Collaborative Opportunities for Using OPM3® and CMMI®

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Executive Summary

If your organization is trying to do more with less, has trouble keeping everyone on the same page, and is challenged by a constantly changing competitive environment, then your organization is not unlike many others in the marketplace today. Manufacturing companies, service companies, non-profits and others, are all struggling to keep up with their commitments and capitalize on new opportunities. These are all representative of the area where most organizations fail and that is in the execution of their strategy.

Leaders of these organizations have their own experience and knowledge to use to meet these challenges. They can also leverage the knowledge of their staff and trusted advisors. When these ideas are exhausted, leaders have a number of different places they can look for more ideas. Any bookstore and many websites contain a wide variety of performance improvement materials (e.g., standards, methodologies, models, frameworks, books, white papers) that advise organizations on how to make improvements in the way that they perform.

This paper describes how two maturity models that have been published by highly reputable institutes provide guidance to leaders of organizations in making sustainable performance improvements. Each has been proven independently to drive significant cost savings and increase customer satisfaction while developing a process-focused framework that supports growth. By looking at the results that organizations using these models expect to achieve, contents of the models, and the way that the models impact their workforce when they are applied, organizations can make a strategic and informed decision as to whether or not to use them. We believe that many organizations will see significant improvements by using both.

The Organizational Project Management Maturity Model (OPM3®) from the Project Management Institute (PMI) is the standard for organizations looking to improve their capability to deliver their strategies through projects. By treating all of the organization’s projects as investments in an overall portfolio and applying best practices to manage those initiatives at multiple levels, organizations can achieve their objectives and align their resources to work on things that matter the most. OPM3 is capable of guiding most organizations most of the time through the process of becoming more mature in organizational project management.

The Capability Maturity Model Integration (CMMI®) from the Software Engineering Institute (SEI) is a reference model with a collection of best practices from the disciplines of software and systems engineering, integrated supplier management and integrated product and process development. Users of CMMI have seen significant cost reductions and quality improvements in the area of product development after applying this model. By focusing on processes necessary to achieve desired results, organizations can integrate engineering and related support functions that typically operate independently.

Organizations can achieve sustainable performance improvements by embracing OPM3 and CMMI together. With OPM3’s broad coverage of project, program and portfolio management, and CMMI’s in-depth coverage of systems and software engineering and supplier management, the two models provide a wealth of knowledge. Both models are supported by assessment methods that can be applied together (with minimal effort) to give leaders more insight into where to invest in their organizations to resolve key issues and increase performance that is not available when assessing against just one. Those investments can provide more returns with guidance from the two perspectives of both OPM3 and CMMI. The rest of this paper compels leaders of those organizations to learn more about and to apply these two maturity models.
# Collaborative Opportunities for using OPM3 and CMMI

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Introduction

Organizations today have strategies in place that define where the organization wants to go. Some are more explicit than others, but leaders of these organizations all have some idea of what they want their organization to be. They want to provide products or services that are better, faster or cheaper than their competitors. Executives might want their organizations to grow larger than they are. They may also want to innovate and develop something that is completely new and never before accomplished. Academic and business leaders alike stress that organizations without a strategy will fail in the long-term if not in the short-term, so most organizations have some form of one.

Many of those same organizations encounter problems when they try to align and mobilize their scarce resources to execute their strategies. There are a number of performance improvement materials that organizations can choose to use for guidance when making sustainable performance improvements. Go into any bookstore today or look online and you are bound to find a large variety of such materials that might be able to help. It is a challenge for many leaders to decide what they should do in order to achieve their objectives and improve their organizations’ operations. This is further complicated by the various types of help available. We have found maturity models particularly useful in prompting positive change.

The Organizational Project Management Maturity Model (OPM3®) from the Project Management Institute (PMI) and the Capability Maturity Model Integration (CMMI®) from the Software Engineering Institute (SEI) are two maturity models that address sustainable performance improvements. Maturity models in general, including CMMI and OPM3 in particular, provide a mechanism for organizations to assess themselves against best practices, identify gaps, and create improvement plans to close those gaps resulting in improvements. Leaders of organizations should consider OPM3 and CMMI as viable options to achieve a higher level of performance.

OPM3 was first published in 2003. It focuses on the three domains of organizational project management (project management, program management and portfolio management). The model documented best practices based on several years of research from practitioners around the globe. By breaking down these best practices into capabilities and outcomes, OPM3 provides clear steps to successfully incorporate the best practices into an organization’s day-to-day operations. Organizational project management is the bridge between an organization’s business strategy and successful projects that help the organization realize that strategy. This bridge provides an avenue for the organization to connect strategy to projects and the desired results, while OPM3 provides insight into what portions of the bridge need construction, maintenance, or repair. This sustainable performance improvement is what drives an organization toward higher organizational project management maturity. However, OPM3 was created to address all project types in most organizations most of the time, but does not identify specific best practices for project types and/or products such as systems engineering and software engineering or supplier product delivery (nor does it dispute their importance). CMMI is a maturity model that addresses some of these product development aspects.

The most recent version of CMMI (CMMI-DEV 1.2) was published in 2006. CMMI focuses on the four disciplines of systems engineering, software engineering, integrated product and process development (IPPD), and supplier sourcing, and addresses project management as a category of each of these disciplines. This model provides best practices from these disciplines that when followed result in organizations that are more capable of delivering technical projects.
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successfully than organizations not following these practices. Examples of these best practices include requirements development, management and configuration management. Different from OPM3, CMMI does not specifically address program management as being different from project management, nor does it address portfolio management. Similar to OPM3, CMMI does address aspects of project management as they relate to systems and software engineering, so there is some overlap between the models as they both stress the importance of this discipline. Both maturity models also stress process improvement for their specific areas of focus.

