

## Steps to Success for a CMMI Project

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## Agenda

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- ◆ **Introduction**
- ◆ **Planning for CMMI**
- ◆ **Best Practices**
- ◆ **Pitfalls to Avoid**
- ◆ **Benefits of Informal Appraisals**
- ◆ **General Conclusions**
- ◆ **Questions**

## Introduction

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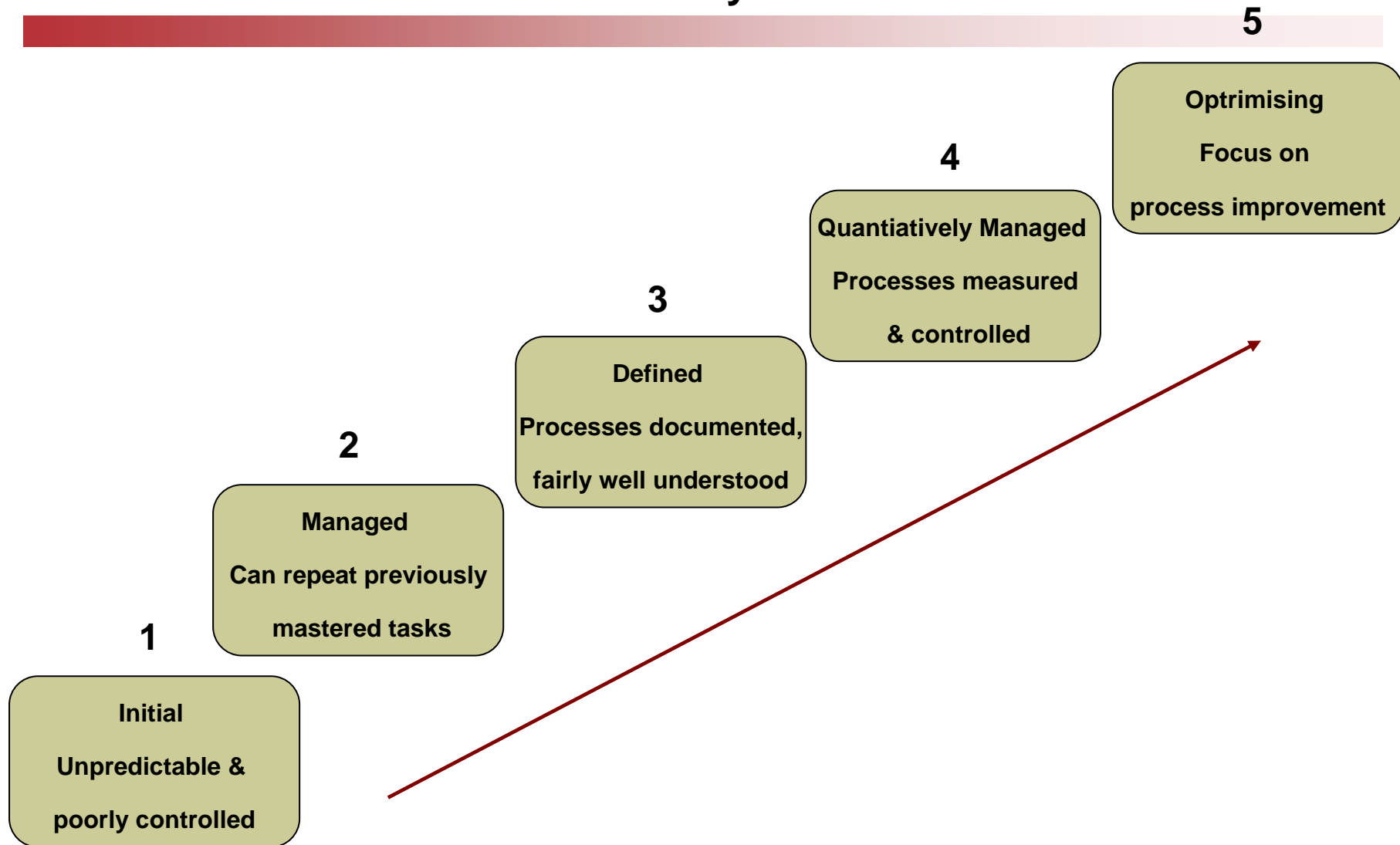
- ◆ **Severn Group are a London based management consultancy specialising in IT and project management.**
- ◆ **David Phillips is a senior consultant who has worked for Severn on a variety of consultancy assignment since 1996, and who has specialised in CMM and CMMI during the last four years.**
- ◆ **His CMM and CMMI experience has been with: AXA, General Motors, Renault and most recently with Aviva.**

## What is the CMMI used for?

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- ◆ **The CMMI is a model or road map to use when developing and improving an organisations processes and to enable organisations to determine their maturity in relation to others.**
- ◆ **Use of the CMMI can help organisations to set process improvement objectives and priorities.**

