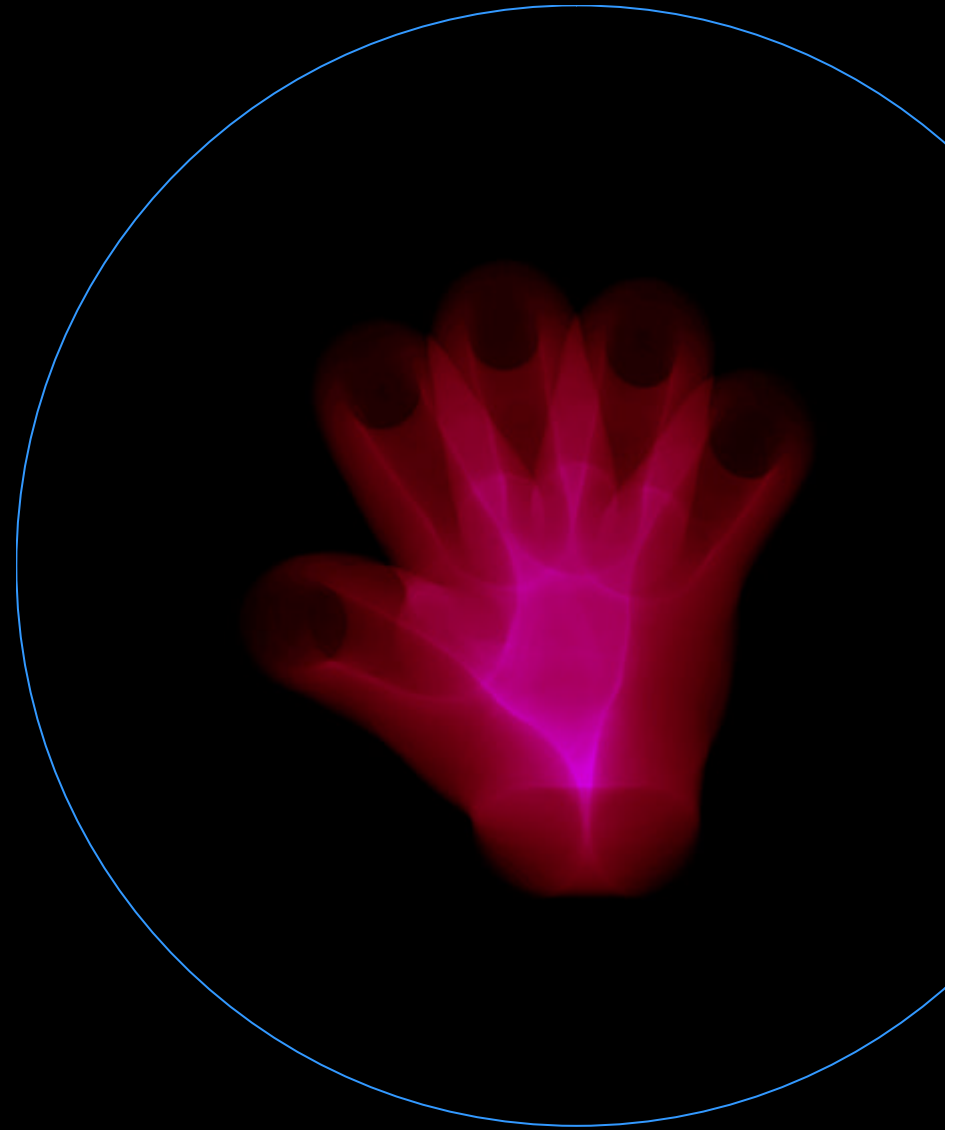


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How CM Changes with increasing CMM  
Maturity

# Agenda

- Introduction
- What is the SEI CMM?
- CM at Each CMM Levels
- How the organisation's information control needs change
- Summary



# Introduction

- Peter Moorcroft  
Ortia – Managing Consultant
  - 10 Year Configuration Management Experience
  - 3 Years as Clearcase Customer
  - 2 Years as SCM/ClearCase Tech Rep
- Kieran Doyle  
Ortia - Principal Consultant
  - SEI Approved CMM Lead Assessor
  - Almost 10 years experience of instituting Quality and Process Improvement programmes
  - Large & small scale programmes across multi-national companies

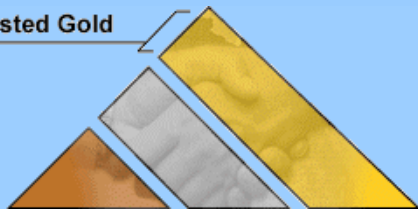


# Ortia Who?

- Founded in March 2000
- Located at the Aske Stables Richmond
- Highly Skilled Team
  - Trans-national project experience
  - Wide ranging experience across the development lifecycle
  - Core business areas – Telecommunications, Finance, Government

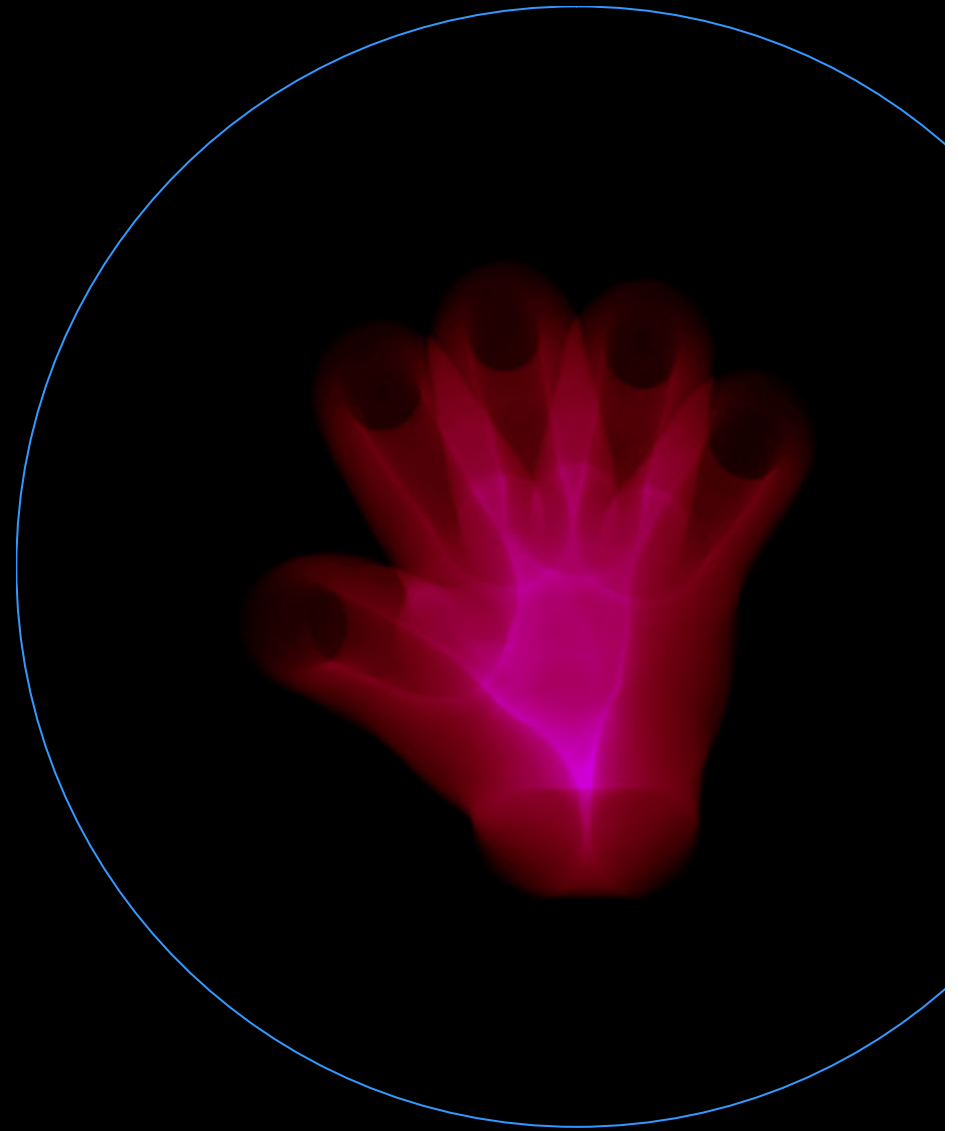


Field Tested Gold



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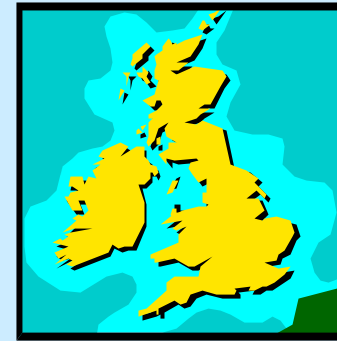