The objective of this paper is to show how organizations can achieve sustainable performance improvements by embracing OPM3 or CMMI, and in many cases should consider using both OPM3 and CMMI together. Organizations using CMMI would most likely benefit from using OPM3 since it will help provide guidance toward optimization of scarce resources and establishing an overall project governance structure that ensures they are performing the right projects in the first place. Simply put, if an organization’s strategy includes achieving a CMMI maturity or capability level, it may want to consider OPM3 as guidance for executing that strategy and balancing that effort with others. Organizations using OPM3 would most likely benefit from using CMMI particularly if they perform technical projects that require software or systems engineering. OPM3 does not address those projects and operations at the necessary engineering depth, and CMMI has been proven to help organizations become more capable in those areas. Organizations that are currently not using either may want to consider one or both models to increase their capabilities and overall maturity by helping them start to better execute what they are trying to achieve as an organization. They can start with initial assessments from one or both models to objectively set direction using baseline data while providing a means to quantitatively measure progress.

For whatever reason, some organizations may just use OPM3 or just use CMMI, and there may be some organizations that do not find value in OPM3 or CMMI. For example, if a company is a supplier to another company and suddenly has a new requirement from its customer to use one of these models, it may be too overwhelming to consider both at the same time so they may choose to use the model that their customer requires. Small companies that are not interested in growing may find some of the basic concepts of either model to be sufficient in helping them gain significant performance improvements.

The remainder of this report describes an approach for making a comparison between these two maturity models, the resulting analysis of OPM3 and CMMI, and conclusions based upon the analysis.

The Comparison Approach

In order to determine that organizations can use both CMMI and OPM3, we developed a framework that could be used to compare performance improvement materials that leaders of organizations might consider when making improvements to their organizations. We use the generic term of organization instead of a specific term like company, corporation, division or department, since many of these materials are scalable to fit any size organization. The framework can be applied to similar performance improvement materials. For example, in this paper we are comparing two maturity models from the broad range of performance improvement materials that includes methodologies, standards, models, etc. The framework can also be used even if the performance improvement materials are not similar such as a methodology and a standard. This paper provides organizations with not only a specific analysis of OPM3 and CMMI, but also some guidance through this framework that can be used when considering other performance improvement materials.
The basic premise behind the framework is that organizations should evaluate performance improvement materials (in this case maturity models) in terms of the Results the organization expects to achieve, their Contents, and Application of those contents. This evaluation will help organizations better understand whether individual maturity models or a combination of them (or something else) are appropriate and can help the organization meet its objectives.

![Diagram of the Comparison Framework]

The first component of the framework involves comparison of the **Results** the organization intends to achieve. Most organizations will want a higher level of performance in terms of better quality, faster time to market, less expensive or being more innovative than their competitors. All organizations will want these improvements to be sustainable improvements that don’t evaporate or gradually disappear. Beginning with the end in mind, organizations should choose performance improvement material(s) with content that, when applied, will help them achieve their desired results.

When an organization considers the **Content**, it should look at the target audience of the material where the content is intended to foster improvement(s) and what the performance improvement material is advising. Some materials only target one function like sales, marketing, or finance, and thus may not be helpful to other functions. In contrast, some others are intended only for specific types of organizations. For example, ISO TS 16949 is a specific standard for the automotive industry whereas Six Sigma is widely applied in multiple functional areas and industries. Organizations that are already using performance improvement materials and are considering using additional materials should ensure that the content to be applied from the two (or more) does not conflict. A conflict could cause scarce resources to work on competing objectives. What if one suggests cutting costs in customer service by automating as many customer interactions as possible while another suggests increasing sales by having more customer contacts that are face to face and personal? Teams trying to implement these would butt heads all of the time. All of these factors must be considered so the selected content being applied supports achieving the desired result(s).

When looking at the **Application** of improvement materials, organizations should consider the approach or method that they will go through in order to implement the change that will make them improve. Things to consider include the extent of the change, the parts of the organization that are impacted and how much they will be impacted. Organizations should also consider resources that will be necessary including specific tools, people, training and expertise. Equally important are cultural considerations, the organization’s readiness to change and the environment within the organization for change. After performing this analysis, the organization should be able to answer questions such as, “What do I need to do to see benefit from using this improvement material?” and, “Where do I get help?” and, “Where do I start?” If considering multiple materials, the organization should also answer, “Can I do more with more than one?”

Reviewing contents, application, and results by applying this framework to **OPM3** and **CMMI**, we can help organizations decide if they should use one of these maturity models, both of these maturity models or neither. Now that we’ve reviewed the framework, the next step is to investigate the results of applying this approach to **OPM3** and **CMMI**.
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Starting with Results in Mind

What do I expect to achieve if I invest time and money in using a particular maturity model to move my organization forward? That is a question leaders should start with when looking at organizational improvement models, standards, and the like. Organizations that apply OPM3 and CMMI should have high expectations for the results that they will achieve. Each model has demonstrated some success in improving organizational results when applied.

Users of OPM3 have reported that they have achieved higher levels of customer satisfaction. They have also described how they increased their project management capabilities and have aligned processes to the PMBOK® Guide. Users also appreciate the visibility of how well they use their resources once they develop their portfolio management capabilities and how they can align all areas of their organization to focus them on achieving the organization’s strategy.

Users of CMMI have reported that they have achieved reduction in software costs either directly by streamlining processes or indirectly by performing less rework. Several organizations have reported productivity increases of 20% to 30% from their engineering staff. Other organizations have announced that their quality objectives were met and the numbers of defects were reduced by using CMMI.

Organizations that apply both OPM3 and CMMI together can expect results as described above and will most likely see additional benefits such as:

- Looking at their overall organizational portfolio using the best practices from OPM3 and freeing up resources to work on projects leading to innovation while leveraging the process areas from CMMI to execute those projects predictably and successfully
- Using the project and program management guidance from OPM3 to figure out how to apply the planning and monitoring and controlling advice that is documented in CMMI and implement it at different levels of the organization
- Achieving either OPM3 or CMMI-related objectives (e.g., cost, quality, or schedule improvements) faster than if they would by just considering one model alone because each model can provide a different perspective on the organizational opportunities
- Using CMMI for more in depth information about quality practices and supplier management practices and applying them in more than just engineering under the broader umbrella of portfolio management described by OPM3
- Using OPM3 to learn more about portfolio management to learn how to optimize the use of its resources to meet its CMMI or other business objectives (e.g., sales growth, ISO certification, quality improvements).

