Implementing MSF to drive Competitive Advantage

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Agenda

- Why Process?
- MSF for Agile Software Development
- MSF for CMMI Process Improvement
- Trustworthy Transparency
- Continuous Improvement
- Implementing MSF

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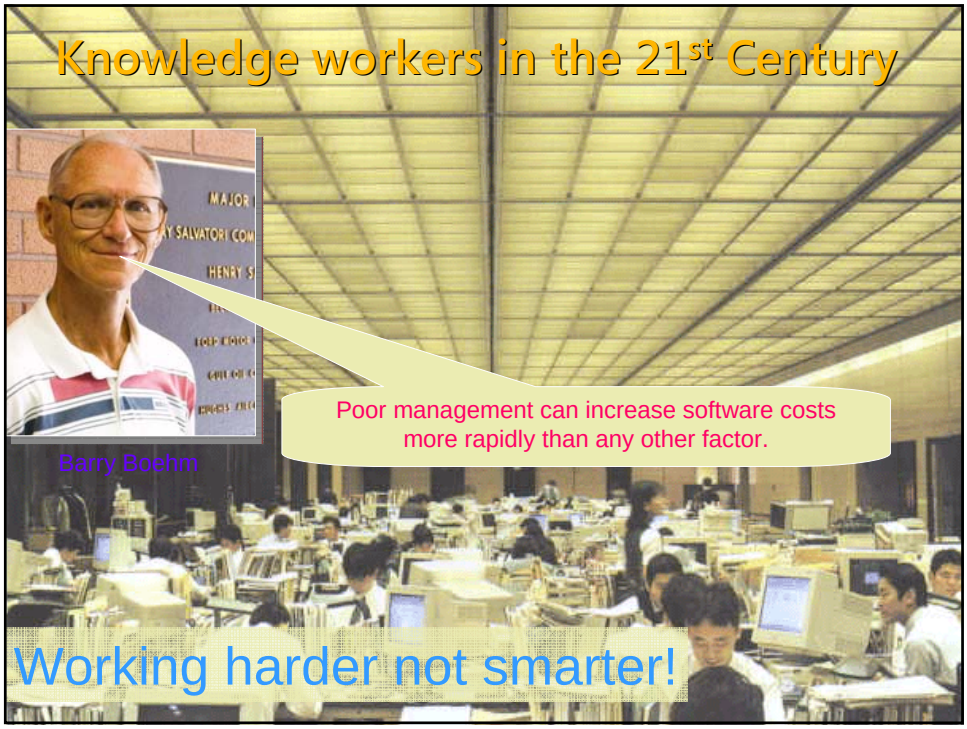

