. When commitment takes on a core competency view commitment means perfecting a system of practices (the process) which renders certain customer benefits and, not a commitment to specific process or product opportunities. Since it is difficult to time compress core competency development, it takes persistence and a great deal of effort using the 'best available resources' to get the job done. It is only when process improvement takes on a strategic core competency view that execution outcomes become process dependent and less people dependent. At this stage SPI as a core competency can contribute to 'competitiveness'. Since competency represents a sum of learning across individual skill sets and individual organizational units, three tests for a skill to be considered a core competency are - Customer Value, Competitor Differentiation and Scalability.

There seems to be a thought that SPI is a good investment to make in times of a downturn such as what we are witnessing now in the last one year where the best talent can now be *'safely deployed'* on *'add-on activities such as SPI'*! Little do organizations which think this way, realize the importance of change management. Unless SPI becomes a core competency – something that is done both in good times and bad times, no matter who else does it; lasting benefits from SPI is impossible! And, one more necessary condition – you got to deploy your best talent on change management initiatives – not the leftovers! Change management initiative is NOT a quality initiative! It ought to be the CEO's initiative. Who else but the best resources should be working on such a key initiative? A sure way to know if you got the right person on the Software Engineering Process Group is to talk to the person's boss and tell him that you are taking his resource. If the boss yells and screams, you know you got the right person! On the contrary, if he willingly gives his resource away – you know that you got the wrong person.

Once you have the right composition for the SEPG, the next important thing to do is to characterize your current state through a structured assessment. A mini-assessment will highlight potential opportunities for improvement in your process infrastructure. While strengths will keep the organization floating, it is the weaknesses which are the liabilities which the organization must pay attention to and fix them in a time bound action plan. Not every recommendation needs to be fixed immediately; some may need to be fixed first before others can be worked on. Prioritizing and fixing the process should be based on business objectives and organizational goals. And, repeat this process all over again using the IDEAL (Initiating, Diagnosing, Establishing, Acting and Leverage) approach which is explained below.

**INITIATING:** Setting the context and establishing sponsorship involves clarifying the scope of changes involved, identifying all relevant stakeholders or groups that are likely to be affected by this change and addressing it as a collective management of the change initiative. Since most problems are management problems and not technical



problems, many times it is important for the management to change first before the people in the trenches have to. In order to say we have complete sponsorship, it is important to get a “yes” to the change initiative from the last person in the line up for process improvement. It is now appropriate to set up the necessary infrastructure of resources and take the necessary steps to DIAGNOSE the business reasons demanding a change.

**DIAGNOSE:** This phase of the process improvement paradigm focuses on characterizing the current state of practice by identifying the strengths and weaknesses of the process using a formal assessment process. The assessment process is a structured review of the organizational process and product assets interpreted against the People CMM model. This cycle is repeated as and when significant improvements are perceived. The focus of this phase is to ensure strengths become stronger and weaknesses are addressed with suitable changes. Development of findings and recommendations to rectify the weaknesses is based on an action plan for improving the state of practice. The findings from an assessment and recommendations form the rationale for follow-on improvement program. Strategy and sequence for implementing the recommendations is to be based on prioritization and documented in the process improvement action plan. Not every recommendation needs to be worked on at once; some must be addressed earlier and some later. Going for the low-hanging fruits may solve most issues.