Many of these results are typical results that competitive organizations are seeking. Both OPM3 and CMMI help organizations meet these goals, and using both models together can be very powerful. Looking at the content of these maturity models can help organizations set expectations for achieving these desired results and decide how to apply them.

Model Content Comparison

It is clear that there are differences and similarities between OPM3 and CMMI even though both publications include the words ‘maturity model’ in their names. The following paragraphs show that there are some differences that are noteworthy as they provide the opportunities and scenarios for organizations to consider both. There are many similarities amongst the two models that are equally noteworthy because they show how both address project management
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and process improvement. An organization would want to know these similarities and differences prior to applying both because if they receive guidance that is conflicting, those organizations will be less likely to deliver sustainable performance improvements.

Differences between the Model Contents

Each of these maturity models has its individual strengths that should be noted. OPM3 has content created to foster improvement among the various levels of an organization including the project level, program level and portfolio level. While the project similarities are discussed in the next section, it is important to note the distinct strength of OPM3 to improve program management processes to collectively manage multiple projects that are related to provide benefits that are not possible when managed individually. OPM3 is also unique in that it has best practices that guide the portfolio management process for the executive level. These processes manage the organization’s activities and the resources applied to them on an ongoing basis to ensure that each are aligned with the organization’s objectives. OPM3 provides clear initiating and closing processes for projects and programs while CMMI is limited in its offerings. CMMI on the other hand offers its unique strengths through thorough technical guidance regarding software and systems engineering, supplier management, and integrated product development, among the specific disciplines it contains that OPM3 does not.

The two maturity models are intended for different target audiences. CMMI provides content for specific disciplines (i.e. software engineering and system engineering) that are targeted for only those disciplines. OPM3 addresses content for most organizations applying project management most of the time to achieve strategic objectives.

The models are also different in the way that they are structured. OPM3 is structured around Best Practices. Each Best Practice is broken down into Capabilities that aggregate to that Best Practice. Each capability has one or more outcomes while each outcome has at least one key performance indicator (KPI). Outcomes and key performance indicators are used to obtain evidence that the process is functioning within the organization. To pursue higher maturity, the organization identifies Best Practices that have not been achieved and capabilities within those Best Practices that help them achieve their desired results. CMMI is structured around 25 Process Areas, or a cluster of related practices that when implemented collectively satisfy a set of goals that are important for improvement. When pursuing higher levels of maturity or capability using CMMI, organizations strive to meet the goals that are defined for each Process Area. Further information about the goals is provided by other components in the form of specific practices, generic practices, sub-practices, typical work products and discipline amplifications. By incorporating discipline amplifications into the architecture of the model, CMMI provides additional information which is appropriate to specific disciplines such as software or systems engineering but may not be appropriate or applicable for others.

Similarities of the Model Contents

CMMI and OPM3 approach the concept of maturity in similar ways. For example, both models are accompanied by assessment methods that are used to measure maturity. CMMI provides a reference to separate documents within the CMMI Product Suite that describe how an assessment against CMMI is to be conducted while the OPM3 standard comes with the Self Assessment Method for immediate application. PMI has also developed a ProductSuite of web-based assessment and improvement tools outside of the standard. After performing an assessment, both models stress training and education as part of the process of becoming more mature and treating process improvement initiatives as projects. An improvement effort
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based on OPM3 or CMMI involves achieving capabilities that the organization currently does not have.

The two maturity models are also similar in the ways that they approach process improvement. A comparative review revealed that the process improvement criteria are evident in CMMI for many OPM3-based criteria, such as standardizing the process, identifying measures, measuring process characteristics, documenting process control plans and then implementing those control plans. This is also true for the area of project management. Other content in OPM3 that is similarly found in CMMI includes stabilizing process operations, identifying root problems, continuously improving process, and process integration.

When considering if OPM3 contained process improvement criteria based upon CMMI generic practices, we found them to be very similar. As shown in the Table 3, there are corresponding OPM3 Best Practices for each CMMI Generic Practice. In some cases, there are multiple OPM3 Best Practices providing coverage for a single Generic Practice. It is important to note that the Generic Practices are process improvement threads that run through all the CMMI Process Areas. These are elements that create a cohesive organizational fabric by integrating engineering and management together to create a successful project environment. Similarly, OPM3 has Standardize, Measure, Control, and Continuously Improve Best Practices and Capabilities that build upon one another to achieve a successful project, program and portfolio environment.

<table>
<thead>
<tr>
<th>CMMI Generic Practices</th>
<th>Corresponding OPM3 Best Practice</th>
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<tbody>
<tr>
<td>GP 2.1 Establish a Policy</td>
<td>(1000) Establish Organizational Project Management Policies</td>
</tr>
<tr>
<td>GP 2.3 Provide Resources</td>
<td>(1400) Staff Projects with Competent Resources, (1590) Record Project Resource Assignments amongst many portfolio management best practices</td>
</tr>
<tr>
<td>GP 2.5 Train People</td>
<td>(5200) Provide Project Management training, (5300) Establish Training and Development Program</td>
</tr>
<tr>
<td>GP 2.7 Identify and Involve Relevant stakeholders</td>
<td>(1510) Consider Stakeholder Interests</td>
</tr>
<tr>
<td>GP 3.1 Establish a Defined Process</td>
<td>All “standardized” processes are defined processes, for example (1170) Project Risk Identification Process Standardization</td>
</tr>
<tr>
<td>GP 4.1 Establish Quantitative Objectives for the Process</td>
<td>All “measured” processes have quantitative objectives, for example (1860) Project Risk Identification Process Measurement</td>
</tr>
<tr>
<td>GP 4.2 Stabilize Subprocess Performance</td>
<td>All “controlled” processes have stabilized sub-processes, for example (2400) Project Risk Identification Process Control</td>
</tr>
<tr>
<td>GP 5.1 Ensure Continuous Process Improvement</td>
<td>All “improved” processes ensure this is continuous, for example (2790) Project Risk Identification Process Improvement</td>
</tr>
</tbody>
</table>