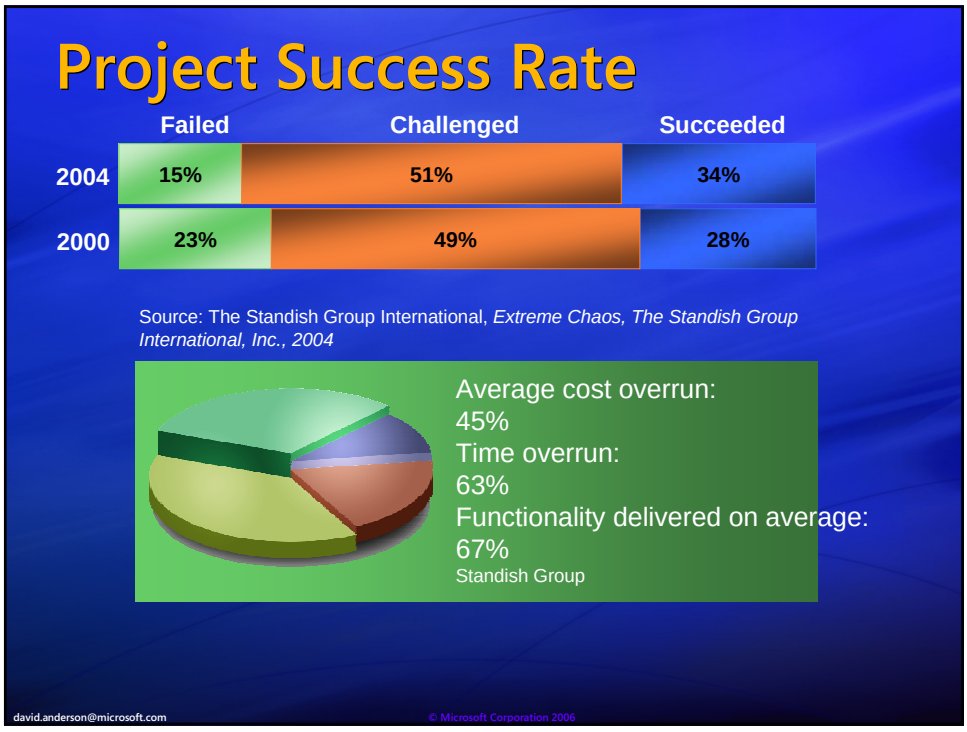

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Project Management in Software Engineering Today – 2006!

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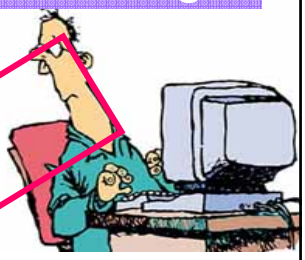
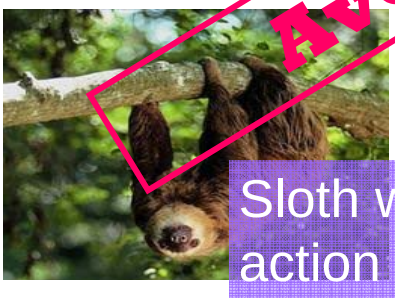
Mistake #1
Tampering

Interfering micromanager



Avoid

Mistake #2
Lack of Supervision



Sloth who doesn't take action when required

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Our Approach

Focus on People, Process and Tools

People	Process	Tools
• Visibility at every level • Real-time flow of information • Quality mindset • Team of peers	• Customizable • Lightweight • Patterns and practices • Agile and CMMI built-in	• Highly integrated • Productive • Quality tools for everyone • Extensible • Low admin

Successful IT organizations build application development capabilities through continuous improvement (Kaizen).

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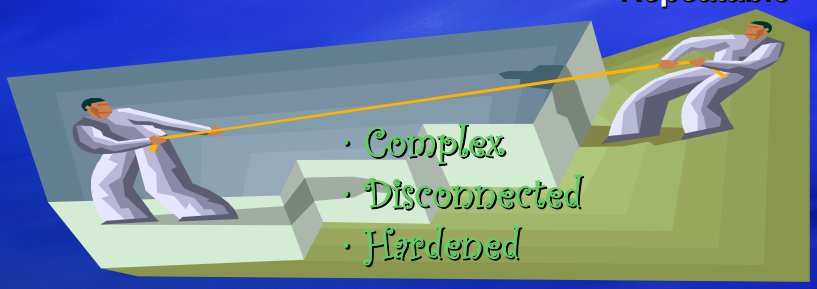
The Problem with Process

Productive

Predictable
Repeatable



Challenges
- Getting people to know about it
- Getting people to use it

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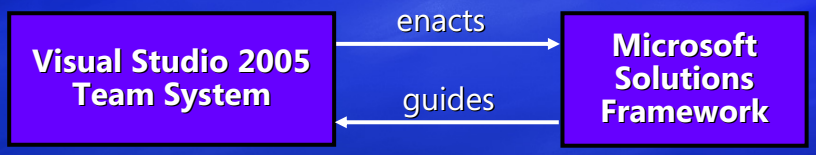
Process & Tools Integration



- How VSTS enables MSF?
  - Productivity tools & processes
  - Integrated tools & processes
  - Extensible tools & processes

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The Origin of MSF

- Results from project teams and product groups are analyzed
- Analyzed results are contrasted with industry practices and methods
- Combined results are then organized and consolidated into "people and process"