What is SEI CMM

# What is the SEI CMM?



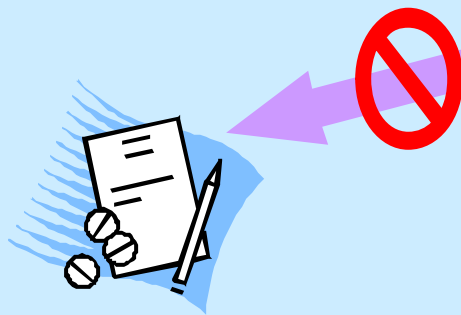
Model for Improving SW  
Capability



Route map of improvements



Framework



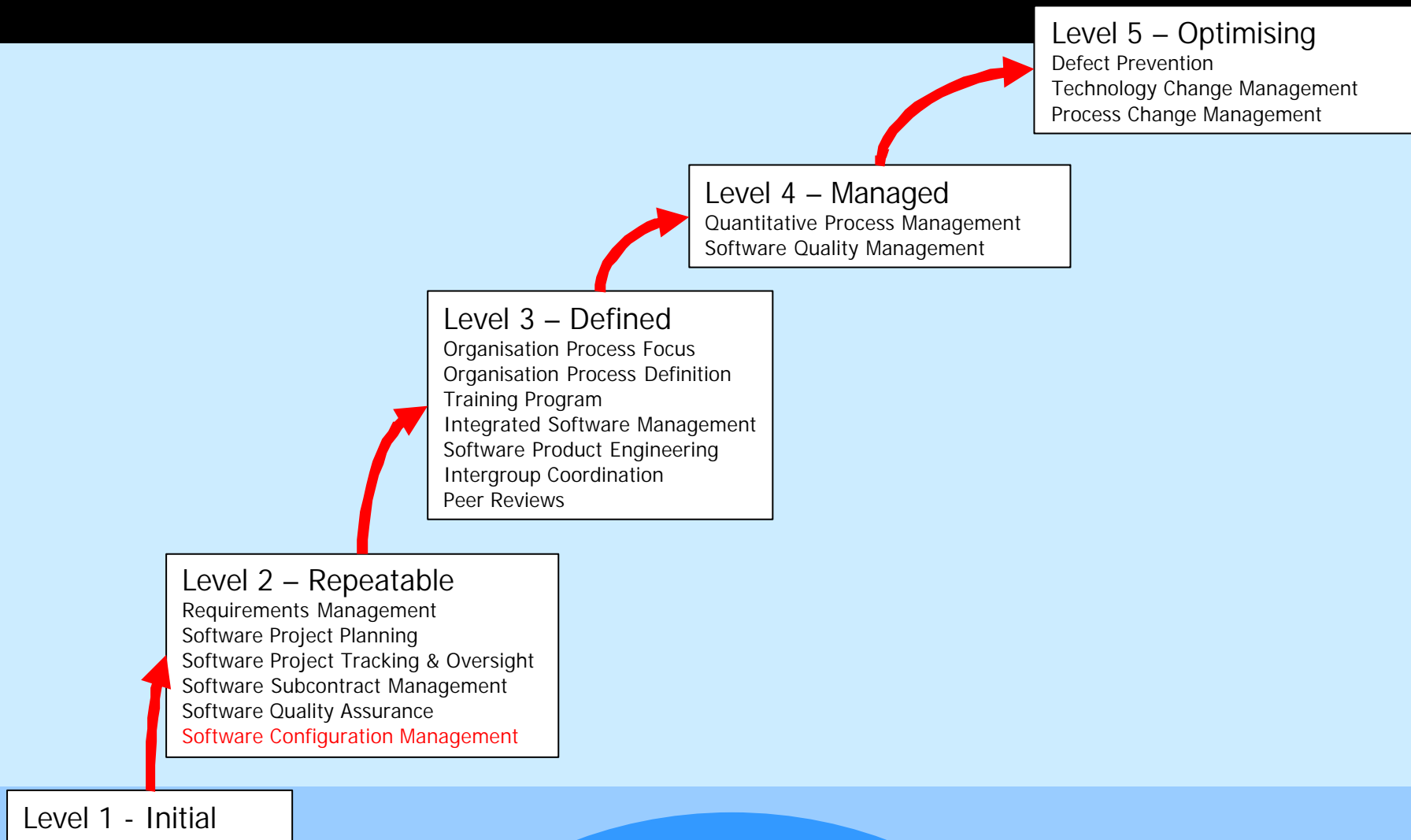
Not Prescriptive



What needs to be done



# Overview of the CMM Structure



# Common Features of the CMM

## Goals

### Activities

- Establish Plans
- Perform Work
- Track Work
- Take Corrective Action

Institutionalisation – ensures actions become second nature

Policies and  
senior  
Management  
Sponsorship  
  
Commitment

Resources,  
organisation  
structure &  
training  
  
Ability

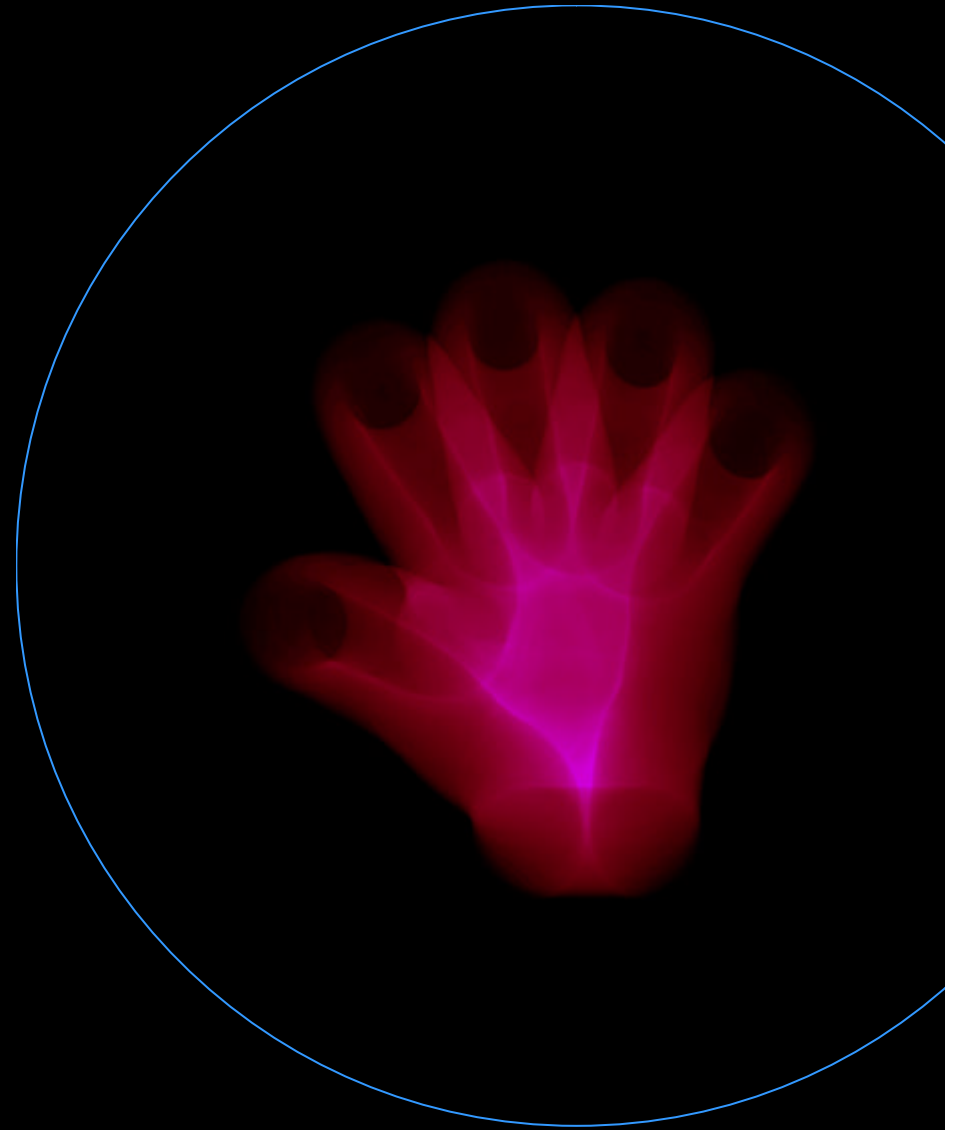
Determine status  
and analyse  
effectiveness  
  
Measurement  
& Analysis

Reviews & Audits  
by Management  
and SQA  
  
Verification



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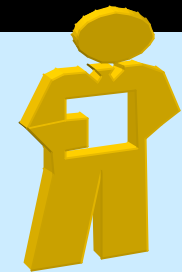
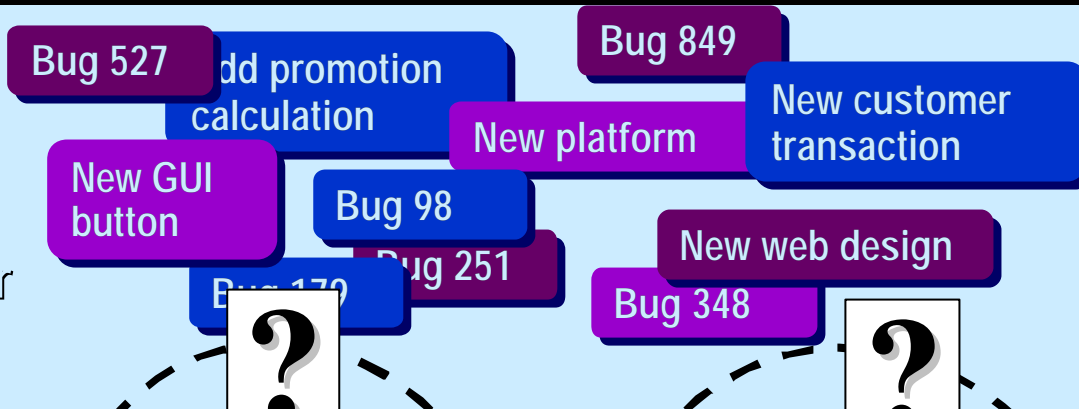