Table 2: CMMI Generic Practices covered by OPM3

In CMMI, Process Areas provide coverage of the Project Management category: Integrated Project Management (IPM), Project Monitor and Control (PMC), Project Planning (PP), Quantitative Project Management (QPM), Risk Management (RSKM), and Supplier Agreement Management (SAM). Each of these Process Areas has Specific Goals (SGs) that are to be
addressed by the organization seeking to improve their processes. As shown in the following table, the CMMI Category, Process Area, Specific Goal Number and Specific Goal name, are called out with the corresponding OPM3 Best Practices, Domain and Best Practice name.

Although there may be more than one Best Practice that satisfies the Specific goal, the primary related Best Practice is shown in the table. Digging deeper into the CMMI reveals that under the Specific Goals are Specific Practices. For example, PP SG1 Establish Estimates has a Specific Practice 1.1-1 Estimate the Scope of the Project. This directly relates to OPM3 Best Practice 1030 Project Scope Planning Process Standardization and 1040 Project Scope Definition Planning Process Standardization.

<table>
<thead>
<tr>
<th>CMMI Category</th>
<th>CMMI Process Area</th>
<th>Specific Goal Number</th>
<th>Specific Goal Name</th>
<th>OPM3 Best Practice Number</th>
<th>OPM3 Domain</th>
<th>OPM3 Best Practice Name</th>
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<tr>
<td>Project</td>
<td>IPM</td>
<td>SG1</td>
<td>Use the Project’s Defined Process</td>
<td>1020</td>
<td>Project</td>
<td>Project Plan Development Process Standardization</td>
</tr>
<tr>
<td>Project</td>
<td>PMC</td>
<td>SG1</td>
<td>Monitor Project Against Plan</td>
<td>1230</td>
<td>Project</td>
<td>Project Plan Execution Process Standardization</td>
</tr>
<tr>
<td>Project</td>
<td>PMC</td>
<td>SG2</td>
<td>Manage Corrective Action to Closure</td>
<td>1120</td>
<td>Project</td>
<td>Project Risk Management Planning Process Standardization</td>
</tr>
<tr>
<td>Project</td>
<td>PP</td>
<td>SG1</td>
<td>Establish Estimates</td>
<td>1030</td>
<td>Project</td>
<td>Project Scope Planning Process Standardization</td>
</tr>
<tr>
<td>Project</td>
<td>PP</td>
<td>SG2</td>
<td>Develop a Project Plan</td>
<td>1020</td>
<td>Project</td>
<td>Project Plan Development Process Standardization</td>
</tr>
<tr>
<td>Project</td>
<td>OPM</td>
<td>SG1</td>
<td>Quantitatively Manage the Project</td>
<td>Multiple</td>
<td>ALL</td>
<td>Coverage provided by Measurement Process Improvement Stage</td>
</tr>
<tr>
<td>Project</td>
<td>RSKM</td>
<td>SG1</td>
<td>Prepare for Risk Management</td>
<td>1120</td>
<td>Project</td>
<td>Project Risk Management Planning Process Standardization</td>
</tr>
<tr>
<td>Project</td>
<td>RSKM</td>
<td>SG2</td>
<td>Identify and Analyze Risks</td>
<td>1170</td>
<td>Project</td>
<td>Project Risk Identification Process Standardization</td>
</tr>
<tr>
<td>Project</td>
<td>SAM</td>
<td>SG1</td>
<td>Establish Supplier Agreements</td>
<td>1210</td>
<td>Project</td>
<td>Project Procurement Planning Process Standardization</td>
</tr>
<tr>
<td>Project</td>
<td>SAM</td>
<td>SG2</td>
<td>Satisfy Supplier Agreements</td>
<td>1380</td>
<td>Project</td>
<td>Project Contract Closeout Process Standardization</td>
</tr>
</tbody>
</table>

Table 3: Coverage of CMMI Specific Practices by OPM3

This analysis describes how the contents of both OPM3 and CMMI address some very similar concepts. The two are closely aligned in the ways that they provide organizations guidance to higher degrees of maturity, yet they provide different types of content and perspectives that are different enough where it may make sense for many organizations to use both instead of just one. The next section describes how an organization would actually apply these models in practice to achieve the desired improvement results.

Application of the Models

When looking at materials like these two maturity models, organizations should consider the process that they will go through when applying these models in order to improve. Many models like OPM3 and CMMI and other improvement materials suggest an approach to their implementation. For example, most organizations that apply the concepts of Six-Sigma will be familiar with the DMAIC approach. Many project management documents are based on the Plan, Do, Check, Act cycle. Organizations should consider what they will have to do if they decide to implement ideas based on improvement materials to help them achieve sustained performance improvements. They should also consider what will be necessary including specific tools, people, training and expertise. Organizations need to know what they are
committing to before investing their scarce resources. The next few paragraphs review the different approaches to applying OPM3 and CMMI. These approaches are known as the OPM3 Cycle and the IDEALSM Model.

The OPM3 Cycle describes how an organization should undertake applying the standard and is described within the OPM3 Knowledge Foundation. It is represented graphically in Figure 4.

The OPM3 cycle is comprised of five steps as described in the OPM3 Knowledge Foundation.

Step 1 involves the organization learning about OPM3 and organizational project management as it prepares for its assessment.

Step 2 involves the organization conducting an assessment (options discussed later in this section) and deciding whether or not to continue based on the assessment results.

