



White Paper

A Unified Project Management Process Model

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Introduction

As the Project Management discipline matures and is taken out of the dark ages of heroic project management, the industry is placing value in defined project management processes. These processes attempt to provide the discipline that appears to be lacking in the industry as compared to other industries such as engineering, medical and construction.

Different organisations have different needs, however all seem to share the one basic requirement in their project management models – they want processes that are repeatable, best of breed and practical with levels of maturity built in. A host of methodologies exist in the marketplace to satisfy various components of these needs, however, no one model seems to be available that can provide all these core components.

An approach involving a unified project management model seems to be the way forward.

This white paper discusses potential components of such a model, and presents one developed for Promendo – the Project Management Knowledgebase.

Model Overload

There are many project management models in existence today, many representing years of consolidated learning from different industries and experiences. These models range from CMMI through to Six Sigma and all attempt to provide the organisation, the project manager and the team with instructions on the best way to manage projects.

This approach provides organisations with choices, however, in many instances only a small subset of each model's components are used, either because the implementation path is too complex, requires too great an investment in time, cost or resources, or doesn't exactly fit the culture of the organisation.

This paper will discuss aspects of the following models, and attempt to provide a unified design that takes the best components of each that can be offered to organisations to improve their PM experiences:

- **PMBok** - Project Management Body of Knowledge (from the Project Management Institute in the US)
- **CMMI** - Capability Maturity Model Integration from the Software Engineering Institute in the US)
- **PRINCE2** - Projects in a Controlled Environment (from OGC – the UK Office of Government Computing)
- **PMMM** - Project Management Maturity Model (from PM Solutions)
- **OPM3** - Organisational Project Management Maturity Model (from the Project Management Institute in the US)
- **Six Sigma** (from Motorola)
- **ITIL** - Information Technology Infrastructure Library (from OGC – the UK Office of Government Computing)

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Project Management Models

PMBoK

The Project Management Body of Knowledge (2004 edition) provides a comprehensive discussion of 9 process areas across 5 process groups. Each process area is described in terms of Inputs, Outputs, Tools and Techniques. The Body of Knowledge identifies *what* should be done against each process area, but does not prescribe *how* an organisation should meet these requirements.

The PMBoK is utilised in many different organisations throughout the world and the base of certified Project Management Professionals is growing daily.

CMMI

The Capability Maturity Model Integrates presents processes targeted to 4 disciplines: systems engineering, software engineering, integrated product and process development and supplier sourcing. The model presents both a staged and continuous approach to achieving maturity of processes in an organisation.

The most well known representation shows maturity extending from Level 0 to Level 5, where Level 0 represents Incomplete (or ad hoc) and Level 5 represents Optimising (or continuous improvement) .

PRINCE2

The PRINCE2 methodology is similar to the PMBoK in that there are eight processes, eight components and four techniques. It attempts to guide what should be done by when and by whom, but like the PMBoK, it is non prescriptive.

PMMM

The Project Management Maturity Model is a tool that can be used to measure an organisations maturity in project management. Once the initial level of maturity and areas for improvement are identified, the PMMM provides a roadmap, outlining the necessary steps to take toward project management growth and excellence. The process areas are defined in terms of the PMBoK (2000 edition).

OPM3

The Organisational Project Management Maturity Model describes a standard for organisational project management maturity. It offers a model for assessing an organisations maturity and then promotes the use of the PMBoK to improve on that level.

Six Sigma

Six Sigma is a statistical based approach to managing an organisation through the creation of near perfect processes, products and services aligned to delivering what the customer wants. The term Six Sigma represents a goal of achieving a 0.003% defect failure rate in implemented products and services (in other words a 99.97% success rate) through close understanding of customer needs, disciplined use of facts, data, and statistical analysis, and diligent attention to managing, improving, and reinventing business processes.

ITIL

The IT Infrastructure Library promotes best practice for IT Service Delivery and Service Support. In this respect it covers aspects of the development lifecycle and the operational lifecycle through 10 process areas from Service Level Management through to Change Management.

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The best parts of each

There are many good aspects to these models which could be unified into a grand design that can fulfil an organisation's requirements. These aspects are defined below:

1. **Maturity.** Models which enable an organisation to progress through maturity states in their journey towards '*Project Management Nirvana*' recognise that the road to good PM practice is littered with failed attempts, but if the overall goals and direction are well defined, the path can be made easier. These concepts are expressed in process models such as CMMI, OPM3 and the PMMM.
2. **Process Focus.** Most of the PM models in existence today contain strong elements of a process approach. This means there are standards (or guidelines) plus a host of other components that provide a structure for the PM to follow when managing projects. These structures represent the best practice gleaned from experiences across all industry types and collectively contain the totality of best advice for any given situation. Models such as PRINCE2, ITIL and PMBoK are examples of such types and Six Sigma take these processes to extremes in trying to obtain zero defects.
3. **Lifecycle Focus.** Some models attempt to improve only certain aspects of the system development lifecycle, particularly those areas that have historically been ignored. The IT Infrastructure Library (ITIL) focuses on help desk and operational aspects of IT project management in an attempt to improve the experience for customers with implemented systems. Such models can be very useful for organisations that are mainly in an operational phase or have little project development processes.
4. **Focus on What not How.** Failure with instruction based models in the past have led to the creation of standard based models which attempt to provide a structure for process and leave the implementation details up to each organisation. Such models can be beneficial for organisations that have existing controls in place, and only need to adjust these to meet the intent of the process. The PMBoK is a good example of a model that identifies the standard without providing specific guidance on how to get there.