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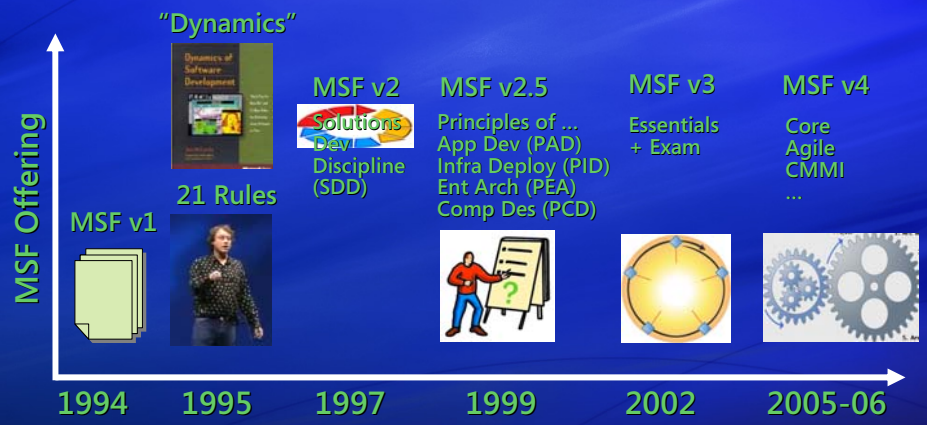
A Brief History



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MSF for Agile Software Development

- MSF for Agile Software Development is an iterative, scenario-driven, context-based software development process for building .NET, Web, Web Service, and other object-oriented applications.

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Essence of Agile

- Embraces Agile Manifesto, and…
- Enacts process in VSTS
- Full-lifecycle Agile Process
  - Business Analyst and Tester
  - Embraces Architecture
  - Designed to fit typical mid-size IT department
  - Builds on MSF v3
    - Team Model

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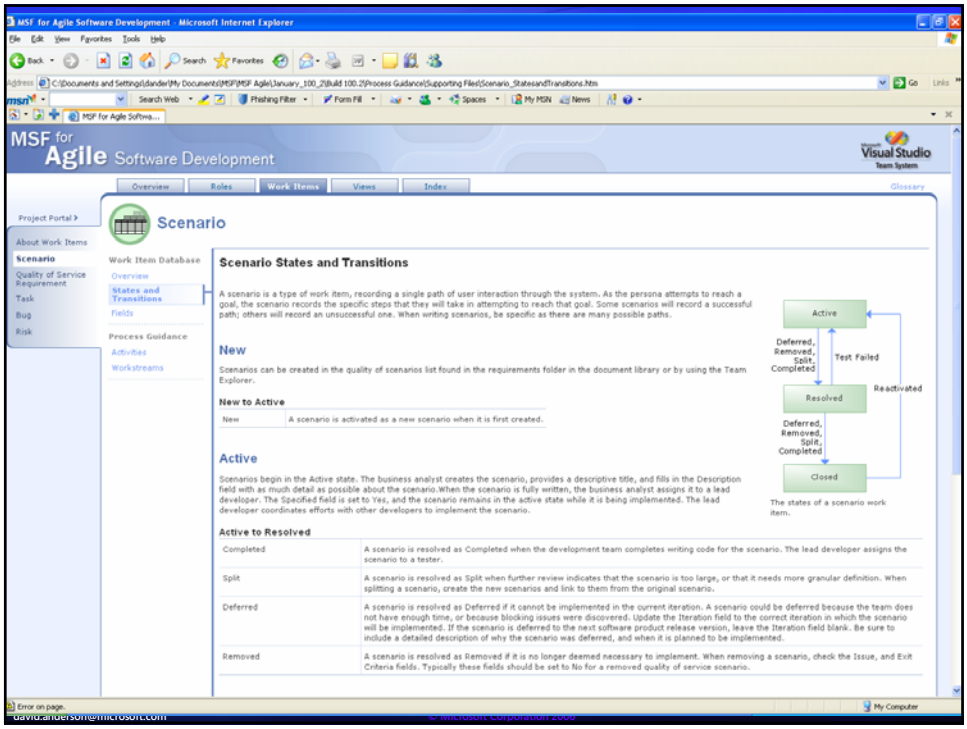