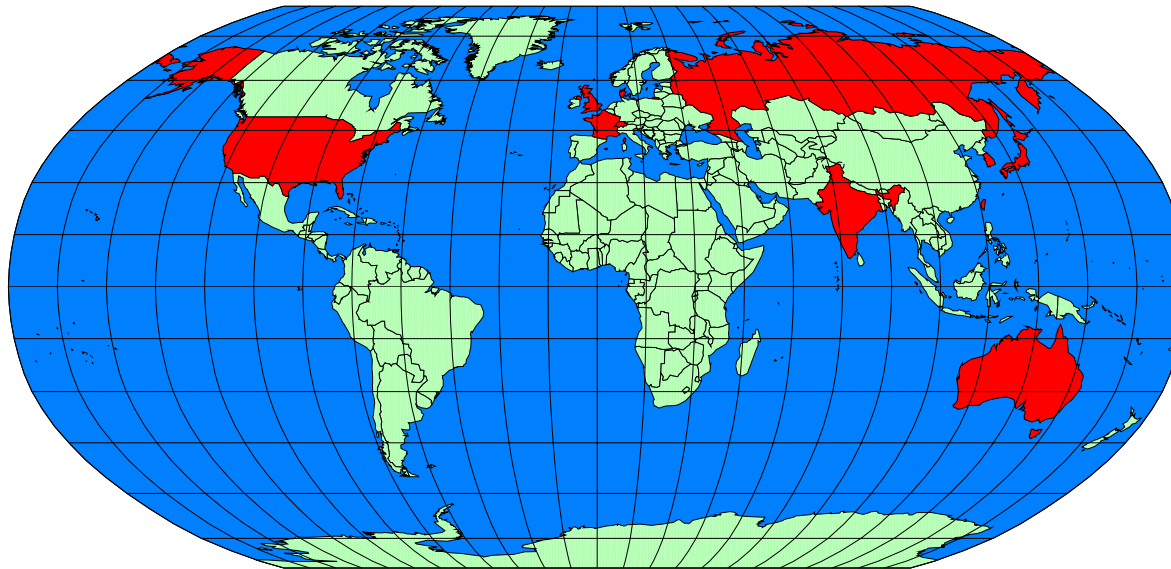
## CMMI Maturity Levels



## CMMI Maturity Levels



## CMMI Appraisals Around the World



Australia Denmark France India Japan  
Russia South Korea Switzerland Taiwan United Kingdom United States

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## Planning for CMMI – 1

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**Among some 900 plus organizations, which contributed their assessment data (in 2002) to the Software Engineering Institute (SEI), a majority of them fall within level 1 and level 2, the percentages being 35 and 38 respectively.**

**However the journey to reach a higher level of process maturity requires a considerable amount of time and effort. The CMM-based enhancement effort which organizations initiated in 1992 and later, has shown that the time to move from one level to the next averaged as follows:**

- From level 1 to level 2: 25 months**
- From level 2 to level 3: 22 months**
- From level 3 to level 4: 36.5 months**

§ Source: [www.sci.cmu.edu](http://www.sci.cmu.edu)

## Organisations at levels 4 & 5 by 3Q 2002

Country	Number of Level 4 Organisations	Number of Level 5 Organisations
Australia	2	
Canada		1
China		2
France	1	
India	27	50
Ireland	1	
Israel	1	
Russia		1
Singapore	1	
USA	39	20

§ Source: [www.sci.cmu.edu](http://www.sci.cmu.edu)

## Planning for CMMI - 2

- ◆ **Initiation is the first phase of a project, allow enough time planning, documenting and agreeing the plan, longer for larger organisations**
- ◆ **Define the scope with care**
- ◆ **Identify all of the people who will need to be involved and ensure their roles and time commitments are well understood**
- ◆ **Decide up front whether to use the a staged or continuous model**

## Best Practices - 1

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- ◆ **Plan and run CMMI process improvement like a project**
- ◆ **Get early buy in from top management**
- ◆ **Link measurements to the organisations objectives**
- ◆ **Sell the benefits of CMMI to all staff**
- ◆ **Identify all stakeholders and plan their involvement**
- ◆ **Allow adequate time for the culture to change and practices to become mature**
- ◆ **Pilot processes before full rollout**

## Best Practices - 2

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- ◆ **Identify and build on good practice that already exists**
- ◆ **Spread the work amongst as many people as possible**
- ◆ **Develop and implement processes in the order of need**
- ◆ **Start with an informal appraisal to provide data for planning the project**
- ◆ **Do a cost/benefit analysis so that improvements experienced can be gauged**
- ◆ **Use informal interim appraisals to measure progress and as checkpoints**
- ◆ **Plan to address each finding in interim appraisals**

## Best Practices - 3

- ◆ **Take an integrated approach to process deployment**
- ◆ **Keep process descriptions brief, with any necessary detail documented in guidelines**
- ◆ **Use only a small number of measures at first**
- ◆ **Provide training in the use of processes, give coaching where needed**
- ◆ **Establish a quality assurance group**
- ◆ **Establish a feedback mechanism to allow staff to provide ideas for process improvements**
- ◆ **Set process improvement targets**