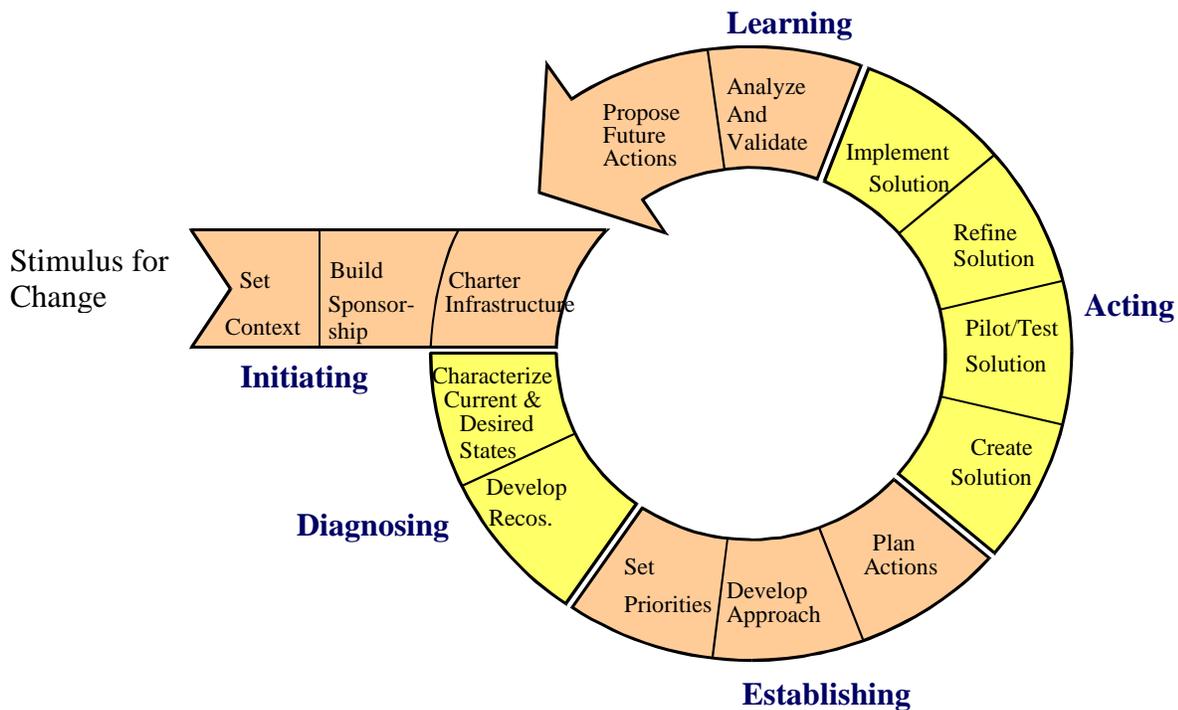
**ESTABLISH:** Setting up the right teams for process action must be based on assignment of each major recommendation to the relevant stakeholders. Team building and team based activities is critical for effective implementation. A senior executive of the organizations must formally kick-off the team launch and team building exercises. Each of the established teams must plan their own activities and become responsible for ensuring successful implementation of the process changes into the process infrastructure. Integration of the team activities is best done by a group of senior executives or the people process group – an embodiment of process champions who work to accomplish the objectives established for the process program. Periodic reviews by the people process group along with the senior executive of the organization are important to reinforce a positive message about the intent of the process improvement program.

**ACTING:** For every process recommendation worked on, it is important for the respective process owner teams (process action teams) to answer – ‘is the change getting better or is it getting worse’. A useful mechanism to help in obtaining clarity of this information is the role played by mini-assessments or sniff tests. Every new procedure, standard or tool that gets developed for a solution must be put through a few iterations of piloting on select projects. When pilot results prove useful, they can then be deployed over a larger organizational context to verify a harmonious growth.



The role played by collection of measures or metrics that directly relates to measuring the efficacy of the change is emphasized. The Goal-Question-Metric paradigm of Victor Bassili is a very useful technique to address the effectiveness of the change program. A rather counter intuitive way to apply GQM on the CMM or CMMI is to take the goal statements of the CMM or CMMI and apply the GQM paradigm on it! The only way to keep the measurement and verification aspects of the change management program to work in step and synchronously with changes induced to the process is to ensure that these activities are used to objectively evaluate the quality of new processes.

### IDEAL<sup>SM</sup> Approach to Process Improvement



<sup>SM</sup> IDEAL is a service mark of Carnegie Mellon University.

Source: Adapted from People Capability Maturity Model Carnegie Mellon University [1995] with permission



**LEARNING OR LEVERAGE:** After an objective evaluation of the process change, it is possible to hone this into a skill by documenting lessons learnt, revising the scope of implementation and restructuring the people process group if business situations have changed. Many times it might become necessary to revise the organizational approach for the next assessment. Since process maturity is a journey and not a goal, importance must be placed on repeating the cycle of improvement and sustaining the momentum from right process alignment.

Just as much, in order to 'SUSTAIN' the process improvement program by taking on a core competency view, the key perspectives of – Identify, Establish, Build, Deploy and Protect, is necessary. Fulfilling the key practices of the CMM could lead to goal satisfaction and therefore key process area satisfaction. However, there is a big difference between engineering processes to fulfill key process area requirements and building work cultures that support process improvement with visible behavior changes involving interpersonal relationships. We have now come to conclude that lasting value from process improvement initiatives and sustained return on investment made into the software process improvement (SPI) program comes mostly from the intangibles. One of the most useful intangible benefits is improved interpersonal relationships and styles of behavior conforming to an organizational standard. Of course, unless this was one of the objectives behind the SPI program, it is very unlikely that organizations would have systems and processes which consider benefits that could accrue from the SPI as an outcome. When two individuals meet in an organization, do they greet each other with a warm 'hello!' or with an insipid 'logon:!' A rather disturbing trend that is perceived in most organizations is the second type of greeting!

Maybe the People CMM has the necessary practices that will build a system of coordinated action to build the necessary and complementary skills that are needed for good team building and team growing activities. From experience, I find that there is a greater value and return on investment to run a SPI program along with a People CMM initiative.