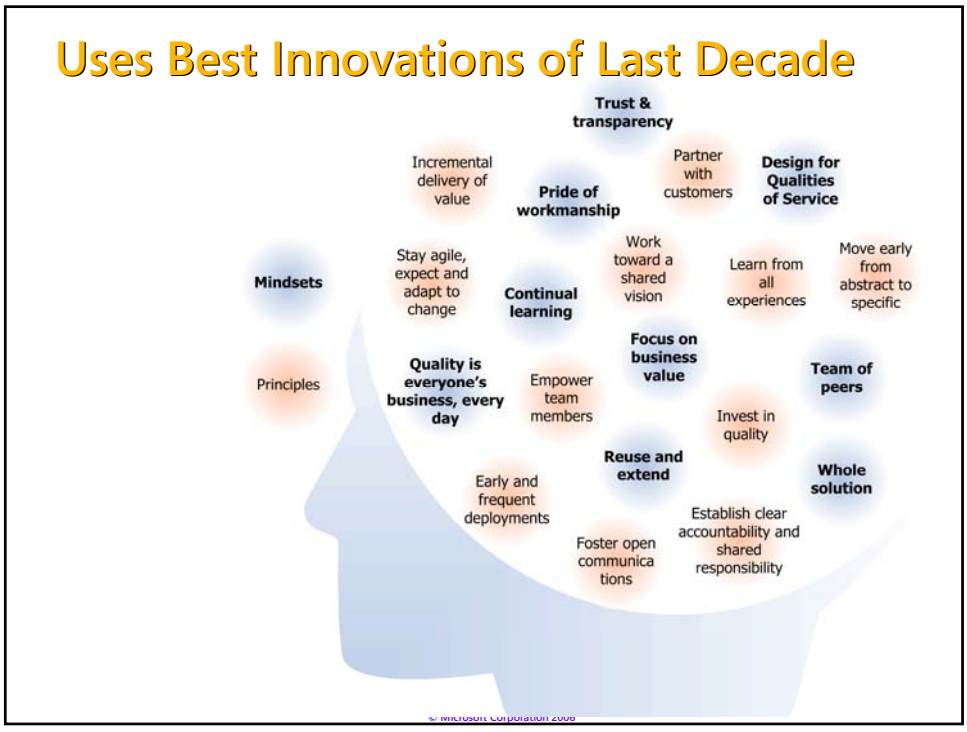

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Principles and Mindsets

Mindsets (individual approach)	Principles (govern team decisions)
1. Focus on Business Value	1. Partner with Customers
2. Advocate for Appropriate Constituencies of Risk	2. Work Toward a Shared Vision
3.Take Pride in Workmanship	3. Deliver Incremental Value
4. Deliver on Commitments	4. Invest in Quality
5. Look at the Big Picture	5. Empower Team Members
6. Foster a Team of Peers	6. Establish Clear Accountability
7. Practice Good Project Citizenship	7. Learn from All Experiences
8. Learn Continually	8. Foster Open Communications
9. Internalize Qualities of Service	9. Stay Agile, Adapt to Change

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MSF for CMMI Process Improvement

- The first truly agile CMMI process implementation. Based on MSF for Agile Software Development
- Delivers on the original vision for CMM (1987) to implement the teachings of W. Edwards Deming on Quality Assurance for software engineering
- Process activities and artifacts mapped directly to CMMI Appraisal evidence
- Accelerates achievement of CMMI Level 3

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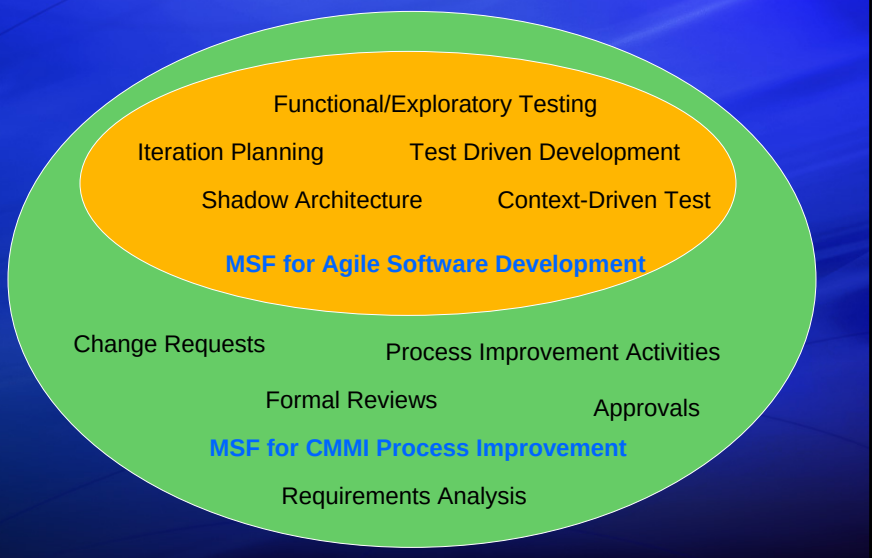
Agile or CMMI?