If the organization continues, it will go through Step 3 where planning for improvements occurs. Here, the organization prioritizes which improvements it will pursue. These are actually pursued and achieved during Step 4.

Step 5 involves starting the process over to realize new improvements.

The SEI recommends that organizations follow the IDEALSM model when attempting to make changes to organizations and improve performance based on CMMI.

The IDEAL model is an organizational improvement model that serves as a roadmap for initiating, planning, and implementing improvement actions. It is named for the five phases it describes: initiating, diagnosing, establishing, acting, and learning. The IDEAL model was originally developed as an infrastructure to guide organizations in planning and implementing an
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effective software process improvement program, and is now the founding strategy employed in delivering many SEI services

This analysis of the recommended applications of both OPM3 through the OPM3 Cycle and CMMI through the IDEAL Model shows that they are quite similar. For example, OPM3 and CMMI both suggest assessments, forming project teams to deliver the improvements, and training the organization on how to achieve the improvements. Looking at some of the details of the approaches also reveals some slight differences. For example, OPM3 comes with a self-assessment method that companies can use to quickly assess where they may have achieved OPM3 best practices, whereas CMMI’s guidance on assessments is found in separate documents. The IDEALSM Model specifically documents sponsorship and piloting as techniques in the applying of CMMI, while OPM3 is not as specific nor does it dispute these as being valid.

Collaborative Opportunities

By using the comparative framework, we were able to confirm that organizations that consider these models often have high expectations for the results that they expect to achieve. By reviewing each model’s contents, we found that it is obvious that each has its unique strengths. Just is interesting is that there is some overlap since both OPM3 and CMMI address project management and process improvement in a way that does not conflict. As a result, an organization considering both would not receive conflicting direction from the two different models. The way organizations apply OPM3 or CMMI also align very well with each other. By using the framework, this review opened the possibility that organizations can use both the different and similar contents of the two models and apply them at the same time to achieve the desired results.

The complimentary application approach provides the collaborative opportunities to do joint activities that can result in additional value to organizations than what might be found if just one of the models were applied. OPM3 and CMMI have similarities in that both suggest assessments, forming project teams to deliver the improvements, and training the organization on how to achieve the improvements. Each of these potential areas of synergy is reviewed in more detail throughout the rest of this section.

Assessments

Organizations can learn a tremendous amount about their current state of maturity and how well their performance improvement efforts are going by conducting assessments. When determining where to make changes in an organization to achieve sustainable performance improvements, it is critical to understand the current state. By performing combined assessments using both OPM3 and CMMI, an organization can learn more about where it needs to improve than just by using one approach by itself.

Both the OPM3 Cycle and the IDEAL model include some form of assessing an organization to see where it currently stands. Step 2 of the OPM3 Cycle is “Perform Assessment”. The ‘D’ of IDEAL is the Diagnosing of an organization before establishing the priorities, approach and plan.

Once organizations have planned improvement activities and attempted to make some improvements, they validate whether or not the improvements actually were made and if they are sustainable. Here again, the OPM3 Cycle and IDEAL model both suggest conducting assessments to verify performance improvements were achieved. Step 5 of the OPM3 Cycle
Collaborative Opportunities for using OPM3 and CMMI

describes re-assessing the state of the organization on the OPM3 continuum. The ‘L’ or
Learning of IDEAL includes analyzing and validating improvements before going back through the
cycle.

There are currently three different types of assessment methods that PMI has introduced to
users of OPM3 that give organizations a perspective of how well they perform the right projects
the right way. There are also three different types of assessments that the SEI has provided to
CMMI users that allow them to be assessed against CMMI. These are based on SCAMPI®
(Standard CMMI Appraisal Method for Process Improvement) which is designed to ensure that
organizations that are assessed receive quality assessment data after the Diagnosing phase of
the IDEAL model.

The following chart shows some common characteristics about the three assessment types and
some details about the specific offerings for OPM3 and CMMI. Note that it is important to
realize that each of these assessment methods requires the organization scope to be defined. The
scope does not have to include the whole enterprise, department or division. Each
assessment can be scoped to ensure that the appropriate organization is assessed so each
assessment method is similar in that it is scalable to fit the needs of the organization.

<table>
<thead>
<tr>
<th>Assessment Type</th>
<th>OPM3</th>
<th>CMMI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entry-Level</td>
<td>Self Assessment (SAM)</td>
<td>SCAMPI C (or ARC Compliant Gap Analysis)</td>
</tr>
<tr>
<td></td>
<td>• Comes with OPM3 standard</td>
<td>• Organizations can assess whatever areas of risk are most important to them</td>
</tr>
<tr>
<td></td>
<td>• Shows approximate organizational maturity on overall continuum</td>
<td>• Outputs show which model areas are most at risk</td>
</tr>
<tr>
<td></td>
<td>• 151 binary (yes/no) questions</td>
<td>• Conducted by as few as one appraiser</td>
</tr>
<tr>
<td></td>
<td>• Can be performed by anyone</td>
<td>• Only one piece of evidence (artifact or verbal affirmation through interview) is required</td>
</tr>
<tr>
<td></td>
<td>• No specific requirements</td>
<td></td>
</tr>
<tr>
<td>Mid-range</td>
<td>OPM3 ProductSuite Desk Assessment</td>
<td>SCAMPI B</td>
</tr>
<tr>
<td></td>
<td>• Requires assessor to look at capabilities and outcomes with process owners</td>
<td>• Organizations can assess whatever areas of risk are most important to them but often focus on full coverage of a maturity level</td>
</tr>
<tr>
<td></td>
<td>• Shows approximate organizational maturity if rest of organization is following process</td>
<td>• Outputs show which areas are most at risk</td>
</tr>
<tr>
<td></td>
<td>• Must be performed by a certified ProductSuite Assessor</td>
<td>• Must be conducted by a minimum of 2 team members and an authorized team leader</td>
</tr>
<tr>
<td></td>
<td>• Requires evidence or testimony to demonstrate capabilities and outcomes</td>
<td>• Multiple pieces of evidence (artifact or verbal affirmation through interview) are required</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SEI or PMI authorized rating</td>
<td>OPM3 ProductSuite Rigorous Assessment</td>
<td>SCAMPI A</td>
</tr>
<tr>
<td></td>
<td>• Requires assessor to look at capabilities and outcomes with process owners and practitioners</td>
<td>• Organizations coverage of a maturity or capability level</td>
</tr>
<tr>
<td></td>
<td>• Results in a benchmark of organizational project management maturity</td>
<td>• Outputs include a maturity or capability level</td>
</tr>
<tr>
<td></td>
<td>• Must be performed by a certified ProductSuite Assessor</td>
<td>• Must be conducted by a minimum of 4 team members and an authorized lead appraiser</td>
</tr>
<tr>
<td></td>
<td>• Requires multiple pieces of evidence and testimony to demonstrate capabilities and outcomes</td>
<td>• Multiple pieces of evidence (artifact or verbal affirmation through interview) are required</td>
</tr>
</tbody>
</table>