SCM at CMM Levels 1 - 5

# SCM at CMM Level 1 - Initial

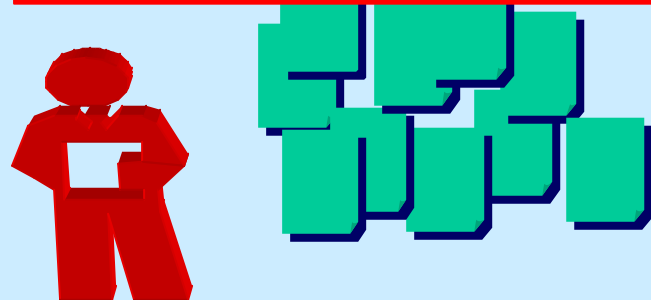


Project Manager

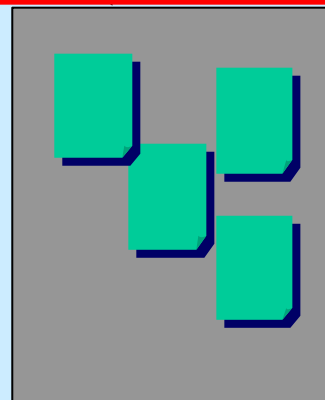


Analysts

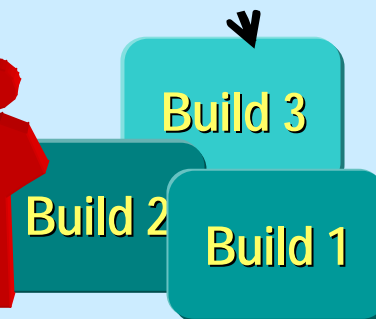
No formal methods, no consistency, **every one an 'Expert'**



Developers



Integrator



Testers



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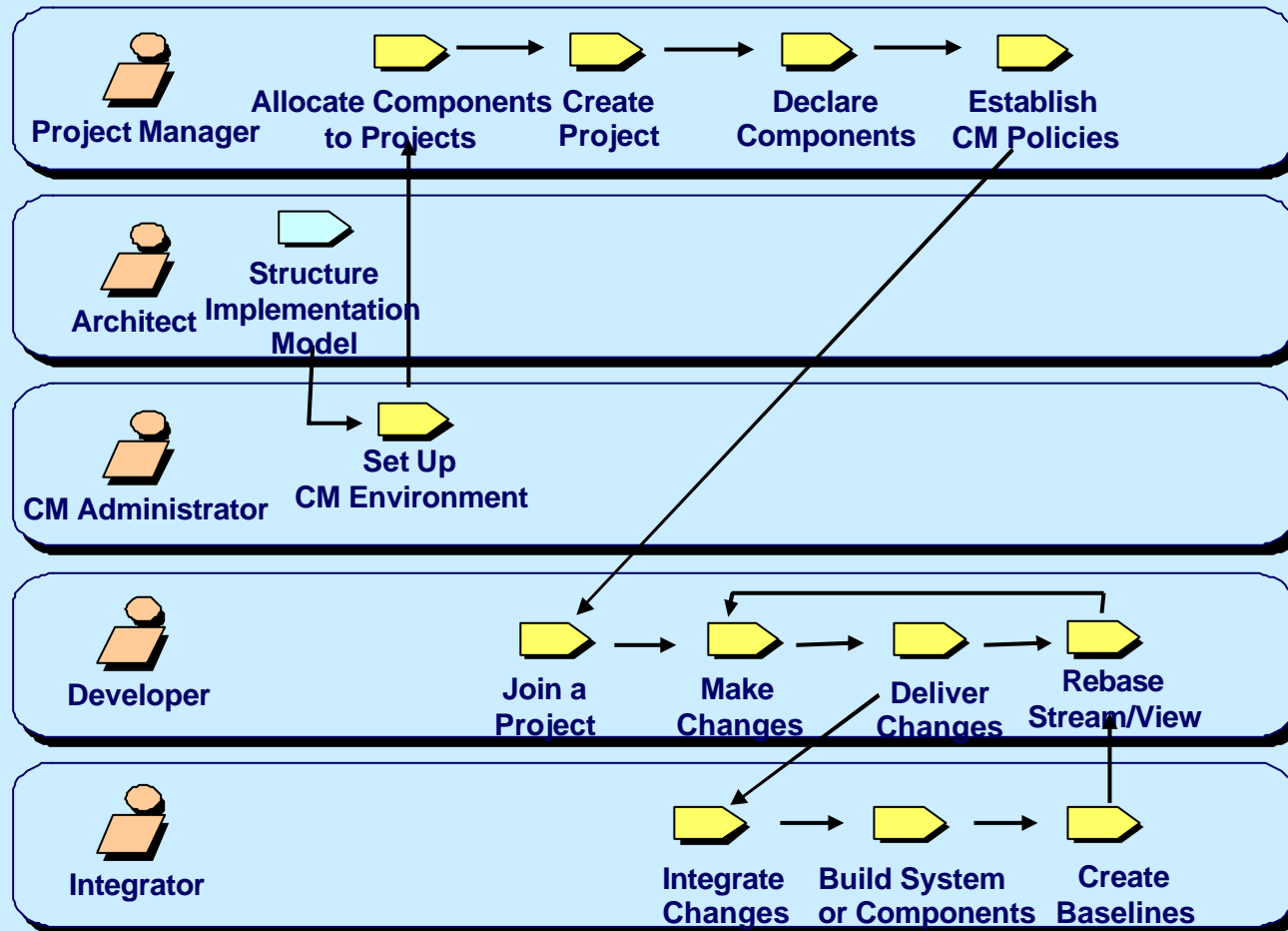
# SCM at CMM Level 2 - Repeatable

- Introduction of the Basics
  - Software Configuration Management is planned for the project (SCM Plan)
  - Configurable items are identified, and their control planned
  - Secure Repositories exist
  - Baselines are planned, controlled, and audited
  - Change Control Board mechanisms manage baseline integrity
- This is all supported by instituting the appropriate management policy, oversight and measurement