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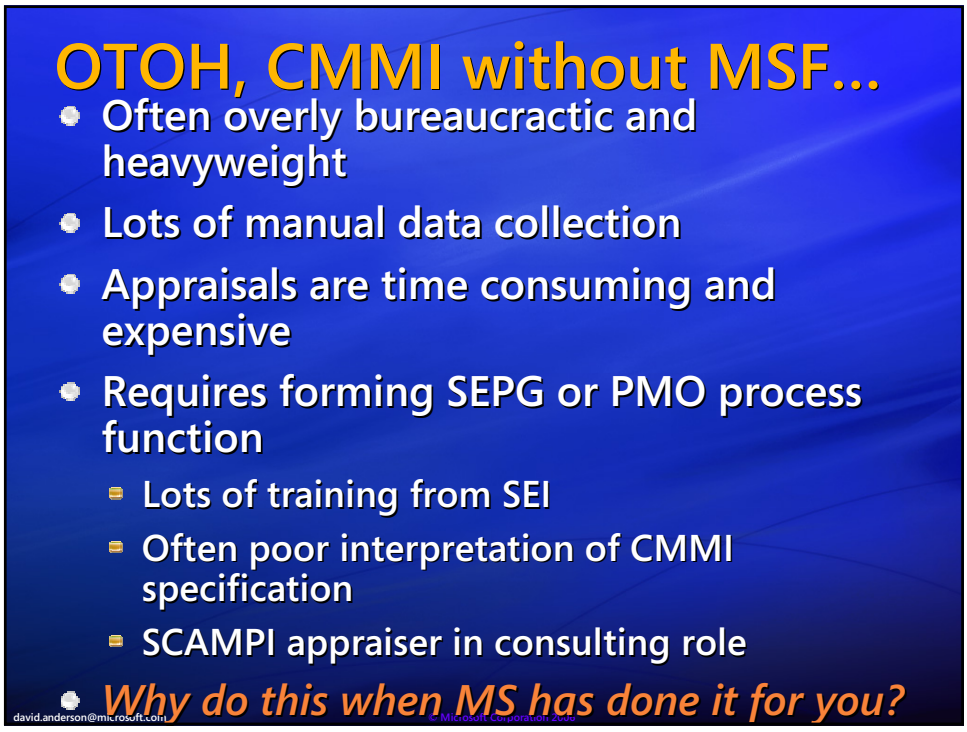