Figure 6: Assessment Type Comparison

Performing OPM3 and CMMI-based assessments together can cover more ground with fewer
resources than if performed separately. The preparation for either of these assessments and
the methods that are deployed are similar enough where an assessor (and assessing team) can
come up to speed on both and give an organization more information to consider when thinking
about how to go about improving the organization.
Collaborative Opportunities for using OPM3 and CMMI

The preparation for either type of assessments is quite similar. For example, each of the OPM3 and CMMI methods of reviewing an organization requires an assessor or assessment team to learn about the organizations processes, projects, and people. Each assessment method also entails defining the scope of the organization and the assessment participants. It is recommended that the lead assessor and team members have subject matter and industry knowledge regardless of which model the organization is used as the basis for assessment.

The methods of assessment for either model also involves reviews of organizational and project artifacts, processes, tools and interviews with project team members. Based on an earlier section of this report, we know that OPM3 and CMMI have some similar content in terms of process improvement and project management so assessors will cover some similar questions during interviews and review some of the same artifacts. An assessor trained in both approaches can cover aspects of OPM3 and CMMI simultaneously to provide an organization with more information in terms of the current state of maturity.

Assessors that perform OPM3 and CMMI-based assessments together can give organizations more on where they stand in terms of maturity and information on where the organization may want to invest in improvements. Assessment results based on each maturity model give an organization some different perspectives since each model's content is different. The results of an OPM3 assessment show how well an organization manages its projects, programs and portfolios. In terms of CMMI, assessment results will tell an organization how well it performs system engineering, software engineering, integrated product and project team development and supplier sourcing. Both assessments will describe aspects of project management and process improvement. By conducting these assessments together, executives will have much more information and a much broader perspective on where they have weaknesses without additional disruption to their day-to-day work. If one type of investment has already been done, it may make sense to perform another based on the other model and still not lose any investment in the first assessment because the organization will learn something new.

Consider the results of this example OPM3 ProductSuite Desk Assessment and CMMI SCAMPI B appraisal. The figure below shows some of the results of the Desk Assessment.

![Figure 7: OPM3 ProductSuite Desk Assessment sample results](image)

Based on the results shown in Figure 7, it is obvious that this organization has achieved many OPM3 Best Practices that are in the project management domain but has achieved limited program and portfolio management Best Practices. With only these results, organization leadership may only consider investing in program or portfolio processes to make improvements.

Now consider the results of the SCAMPI B appraisal shown in Figure 8.
Collaborative Opportunities for using OPM3 and CMMI

<table>
<thead>
<tr>
<th>Process Area</th>
<th>Characterization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Requirements Management</td>
<td>Yellow</td>
</tr>
<tr>
<td>Project Planning</td>
<td>Green</td>
</tr>
<tr>
<td>Project Monitor and Control</td>
<td>Green</td>
</tr>
<tr>
<td>Measurement &amp; Analysis</td>
<td>Green</td>
</tr>
<tr>
<td>Configuration Management</td>
<td>Red</td>
</tr>
<tr>
<td>Process &amp; Product QA</td>
<td>Green</td>
</tr>
</tbody>
</table>

Figure 8: CMMI SCAMPI B appraisal sample results

Based on the results of this CMMI SCAMPI B Appraisal, the organization has likely met the goals associated with project management process areas in scope for the appraisal. The organization appears to be weak in some of the more technical engineering process areas. The organization’s capabilities for Maturity Level 3 are still not known. Organizations may choose to invest their time and effort in becoming better at Configuration Management and Requirements Management in silos and not look at larger organizational issues.

Organizations like these may be able to go down a number of different improvement paths based on these results. What if the organization had done both of the assessments together? They would have additional information not available when doing individual assessments. For example, consider this analysis based on the two data sets. Middle managers may need to embrace aspects of program management to support development of technical capabilities across multiple projects. In order to meet maturity level 2 and then 3 of CMMI, the organization will have to look at the way it is using its resources; it may want to start developing portfolio management capabilities (as evidenced by the low OPM3 score of Figure 7) so it will be better positioned to optimize resource utilization. Looking at Organizational Process Development and Organizational Process Focus areas from CMMI may help the organization make program and portfolio improvements faster than if just using OPM3.

By performing OPM3 and CMMI assessments together, organizations can learn more about where to invest in their organizations to resolve key issues and increase performance. If an organization has already conducted an assessment against one of the two models, it can realize value by conducting an assessment against the other model. Each assessment will give a different perspective, and at the same time one assessment may show evidence of compliance for the other.

Treat Improvements Like Projects

Organizations may decide to use OPM3 or CMMI as guidance to help make performance improvements after they have completed some sort of assessment. Once potential improvements are prioritized based on the business’s objectives, the organization will need to mobilize a team or teams to pursue those that make the most sense. Project management has been proven to be a powerful way to manage these types of initiatives that are temporary, have a fixed set of resources, and produce a unique product or service (in this case the improvements). Organizations should treat their performance improvement efforts as a project (or a program if large enough) in order to make sure that the improvement objectives are met.