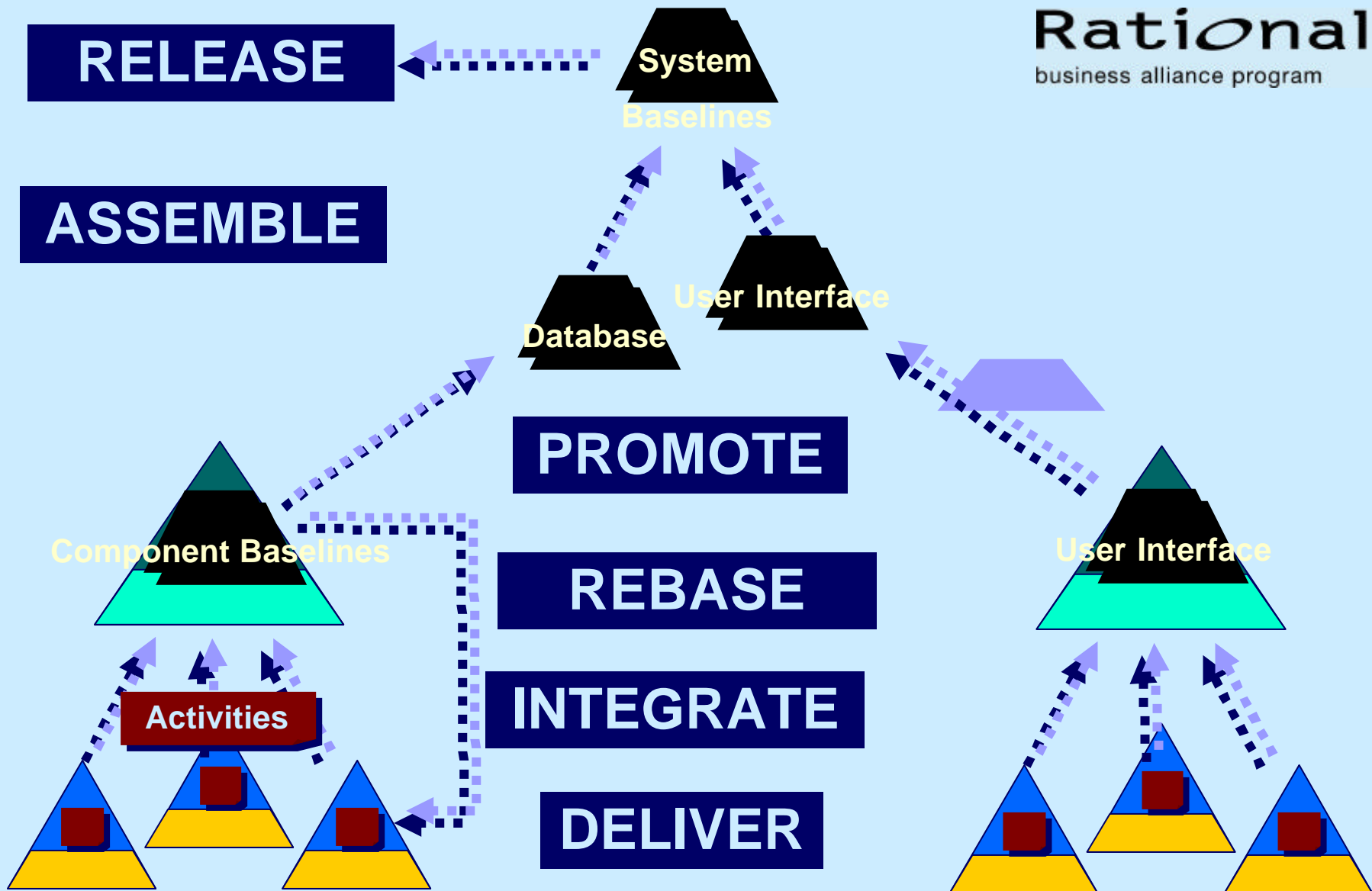


# SCM at CMM Level 2 - RUP

## Documented CM Process

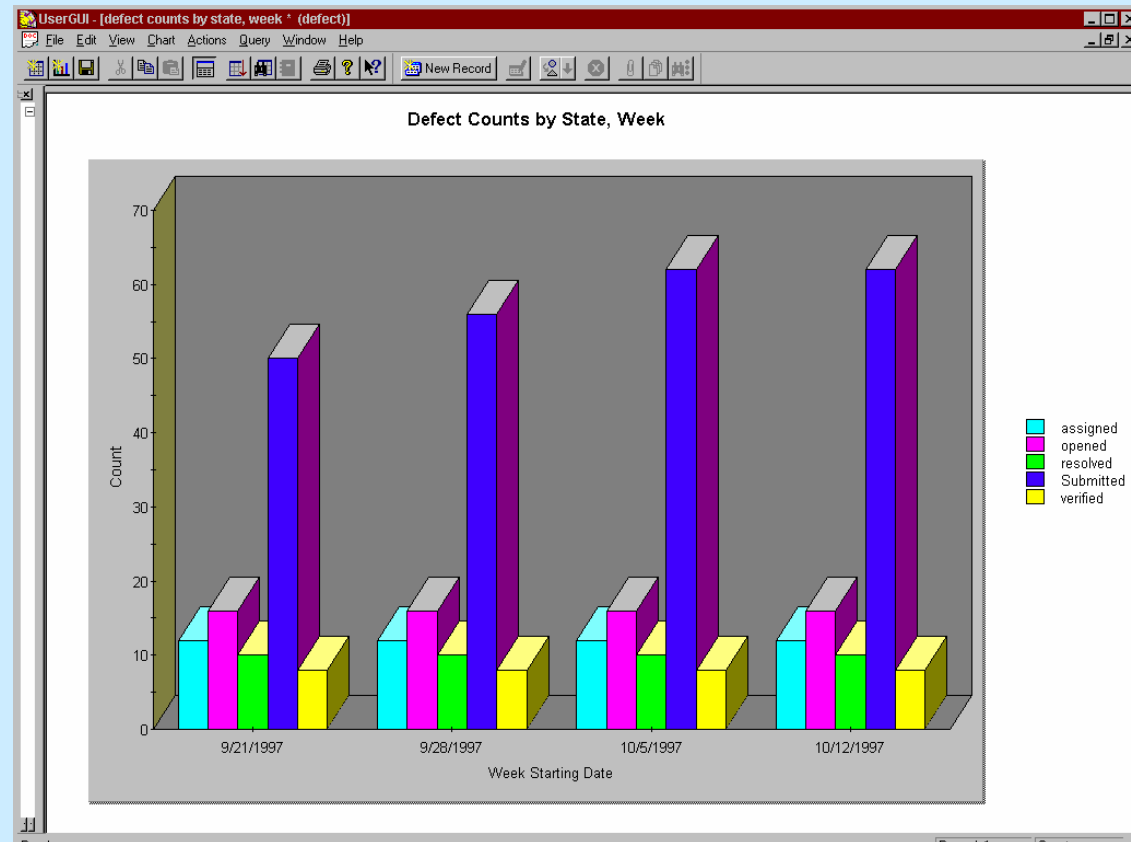


# SCM at CMM Level 2 - UCM



# SCM at CMM Level 2

- Management Policies
- Oversight
- Measurements



# CM Advantages at Level 2

- Project is under control
  - Documents
  - Deliverables
  - Etc.
- The Process is repeatable
  - Deliver with confidence
  - Analyse the Impact of Change
- Better able to make CM decisions
- The Project starts to develop a set of product assets



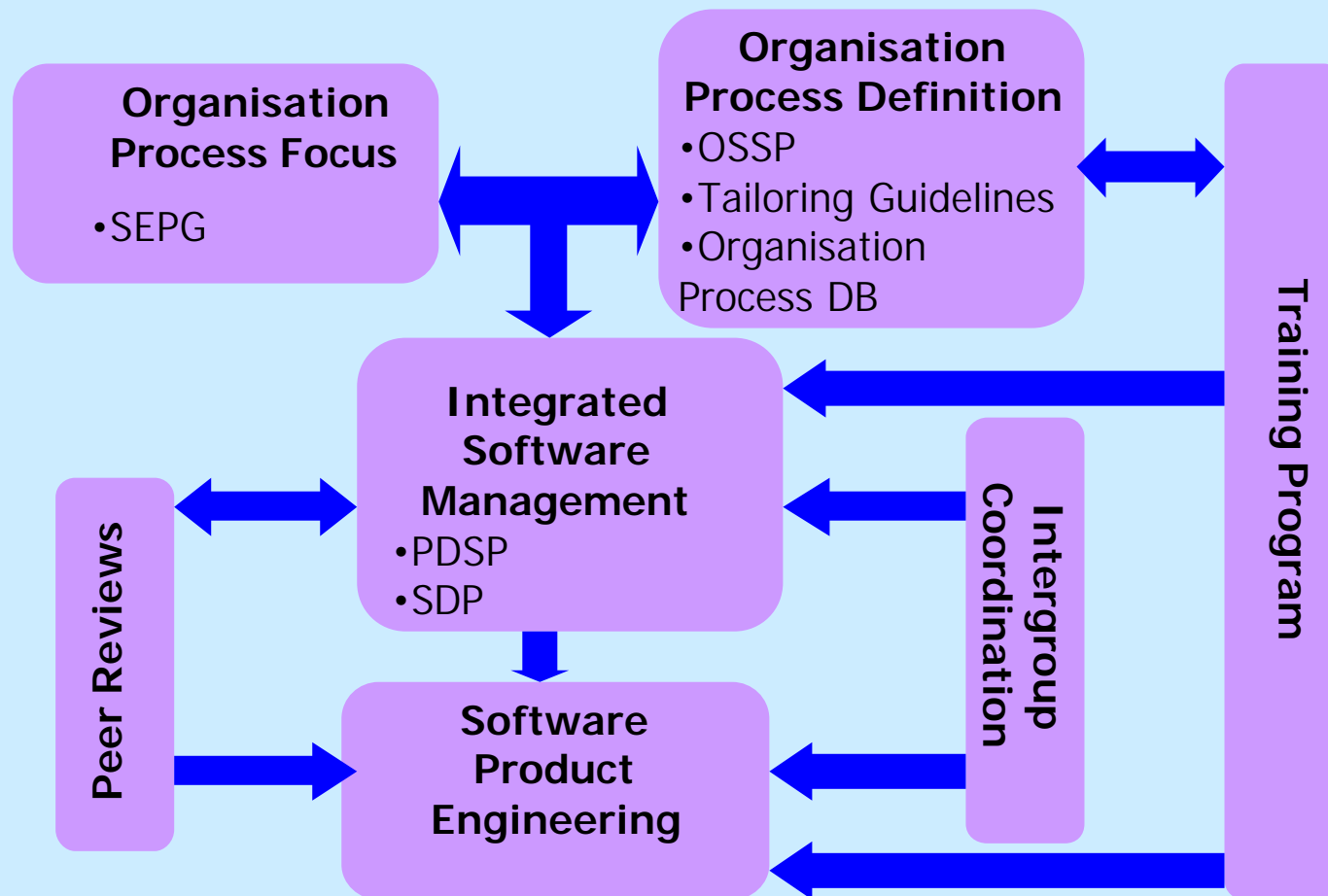
# SCM at CMM Level 3 - Defined

- Typically at level 2, the SCM approach is worked out separately for each project
- Level 3 allows the organisation as a whole to build on the good and bad experiences from previous projects
- The OSSP, Process Library & Tailoring Guidelines provide:
  - A framework for developing a consistent, effective approach pertinent to the needs of the individual project
  - Tools introduction is managed in an organisational context
- Organisational Competence in SCM is Assured