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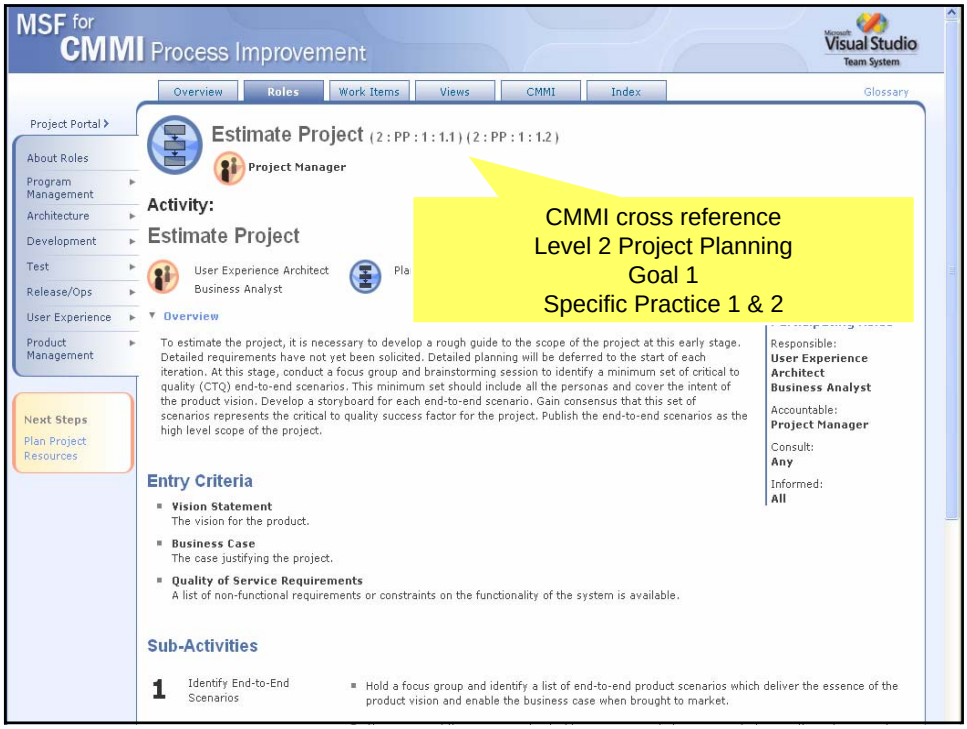