The OPM3 Knowledge Foundation states, “The organization should approach the planning and implementation of changes as projects” (OPM3 Knowledge Foundation, p. 41). The IDEALSM: A
Collaborative Opportunities for using OPM3 and CMMI

User’s Guide for Process Improvement handbook (McFeeley, 1996) describes how Technical Working Groups (TWG) will plan the improvement project; pilot a solution, validate it and refine it; develop rollout strategy and plan; evaluate the solution in use; re-iterate the cycle for future improvements (McFeeley, p. 109).

Consider this example of an improvement project for a services company. The company has a number of resources around the country and each project team has a project manager assigned, yet all of the project managers operate their projects differently. After a combined OPM3 and CMMI assessment, the organization management team realizes that they can make improvements by doing several things in a standard way. After reviewing the assessment data and the results they wish to achieve, they decide to focus on project management and configuration management. While updating the project management processes, the organization uses OPM3 for guidance since many project managers are familiar with PMI and the PMBOK® Guide. Simultaneously the configuration management processes are updated using guidance from CMMI since the software engineer updating the process is familiar with CMMI and its content to manage software configurations. With all projects following the standard project management process, they saved money on every project because their resources could go from project to project and quickly understand expectations and become immediately productive. The configuration management improvements helped them ensure that all team members were utilizing the same versions of tools, software and plans. They also helped them control the number of changes. Since both improvements focused on improving business processes, they were easily operated as a single project.

Both OPM3 and CMMI suggest that organizations use projects to implement improvements. This consistent and aligned approach of implementing organizational improvements help organizations get the results they pursue. The project teams and stakeholders impacted by the project will likely need some form of training as part of these projects. This training is another collaborative opportunity for organizations to leverage OPM3 and CMMI simultaneously.

Combined Training

Organizations can see more results from process improvement efforts by combining training for both process owners and practitioners. Once organization process owners have been trained in process improvement concepts, they will easily grasp the content of more than one model. If an organization has process owners that are familiar with process improvement, they most likely will be able to learn enough about CMMI or OPM3 in a shorter amount of time and/or effort to start supporting improvements. Training organizations that can support both models will be able to bring organizations along on both simultaneously rather than separately. This would result in overall cost savings as improvement projects use guidance from OPM3 to manage the work when they begin applying their new training.

Process owners can then document or revise organization processes on either model based on the needs of the organization. Practitioners are then trained on the organization’s process, not on OPM3 or CMMI. The practitioners (e.g., project managers, team members, subject matter experts) should be educated on what the organization expects them to do.

Training is a key aspect of standardizing processes and is found in both OPM3 and CMMI. Tying the processes to day-to-day activities helps build traction for sustainable improvements. Training resources will have to be considered along with other resources that are needed to get to the desired results. These resources provide another perspective and opportunity to use both OPM3 and CMMI together.
Collaborative Opportunities for using OPM3 and CMMI

Resources

Leaders that are going to make a significant change to an organization need to consider who will need to be involved in order to make the change. Do I need outside expertise? Will I have to allocate someone that is already working on something else? What types of tools will I need?

Resources that support OPM3 and CMMI initiatives have similar skill sets and capabilities to implement change. Most organizations need some help from one or more experts (e.g., assessors or improvement consultants) that have knowledge of the model contents, have exercised the assessment methods, and have seen organizations go through changes. They also need a dedicated team in place that can support and deliver improvement projects.

PMI has a program in place where it certifies assessors and improvement specialists on OPM3. Individuals can become certified after an extensive application, education, and examination process. The certifications are granted after the candidate’s background is validated and the applicant completes the certification course and an examination. The certified assessors and consultants are required to stay active in the field and are also required to re-certify after a period of time. PMI has a registered education provider (REP) program in place to review educational programs of training providers and register them if they are qualified.

The SEI has a program in place where it authorizes assessors and trainers. In order to become authorized as an assessor, an application, education, examination and observation process is required. A similar process is in place if authorized trainers want to provide training using the standard SEI materials.

Both PMI and the SEI have processes in place to ensure that qualified resources are available to provide assessment and training support to organizations that need either. There are also some similarities to the internal human resources that are needed to drive the improvements. Many companies that pursue OPM3 based improvements will establish (or already have) a Project Management Office (PMO) that is responsible for making organizational project management improvements and increasing maturity. Likewise, organizations that pursue CMMI based improvements often have an Engineering Process Group (EPG).

A PMO and an EPG can be similar in that they are both often responsible for owning a business process. They both need to document those processes and educate the practitioners on how to use those processes if they expect to advance the organization. People in these groups need to have good communication skills, the ability to gain consensus, and the ability to manage projects in order to achieve the desired results.

The tools organizations need are also similar if they are pursuing CMMI or OPM3. Organizations will need a place to store process documents, a way to provide training, a project management system, and a data collection and reporting system. Organizations can potentially recover more from their investments in these kinds of systems and tools if they have the perspective of both models. Companies often buy systems and only use limited pieces of the functionality and don’t see the full benefit of the investment.

Consider an organization that will purchase an organization-wide project management information system. CMMI provides guidance on how to manage the engineering projects and collect metrics from that system to improve the product development process. OPM3 will provide additional guidance on how to include projects from additional functional areas, group similar projects to be managed as programs, and how to use the system to manage all of the...
Collaborative Opportunities for using OPM3 and CMMI

initiatives across the organization as a portfolio. Using the additional features and functions that are in that information system can drive additional benefits to the organization and a higher return on the investment made in the system.

The way an organization goes about using OPM3 and CMMI as guidance is quite similar. Executives should consider applying both at the same time as they will get different perspectives as a result of the assessments, more results from combined improvement projects and programs, a more educated workforce through combined training, and more use out of resources that enable improvements.