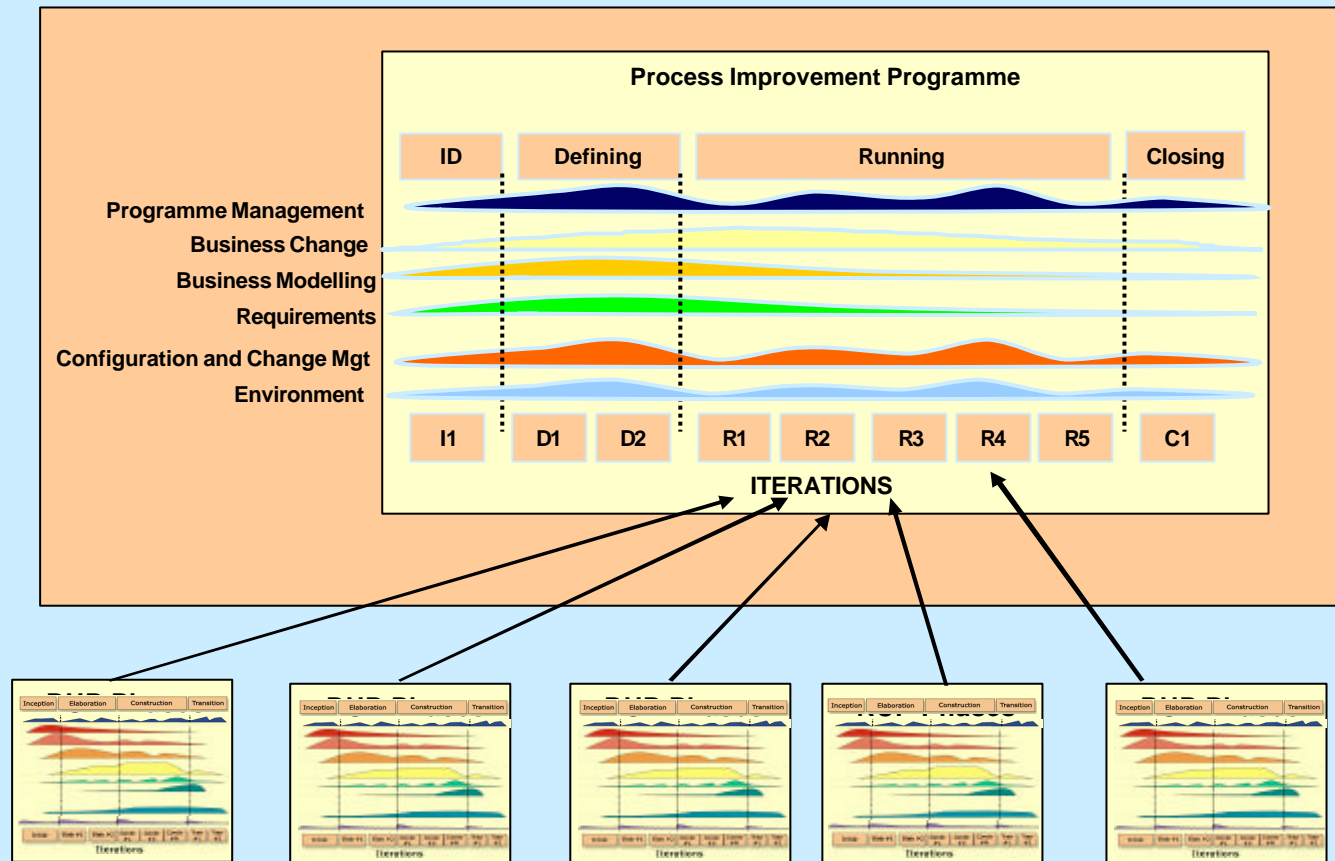
**SCM Manager doesn't have to re-invent the wheel each time**



# CMM Level 3 KPAs – The Importance of the OSSP



# SCM at CMM Level 3 - RUP

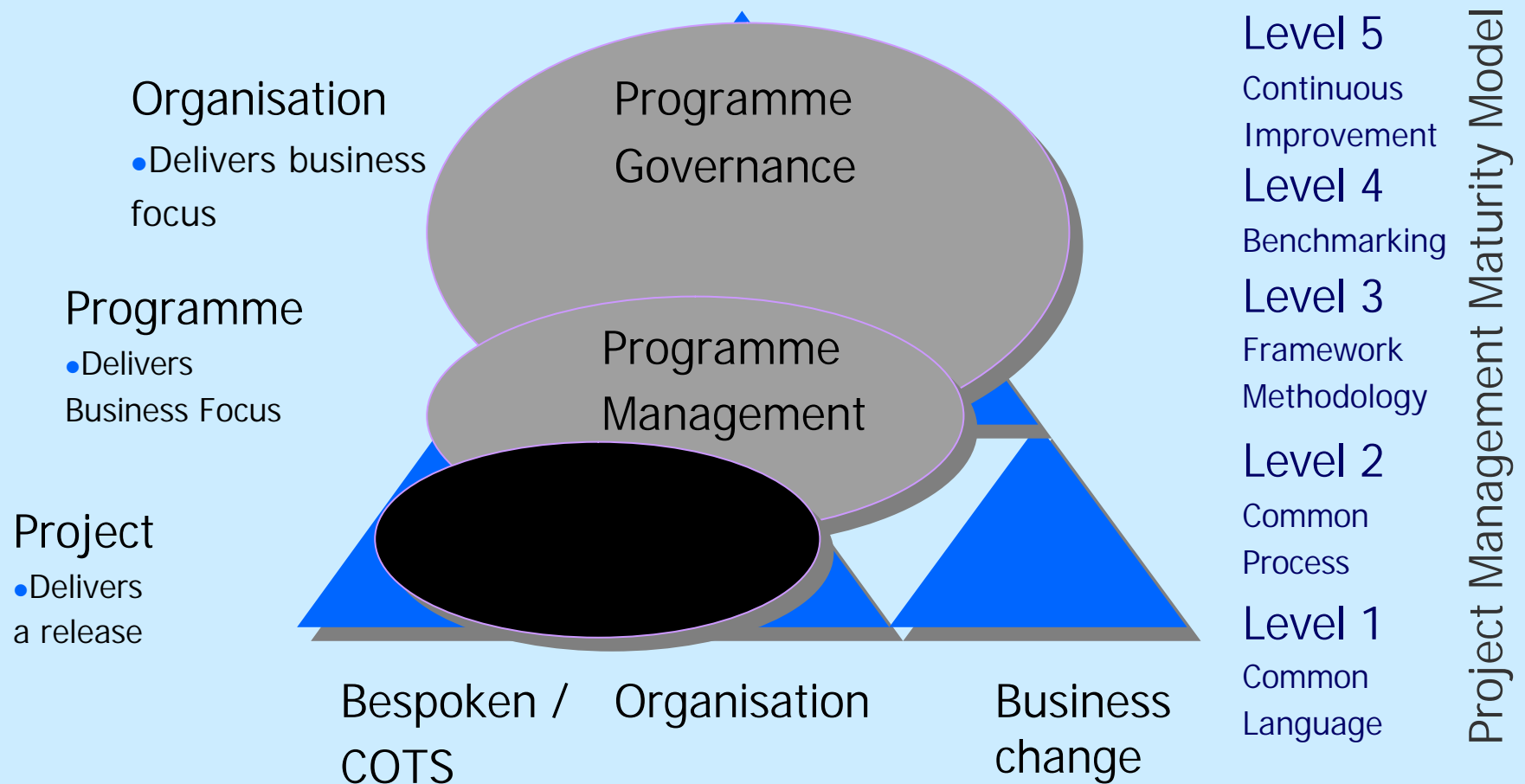


CM Process Adopted across the organisation



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# Enabling Common Processes



# CM Advantages at Level 3

- Standardisation increases organisational flexibility
  - Staff can be moved between projects with relative ease
  - Shorted Learning curve
  - Project ramp up time is reduced
- Trend Analysis Across the Organisation
- Configuration Management of the Process is attained
  - Process Improvement can happen.
  - Harvest Best Practice
  - Centralised Tool & Process Management
- More Predictable Projects