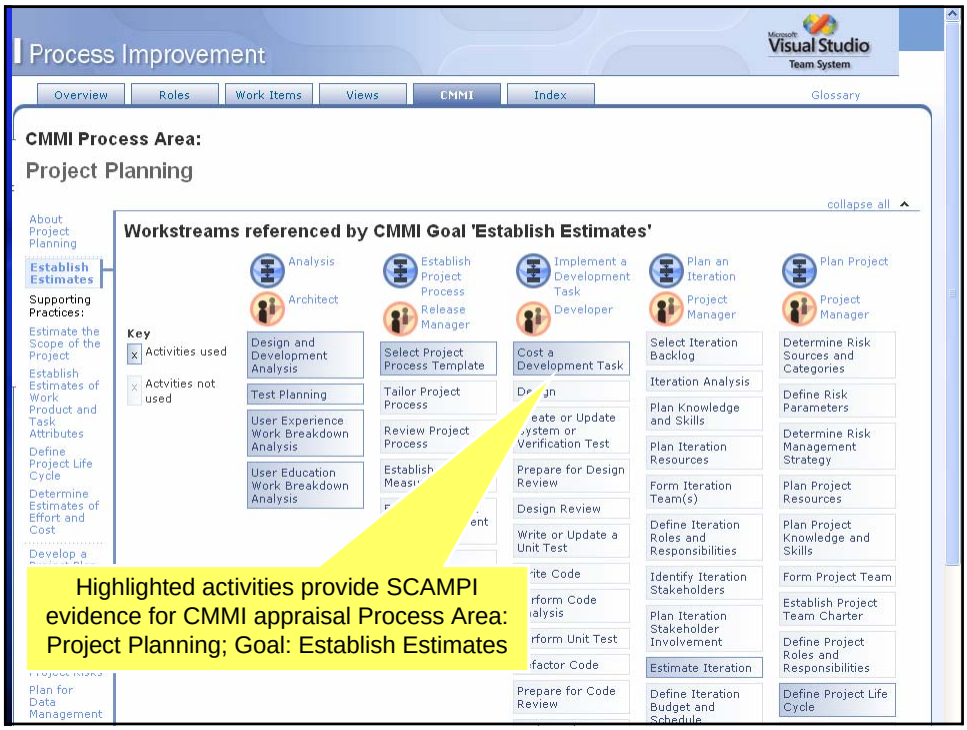

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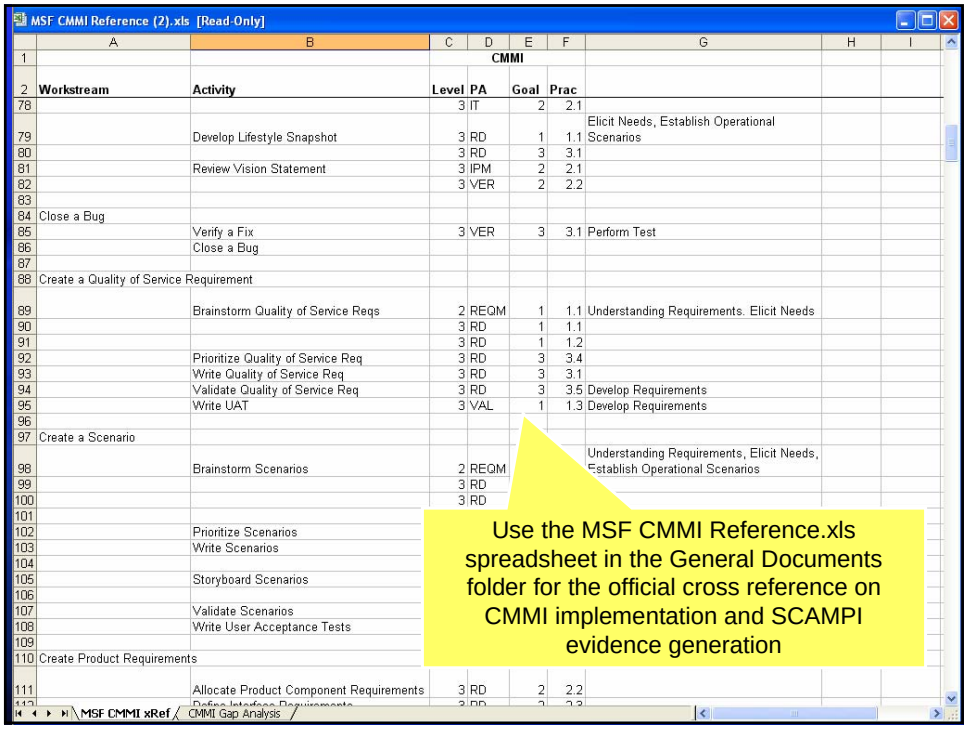
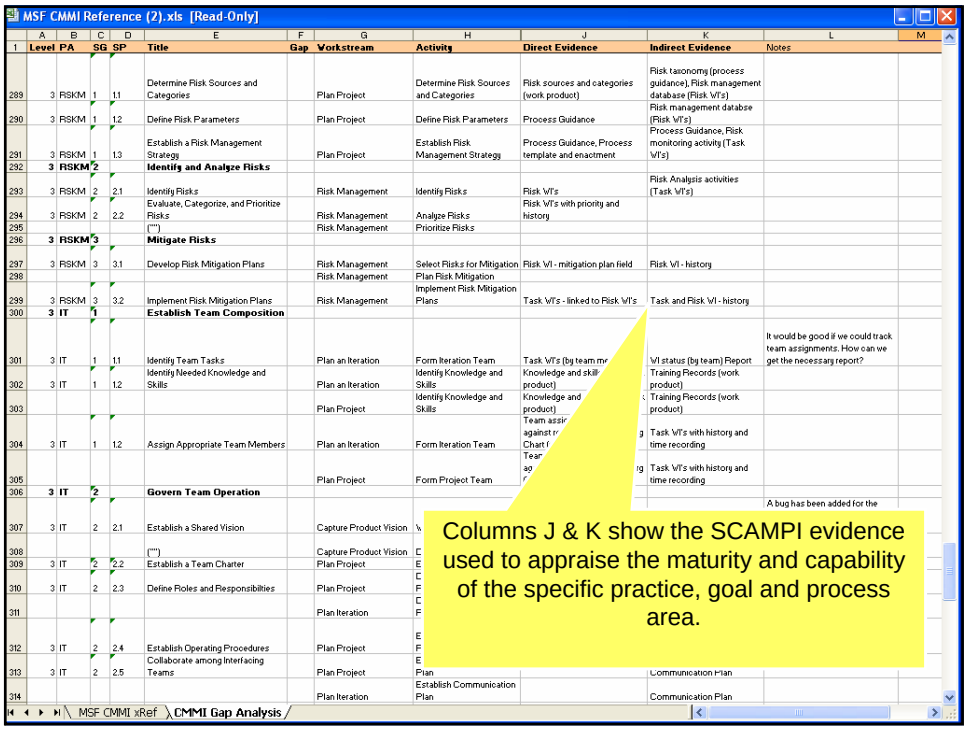