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Designing a Unified Process Model

As well as the above considerations, the following are some of the other factors that need to be considered when designing a unified process model:

5. **Tailorable.** Any model presented to an organisation must allow it to be implemented in a way that fits within that organisation's culture, philosophies, experience and education base. A model that is very prescriptive would require a huge investment in change for an organisation, unless that model matched exactly to the organisational climate. This is rarely the case. What is required is a model that has the ability to customise the intent and implementation aspects of the processes without losing sight of its original structure.
6. **Simple.** Ideally the model would be presented as a simple set of process flows that make intuitive sense. Whilst the project management discipline seems to be the realm of experts, in reality all that is involved is adherence to a few simple rules, such as *plan effectively, monitor regularly and be proactive*. All else flows from these concepts.
7. **Portable.** The project management discipline exists across a large industry base, from Information Technology through to Military applications. Any model presented needs to be *industry agnostic* to enable its application regardless of whether the Project Manager is managing a construction project, a software development project or a military project.
8. **Scalable.** Projects come in many sizes from small 1-2 week activities, to multi-year activities. The Project Management processes presented in the model must take the size of the undertaking into account when determining what processes are required and when. For example, there may be little benefit in performing a 2 week risk identification and analysis workshop for a project that will be over in a month.

Taking these 8 factors into account, how should the unified model be designed?

It should be represented in a layered fashion, to take into account aspects of simplicity, scalability and maturity. It should not state how (although some guidance can be provided in terms of practical considerations. It should have a strong process focus, representing all the aspects that a Project Manager needs to consider when managing a project (however, taking the simplicity focus, these processes could be offered in a hierarchical fashion). The model should also represent all stages of the project, from initiation through to implementation and beyond into operation. The model should also allow growth, through a tailoring mechanism that allows the model to be customised to fit an organisation's needs.

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Model Components

Sample Unified Model

Such a model is represented below.

Maturity Level	Layer	Lifecycle			
		Stage A	Stage B	Stage C	...
1	1	Process A	Process A	Process A	...
		Process B	Process B	Process B	
		Process C	Process C	Process C	
		
	2	Process A	Process A	Process A	...
		Process B	Process B	Process B	
		Process C	Process C	Process C	
		

2	1	Process A	Process A	Process A	...
		Process B	Process B	Process B	
		Process C	Process C	Process C	
		
	2	Process A	Process A	Process A	...
		Process B	Process B	Process B	
		Process C	Process C	Process C	
		

...

Each process can be represented across one, or a number of different lifecycle stages. For example, the Risk Management process area may relate to the Planning stage, as well as the Monitoring and Controlling stage of a project. However, different aspects of the process could occur for different stages. All stages in the lifecycle should be represented. Each process can be defined in a hierarchical fashion, representing levels of simplicity and maturity. Thus, the Risk Management process can be represented at Maturity Level 1 as simply the implementation of a risk checklist, where at Maturity Level N, it is represented as a comprehensive risk identification, assessment and response activity. Additionally, within each maturity level, the Risk Management process can be presented differently depending on the project size, for example a small project may only require the completion of a one page checklist, whilst a large project would require the completion of a checklist that covers many different categories.

The processes themselves would consist of a standard, or intent that describes what is the goal of that process. It should also state the benefit of meeting this goal for the Project Manager, the team, stakeholders and the organisation as a whole. The process should be described in terms of activity steps, where the output of one step forms the input of the next step. Finally, the process should provide some practical guidance in terms of wisdom as well as suggested templates and forms to speed up the implementation of that process area. Such forms though, must be generic to meet the concepts of scalability and portability.

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Sample Process Template

An example process template could consist of the following headings:

Process Name
:
:
Process Description
:
:
Benefit of adhering to this process for:

Project Manager
Stakeholders
Team
Organisation
:
:
Activity Steps (high level)
:
:
Activity Steps (detail)
:
:
Guidance

Considerations
:
:
Templates and Forms
:
:
Tailoring Guidelines
:
:
:

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Practical Application

The above model can be extended to any process area, taken from CMMI, PMBoK, Prince2 or other models. For example, taking the Risk Management process area from PMBoK and using the concepts from CMMI, this would be represented in the above model as follows (*RM indicates Risk Management*):

Maturity Level	Layer	Lifecycle					
		Stage A Initiating	Stage B Planning	Stage C Executing	Stage D Monitoring & Controlling	Stage E Closing	Stage F Operational
1 Ad Hoc	1 Simple Complexity Project		RM 11B	RM 11C			
	2 Medium Complexity Project		RM 12B	RM 12C			
2 Defined	1 Simple Complexity Project		RM 21B	RM 21C			
	2 Medium Complexity Project		RM 22A	RM 22C			
		
...		