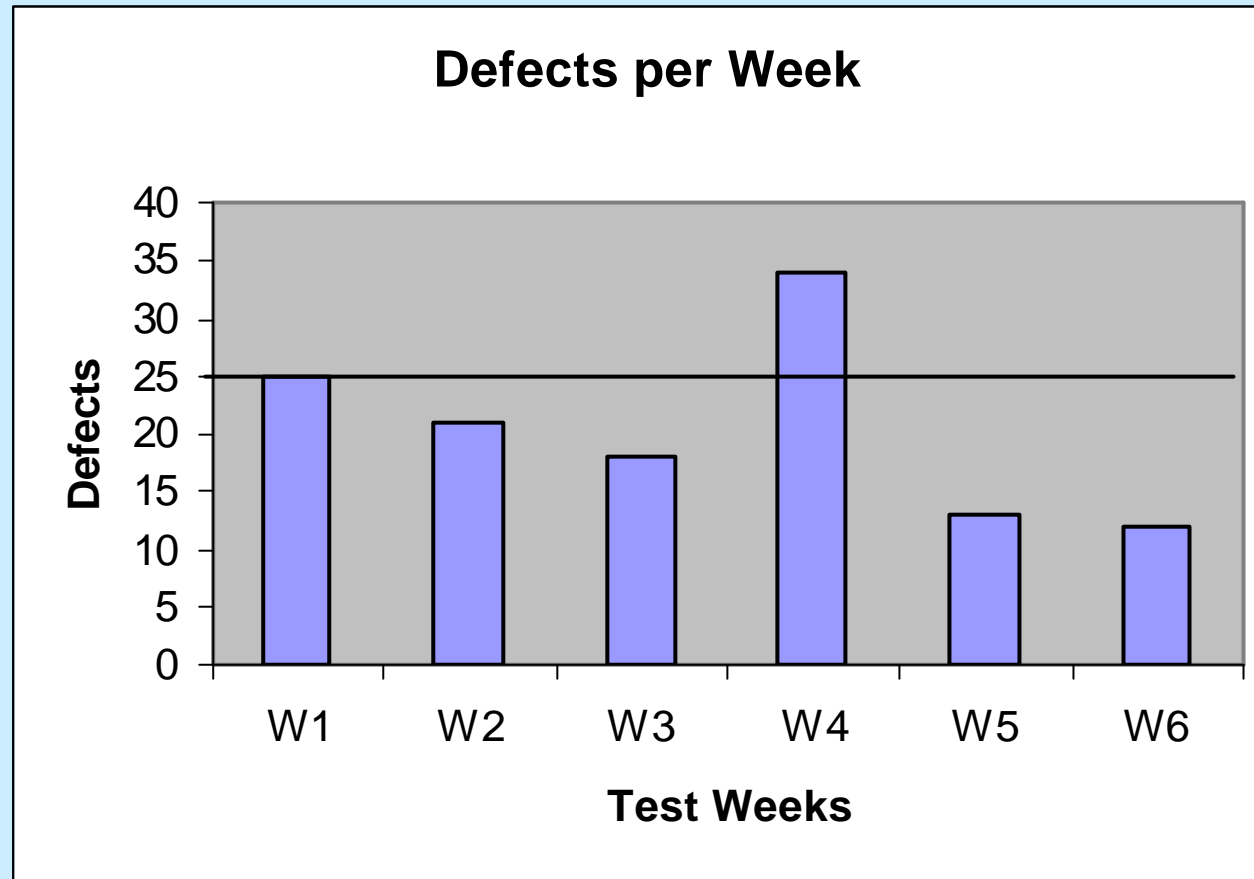


# SCM at CMM Level 4 - Managed

- Principles of Statistical Process Control start to be used
- Measurements of and from the Configuration Management System start to provide “in-flight” information
- Configuration management moves from a static picture to a more dynamic one
- The increased information available enhances the ability to share assets across the whole organisation

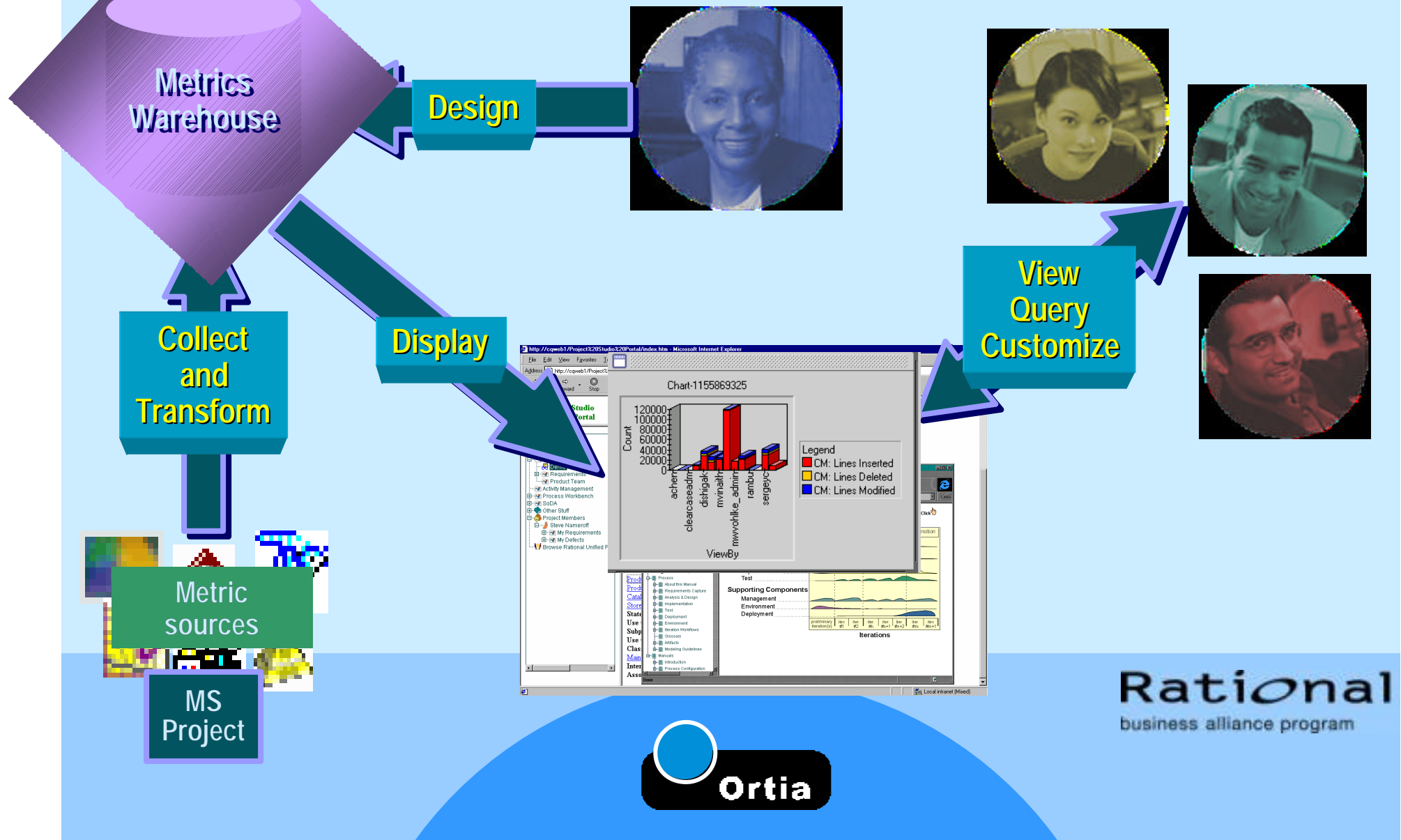


# Process Control Charts



**Ortia**

# 'In flight' Information



# CM Advantages at Level 4

- In-flight information is highly available
  - The speed of information is increased
  - Problems are identified early
  - The size, nature, locale and impact of the problem can be better identified
  - Remedial action is swift
- Organisation can be pro-active not re-active

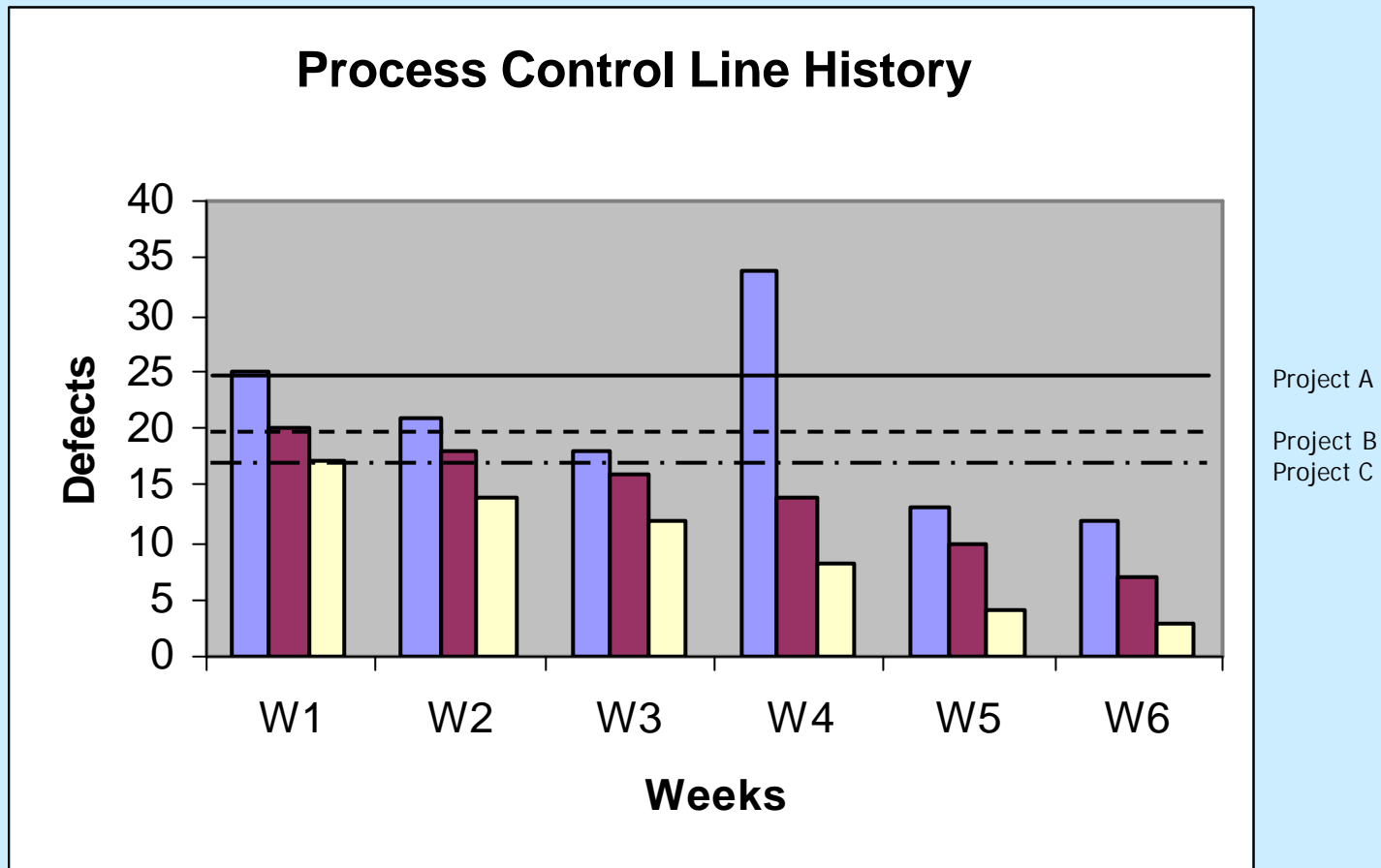


# SCM at CMM Level 5 - Optimising

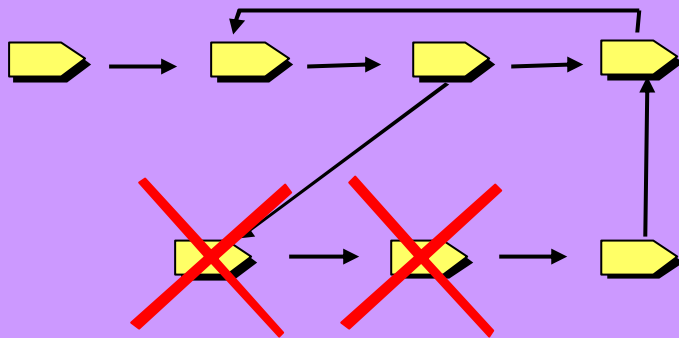
- The ability of the organisation to adopt new processes, tools, methods is highly developed
- The organisation has;
  - In depth knowledge of how it's processes operate
  - It knows how well it can adopt new approaches, tools etc.
  - It can limit its risks in new technology adoption
  - It can determine the impact such changes will have
- The Organisation can gain competitive advantage through rapid technology adoption