## Pitfalls to Avoid

- ◆ **Don't get consultants alone to write processes, involve those who will do the work**
- ◆ **Don't skip maturity levels**
- ◆ **Don't be tempted to shorten timescales, allow processes to become embedded in the organisation**
- ◆ **Don't document processes in too much detail, they should not be a training manual, use guidelines to provide details**
- ◆ **Don't just aim for a maturity level, develop and agree a business case**
- ◆ **Don't introduce too many measures**

## Benefits of an informal appraisal

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- ◆ Provides areas of improvement to focus on
- ◆ Checks the project progress at defined milestones
- ◆ Ensures that formal appraisal team is booked with full confidence

## Appraisal Rating Descriptions

Rating	Practice Rating Description
F (Fully Satisfied)	The associated findings indicate that this practice is implemented and institutionalised either as defined in the CMMI with no significant weaknesses or that a fully adequate alternative practice is implemented.
L (Largely Satisfied)	The associated findings indicate that there are some but no significant weaknesses in the implementation and institutionalisation of this practice as defined in the CMMI or that an alternative practice is implemented which is largely adequate.
P (Partially Satisfied)	The associated findings indicate that there are significant weaknesses in the implementation and institutionalisation of this practice as defined in the CMMI or that only a limited alternative practice is implemented.
N (Not Satisfied)	The associated findings indicate that there are substantial weaknesses in the implementation and institutionalisation of this practice as defined in the CMMI and no adequate alternative practice is implemented.

F (Fully satisfied)

L (Largely satisfied)

P (Partially satisfied)

N (Not satisfied)

## Level 2 – Generic Practices Summary - example

Level 2 Generic Practices	Requirements Management	Project Planning	Project Monitoring & Control	Supplier Agreement Management	Process & Product Quality Assurance	Measurement & Analysis	Configuration Management
Establish an organisational policy	P	L	P	N	N	N	P
Plan the process	P	L	L	N	P	P	N
Provide resources	L	L	F	L	P	L	L
Assign responsibility	P	F	F	P	P	F	F
Train people	L	L	F	0	N	L	L
Manage configurations	F	L	F	L	P	L	L
Identify and involve relevant stakeholders	L	L	L	L	L	L	L
Monitor and control the process	N	N	N	N	N	N	N
Objectively evaluate adherence	0	0	0	0	0	0	0
Review status with higher level management	0	0	0	0	0	0	0

## Level 2 process area summary - example

CMMI Level 2 Process Area	Process Area Rating	Generic Goal	Specific Goal 1	Specific Goal 2	Specific Goal 3
Requirements Management	N	N	N		
Project Planning	N	N	P	P	L
Project Monitoring & Control	N	N	P	F	
Supplier Agreement Management	N	N	L	L	
Process & Product Quality Assurance	N	N	L	L	
Measurement & Analysis	N	N	N	P	
Configuration Management	N	N	L	P	L

## Level 2 summary - example

Level 2 Process Areas								
Specific & Generic Goals	Requirements Management	Project Planning	Project Monitoring & Control	Supplier Agreement Management	Process & Product Quality Assurance	Measurement & Analysis	Configuration Management	
Manage Requirements	N							
Establish Estimates		P						
Develop a Project Plan		P						
Obtain Commitment to the Plan		L						
Monitor Project Against Plan			P					
Manage Corrective Action to Closure			F					
Establish Supplier Agreements				L				
Satisfy Supplier Agreements				L				
Objectively Evaluate Processes & Work Products					L			
Provide Objective Insight					L			
Align Measurement & Analysis Activities						N		
Provide Measurement Results						P		
Establish Baselines							L	
Track & Control Changes							P	
Establish Integrity							L	
Institutionalise a Managed Process	N	N	N	N	N	N	N	
OVERALL PROCESS AREA RATING	N	N	N	N	N	N	N	
	Requirements Management	Project Planning	Project Monitoring & Control	Supplier Agreement Management	Product Quality Assurance	Measurement & Analysis	Configuration Management	TOTALS
Practices at F (fully implemented)	1	4	7	0	0	2	3	17
Practices at L (largely implemented)	5	14	6	8	5	7	8	53
Practices at P (partially implemented)	5	3	4	1	4	4	2	23
Practices at N (not implemented)	2	1	1	3	3	3	2	15
Practices Not Applicable/Not Rated	2	2	2	5	2	2	2	17
TOTALS	15	24	20	17	14	18	17	125

## What benefits have been experienced by using the CMMI?

- ◆ **Boeing Australia: 33% decrease in the average cost to fix a defect**
- ◆ **Lockheed Martin: 20% reduction in unit software costs**
- ◆ **General Motors: Increase in percentage of milestones met from approximately 50 to 95 percent**
- ◆ **JP Morgan Chase: Improved predictability of delivery schedule**

Source: SEI special report Oct. 2003

## General Conclusions

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**Remember that CMMI is a model, an organisation must not just “go through the motions” but must use it as a means to achieving continuous improvement. The application of CMMI is a journey.**

- **First establish control over management processes on individual projects**
- **Then take best practices from these to produce common processes for application to the entire organisation**
- **Define and collect appropriate measures and analyse these**
- **Search for common causes of error and improve the process so that errors will not occur again**

## Questions

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## Contact

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