The Risk Process itself would not consist of many different process documents (i.e. using the example above there would only be one Risk Management process description, not eight). To represent the different aspects of the process, based on the maturity, lifecycle and size aspects, the process could contain a table showing where it fits in the overall picture (to give perspective) and identify what activities are required for each aspect of the process (using the 11B codes or similar).

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The model also allows different process to be introduced for different maturity levels. For example, for an organisation at Maturity Level 1 (Ad Hoc) the Cost Management process area may not be relevant, and may only be applicable for Maturity Level 2 and above. So the model would be shown as follows (*RM identifies Risk Management and CM Cost Management*):

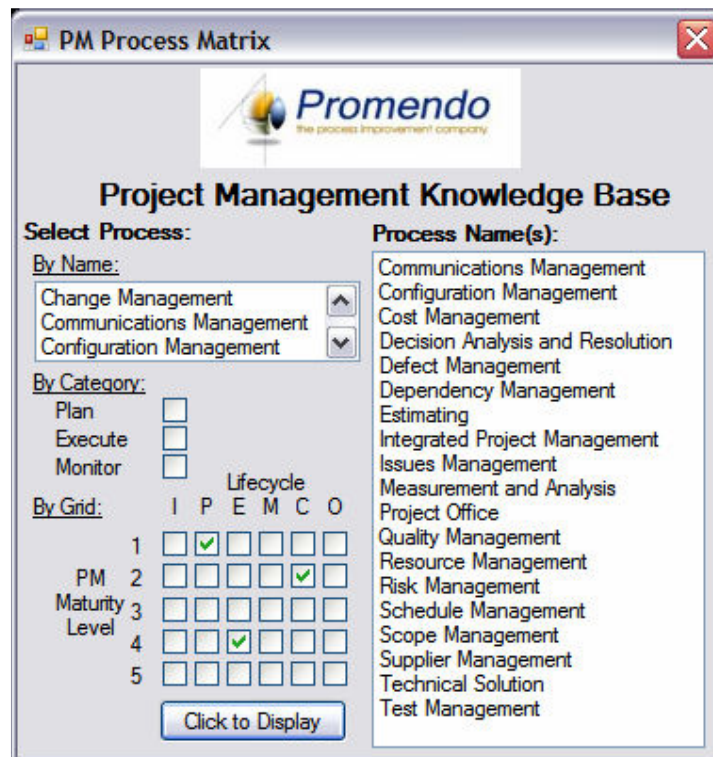
Maturity Level	Layer	Lifecycle					
		Stage A Initiating	Stage B Planning	Stage C Executing	Stage D Monitoring & Controlling	Stage E Closing	Stage F Operational
1 Ad Hoc	1 Simple Complexity Project		RM 11B	RM 11C			
	2 Medium Complexity Project		RM 12B CM 12B	RM 12C CM 12C	CM 12D		
2 Defined	1 Simple Complexity Project		RM 21B CM 21B	RM 21C CM 21C	CM 21D		CM 21F
	2 Medium Complexity Project		RM 22A CM 22A	RM 22C CM 22B	CM 22D		CM 22F
		
...		

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Promendo Project Management Knowledge Base

Promendo has developed a model based on the concepts above. This model meets all the 8 requirement areas and is packaged into a web based reference that can be tailored to an organisation based on their assessed level of maturity, size of project and stage in the lifecycle. It takes the concepts of CMMI, PMBoK, PRINCE2, ITIL and others to represent a comprehensive view of project management processes in a very simple package. The package can be offered to customers in components or as a whole depending on their needs.

Promendo's Project Management Knowledge Base is represented as follows:



Project Management Knowledge Base

Select Process:

By Name:

- Change Management
- Communications Management
- Configuration Management

By Category:

Plan

Execute

Monitor

By Grid:

	I	P	E	M	C	O
1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PM Maturity Level 2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Process Name(s):

- Communications Management
- Configuration Management
- Cost Management
- Decision Analysis and Resolution
- Defect Management
- Dependency Management
- Estimating
- Integrated Project Management
- Issues Management
- Measurement and Analysis
- Project Office
- Quality Management
- Resource Management
- Risk Management
- Schedule Management
- Scope Management
- Supplier Management
- Technical Solution
- Test Management

Click to Display

A process can be selected on its own, or through the Category or Grid views. The Category view shows the processes that apply to each of the main activities of project management, namely planning, executing and monitoring.

The Grid view identifies the processes that apply depending on the PM Maturity Level and Lifecycle selected.

The displayed processes can then be selected to show the detailed process steps.

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Conclusion

The development of a unified project management process model represents a key advancement in the project management discipline. The model takes all the best aspects of the numerous approaches developed to date, and presents them using a simplified structure that can be offered to customers to meet their specific needs.