Summary

There are many tools and materials that are available to leaders of organizations when they look for advice or ideas on how to improve what they do. Organizations should choose what to use based on the results they expect. When you simultaneously apply OPM3 and CMMI within your organization, you should have high expectations of achieving significant results in areas that are important to you. Each maturity model offers many insights and considerations that can help deliver sustainable improvements. When using these two maturity models together, you may experience higher levels of performance improvement than when using an individual model.

Historically, users of OPM3 and CMMI have reported improvements in many categories ranging from customer satisfaction and cost reduction to schedule improvement and higher quality. Either of these maturity models may be viable options on their own to help you, but there are many situations where organizations will most likely see greater benefits by choosing to use both. While there is some overlap and similarity among the two that provides consistency in the message to your organization, the differences in the content for both models provide unique ideas and concepts that allow you to achieve additional benefits.

Both maturity models, OPM3 and CMMI, give you an entry point to use them. Each model comes with assessment methods of various levels of rigor allowing you to achieve a baseline of where your organization is in terms of being able to deliver sustainable performance improvements. These assessments provide different perspectives of where issues lie and what needs to be addressed. The key point here is that OPM3 provides a perspective that describes best practices of organizations that achieve their strategic objectives through successful projects while CMMI provides a systems and software engineering, quality and supplier management best practices perspective. Once you understand where you are after the assessment, you’ll want to improve your organizational capabilities and overall maturity in one or more of these areas to get better, faster, cheaper, or more innovative than your competitors.

Your organization can expect to see sustainable performance improvements in several areas when you use OPM3 and CMMI simultaneously. You would probably agree that your organization exists to deliver products and services to either other organizations or to end consumers. Also, some of your products and services provide value to you and to your customers, while some don’t (or at least some provide more value than others). If you consider each of these elements in a portfolio management process, your organization can ensure that all resources are focused on the most valuable activities. By achieving this focus, your organization will enhance alignment of its efforts while focusing on the right things and can ultimately perform better than your competitors.
Once you know what the right things are, you can look at making sure the organization is doing the right things the right way. You can then strategically put project teams in place to ensure that objectives are achieved. These project teams may need guidance from different perspectives which they would obtain from using the various contents of OPM3 and CMMI. Furthermore, similar projects can be grouped together as programs to achieve benefits not available when managing them individually. Moreover, everything that needs to be done should all be balanced through the overall portfolio whether it be performing the activities of the core business or managing improvement initiatives.

Your organization can perform your current activities better, faster, or cheaper than your competitors. You can develop sustainable growth or achieve a higher level of innovation. When applied appropriately, we believe that OPM3 and CMMI are two maturity models that will help you make sustainable performance improvements within your organization and help you meet these objectives.
Collaborative Opportunities for using OPM3 and CMMI

Appendix A – References

The following publications were considered in developing this report:

- Organizational Project Management Maturity Model (OPM3®), 2003, Project Management Institute, Inc.
- Chrissis, Mary Beth; Mike Conrad and Sandy Shrum. CMMI® Guidelines for Process Integration and Product Improvement, 2003, Pearson Education, Inc based on the CMMI-SE/SW/IPPD/SS Version 1.1 published by SEI in March 2002
- Chrissis, Mary Beth; Mike Conrad and Sandy Shrum. CMMI® Guidelines for Process Improvement and Product Integration, 2007, Pearson Education, Inc based on the CMMI Version 1.2 published by SEI in August 2006
- OPM3 ProductSuite Assessor Training, 2006, Project Management Institute
Appendix B – Frequently Asked Questions (FAQs)

Here are some potential questions and answers on this topic for organizations to consider when they are attempting to make sustainable performance improvements using **OPM3** and/or **CMMI**.

**Should I use OPM3 or CMMI?**
- It depends on what business problem you or your organization is trying to solve.
- Organizations that have customers that require them to use either model should use the model their customer requires.
- Organizations should use **OPM3** if they are trying to solve complex business problems.
  - Many organizations are not able to implement/execute their strategies, are not “doing the right projects”, are spending money on projects that are cancelled, have projects that are not performing as expected, or are not optimizing scarce resources.
  - The portfolio management, program management and project management content in **OPM3** describes best practices that address these issues.
- Organizations should use **CMMI** if their focus is to develop complex products or if they find that much of their business relies on software.
  - **CMMI** helps organizations reduce defects, cut costs and improve the performance of product development organizations that have significant systems/software engineering requirements.
  - **CMMI** covers four bodies of knowledge including systems engineering, software engineering, integrated product and project team development and supplier sourcing.

**Do I have to choose between OPM3 and CMMI?**
- No. **OPM3** and **CMMI** were not developed to be competitors. They were developed to help organizations solve different problems and can be used together.
- Both maturity models have unique strengths. However, each offers similar guidance on how to improve the processes they describe, so organizations familiar with one should be able to easily adopt and see results by adopting the other for appropriate processes.
- If an organization has scarce resources and has to make a choice between process improvement initiatives, please see the previous question.

**Should I use OPM3 and CMMI?**
- Based on the answer to the question above, you should choose both if the situation is appropriate. Organizations that are using **CMMI** and are struggling with implementation should look to **OPM3** for additional guidance. Organizations that use **OPM3** but need to provide more detailed support to their product development community should consider **CMMI**. Organizations not using either should consider both to make sustainable performance improvements.

**If I have already invested in CMMI or OPM3, will I lose the benefit of my investment if I decide to apply the other maturity model as well?**
- No. The two models were not designed as competitors and can actually offer more return to an organization if used together.
- If you have already invested in improvements based on one of the models, it is critical to make sure that you and your organization do not lose focus on the work you have done. If you lose focus, the improvements you have made can wither away. By using the next model to make additional improvements above and beyond what you have done and not as a replacement, you can maintain your investment in the original model and even see more returns.