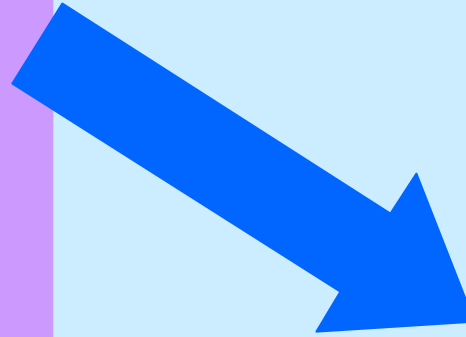
# Process Control Charts



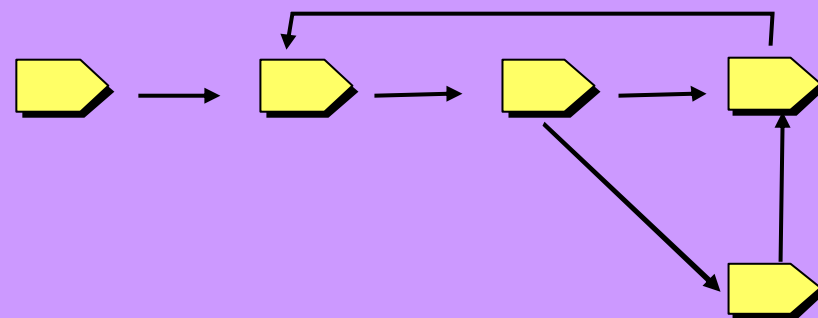
# Process Rationalisation



Improved In-flight  
information & technology  
adoption drives process  
rationalisation



Leads to  
competitive  
advantage

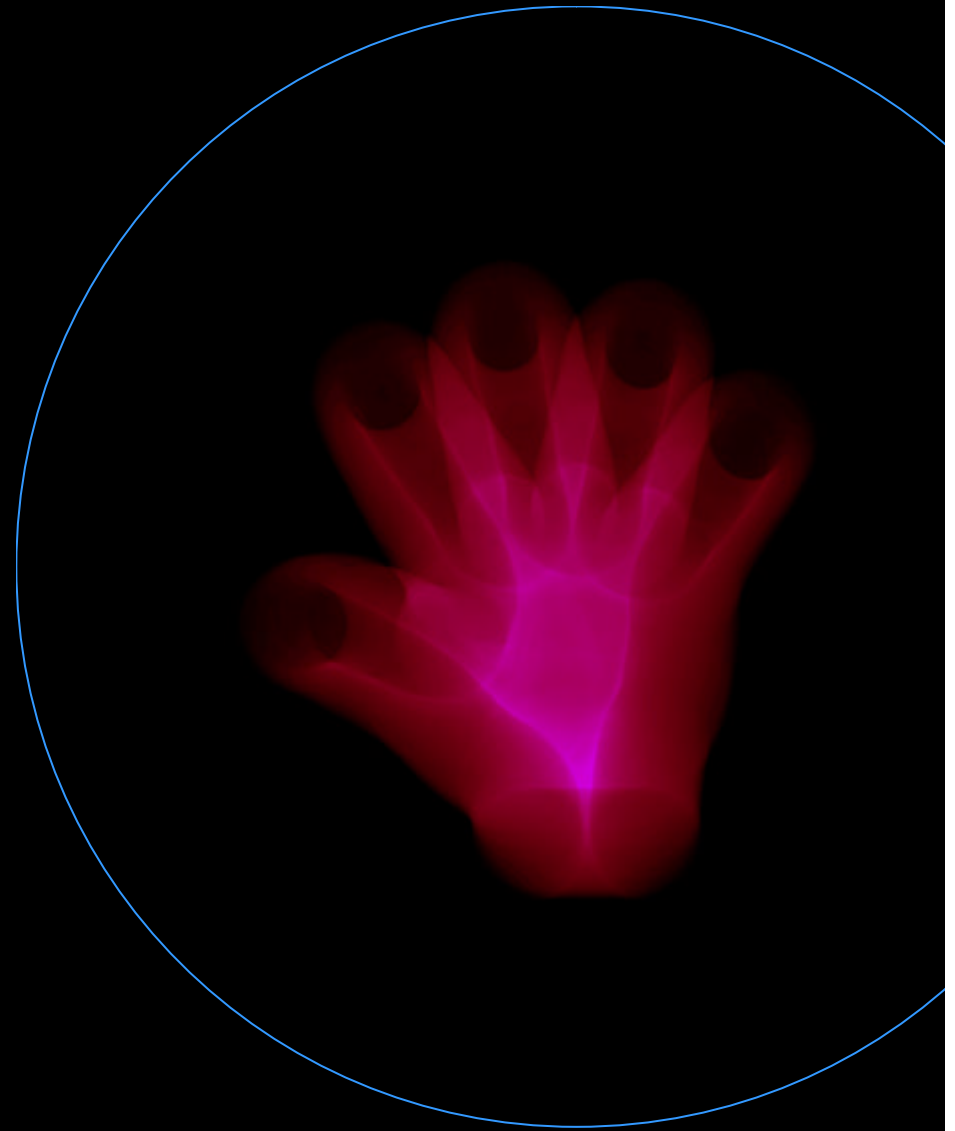


# CM Advantages at Level 5

- The ability of the organisation to adopt and adapt new technologies entails:
  - Improved capacity to optimise the cost and timescale benefits
  - Ability to optimise competitive advantage
  - Maximise use and re-use of all pertinent organisational assets

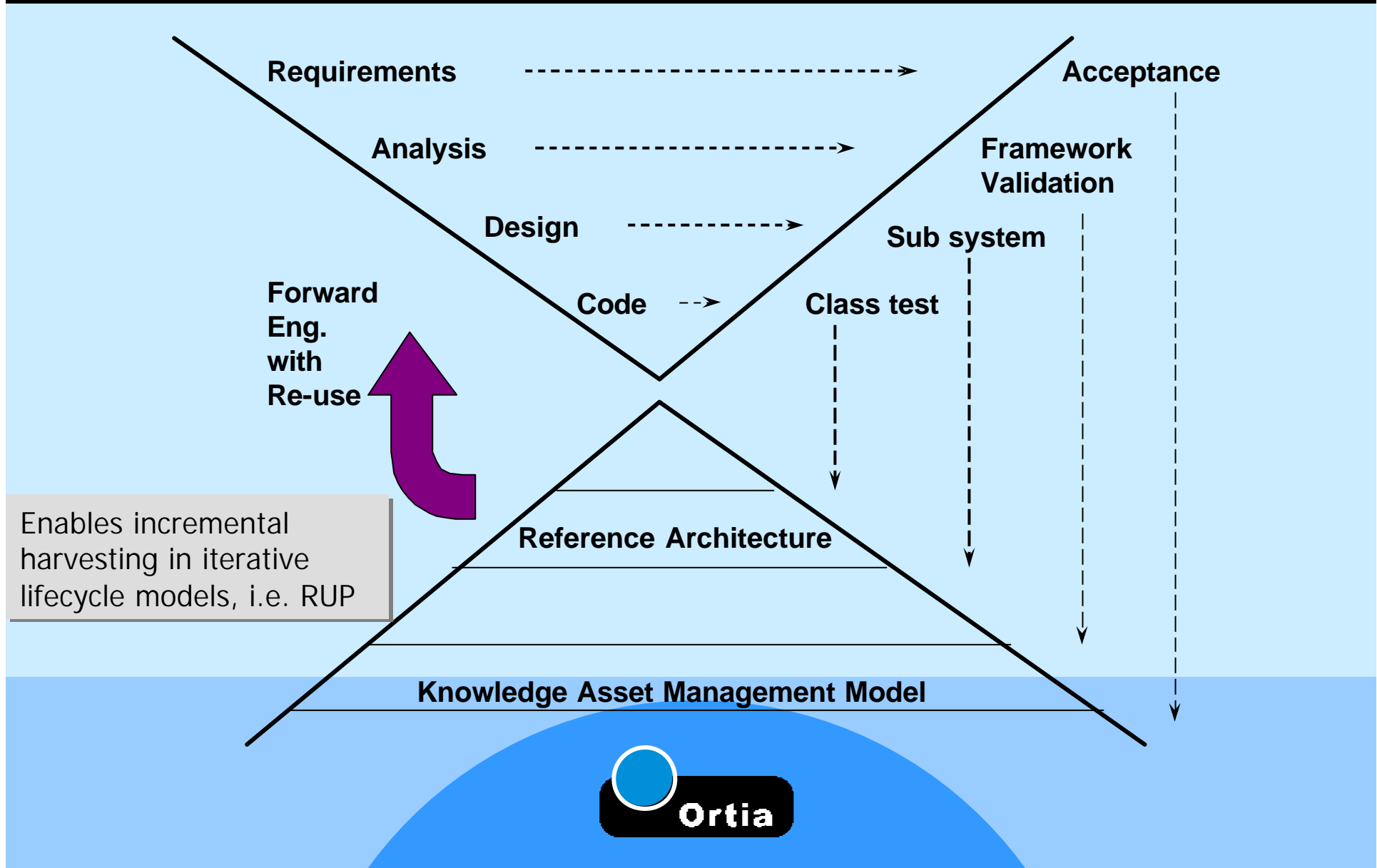


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How the Organisation's Control of  
Information Needs Change

# Software assets - the "X" model



# KAM Basic Lifecycle Phases

*But what guarantee is there that this flux, with all its individual acts, will not create chaos!  
It hinges on the close relationship between the process of creation and the process of repair.*

*C. Alexander, The Timeless Way of Building*



# Software Reuse vs Maturity

Knowledge Asset Management Levels

	<i>Business</i>	<i>System Design</i>	<i>Design</i>	<i>Class</i>	<i>Level</i>
<b>Knowledge</b>	Concept	Abstraction	Service	Subject	5
<b>Pattern</b>	Process	Blue Print	Design Pattern	Idiom	4
<b>Architecture</b>	Workflow	Contracts	Service	Component	3
<b>Model</b>	Domain	Interfaces	Package	Class	2
<b>Code</b>	Application	Framework	Library	Source	1
	0.4	0.3	0.2	0.1	

Optimised

Managed

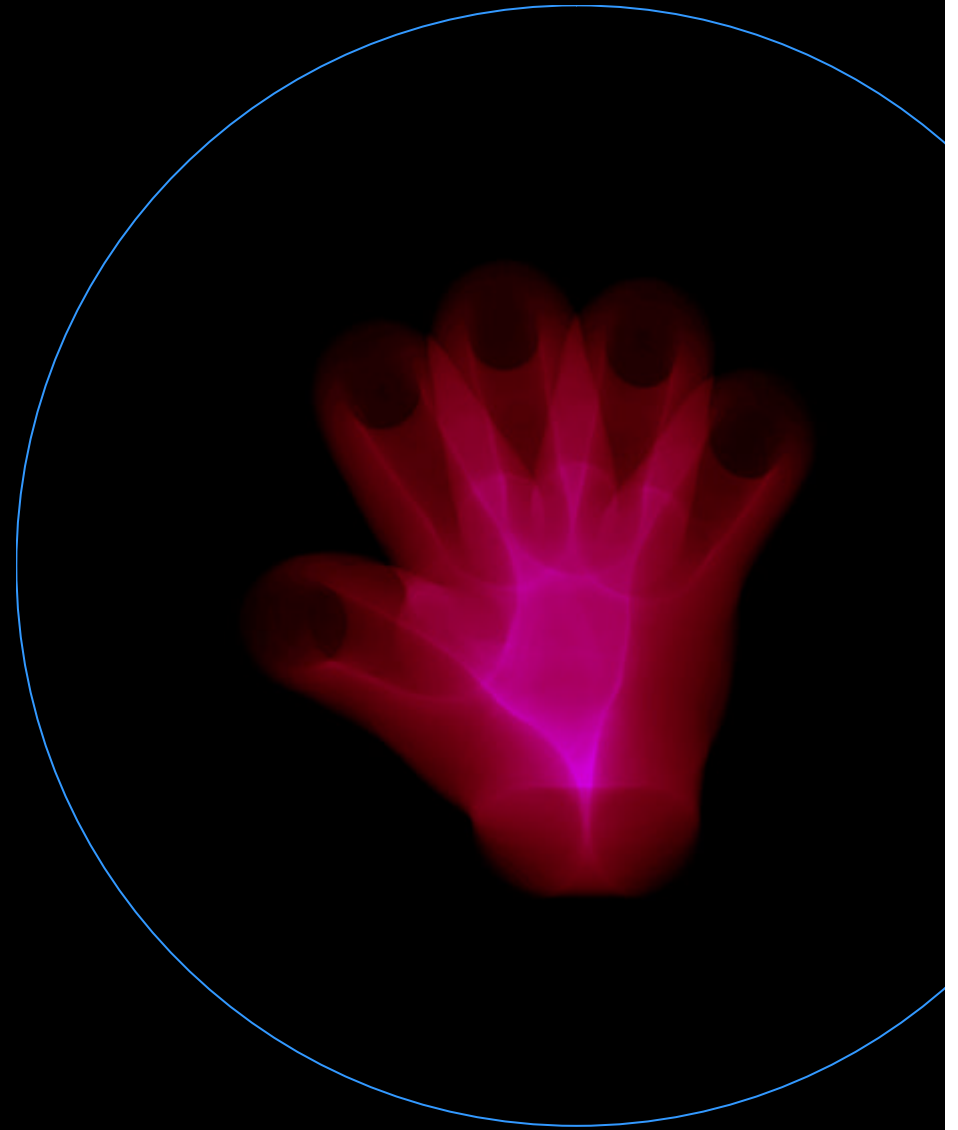
Defined

Repeated

Initial



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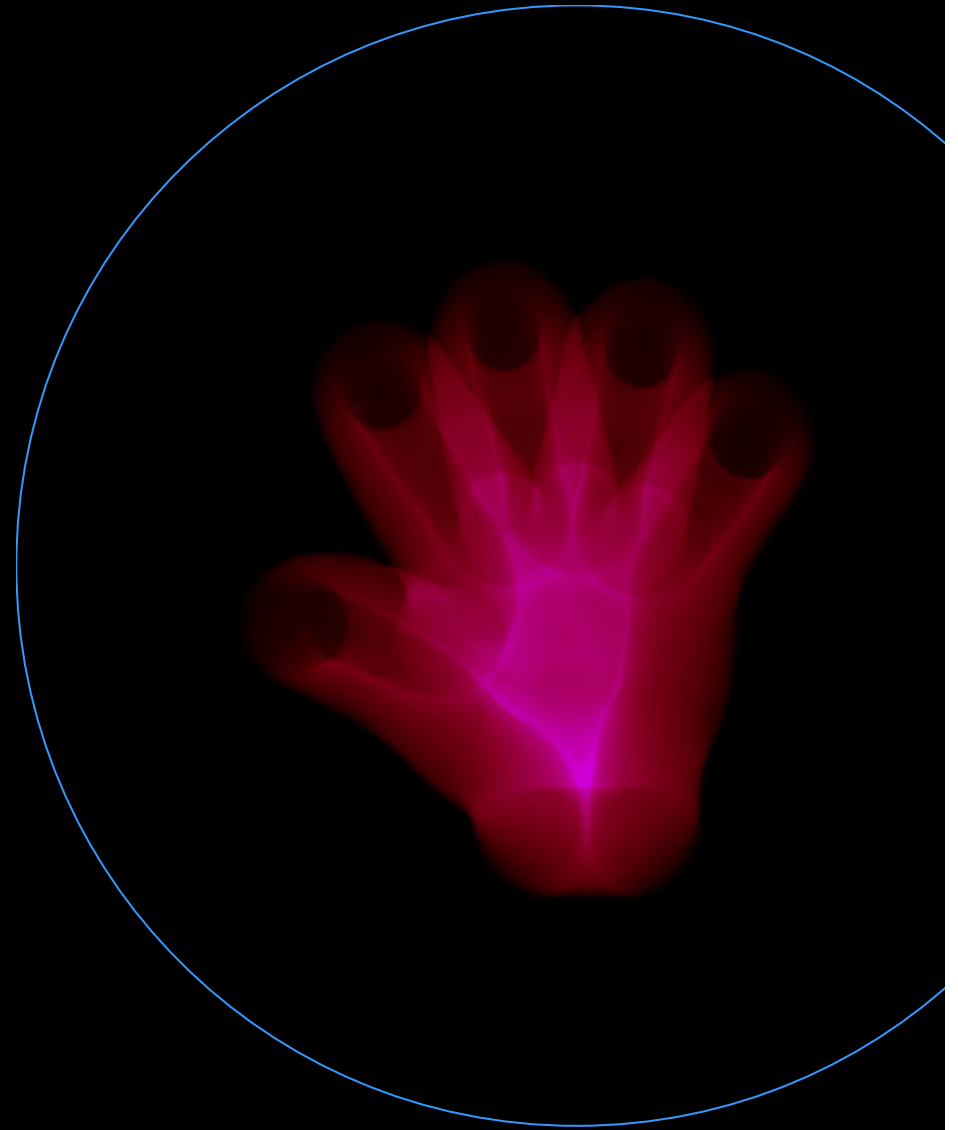
# Summary

As you move up through the CMM Maturity Levels

- More Predictable Software Projects
- Improved 'In-flight' Information
- Better Ability to Adopt New Process, Methods & Technology
- Harvesting of Re-usable Assets moves up the value chain
  - Low level to high level business advantages



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Questions?

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