	A	B	C	D	E	F	G	H	I
1				CMMI					
2	**Workstream**	**Activity**	**Level**	**PA**	**Goal**	**Prac**			
78			3	IT	2	2.1			
79		Develop Lifestyle Snapshot	3	RD	1	1.1	Elicit Needs, Establish Operational Scenarios		
80			3	RD	3	3.1			
81		Review Vision Statement	3	IPM	2	2.1			
82			3	VER	2	2.2			
83									
84	Close a Bug								
85		Verify a Fix	3	VER	3	3.1	Perform Test		
86		Close a Bug							
87									
88	Create a Quality of Service Requirement								
89		Brainstorm Quality of Service Reqs	2	REQM	1	1.1	Understanding Requirements. Elicit Needs		
90			3	RD	1	1.1			
91			3	RD	1	1.2			
92		Prioritize Quality of Service Req	3	RD	3	3.4			
93		Write Quality of Service Req	3	RD	3	3.1			
94		Validate Quality of Service Req	3	RD	3	3.5	Develop Requirements		
95		Write UAT	3	VAL	1	1.3	Develop Requirements		
96									
97	Create a Scenario								
98		Brainstorm Scenarios	2	REQM			Understanding Requirements, Elicit Needs, Establish Operational Scenarios		
99			3	RD					
100			3	RD					
101									
102		Prioritize Scenarios							
103		Write Scenarios							
104									
105		Storyboard Scenarios							
106									
107		Validate Scenarios							
108		Write User Acceptance Tests							
109									
110	Create Product Requirements								
111		Allocate Product Component Requirements	3	RD	2	2.2			



	A	B	C	D	E	F	G	H	J	K	L	M
1	**Level**	**PA**	**SG**	**SP**	**Title**	**Gap**	**Workstream**	**Activity**	**Direct Evidence**	**Indirect Evidence**	Notes	
289	3	RSKM	1	1.1	Determine Risk Sources and Categories		Plan Project	Determine Risk Sources and Categories	Risk sources and categories (work product)	Risk taxonomy (process guidance), Risk management database (Risk WI's)		
290	3	RSKM	1	1.2	Define Risk Parameters		Plan Project	Define Risk Parameters	Process Guidance	Risk management databse (Risk WI's)		
291	3	RSKM	1	1.3	Establish a Risk Management Strategy		Plan Project	Establish Risk Management Strategy	Process Guidance, Process template and enactment	Process Guidance, Risk monitoring activity (Task WI's)		
292	**3**	**RSKM**	**2**		**Identify and Analyze Risks**							
293	3	RSKM	2	2.1	Identify Risks		Risk Management	Identify Risks	Risk WI's	Risk Analysis activities (Task WI's)		
294	3	RSKM	2	2.2	Evaluate, Categorize, and Prioritize Risks		Risk Management	Analyze Risks	Risk WI's with priority and history			
295					("")		Risk Management	Prioritize Risks				
296	**3**	**RSKM**	**3**		**Mitigate Risks**							
297	3	RSKM	3	3.1	Develop Risk Mitigation Plans		Risk Management	Select Risks for Mitigation	Risk WI - mitigation plan field	Risk WI - history		
298							Risk Management	Plan Risk Mitigation				
299	3	RSKM	3	3.2	Implement Risk Mitigation Plans		Risk Management	Implement Risk Mitigation Plans	Task WI's - linked to Risk WI's	Task and Risk WI - history		
300	**3**	**IT**	**1**		**Establish Team Composition**							
301	3	IT	1	1.1	Identify Team Tasks		Plan an Iteration	Form Iteration Team	Task WI's (by team m	WI status (by team) Report	It would be good if we could track team assignments. How can we get the necessary report?	
302	3	IT	1	1.2	Identify Needed Knowledge and Skills		Plan an Iteration	Identify Knowledge and Skills	Knowledge and skill product)	Training Records (work product)		
303							Plan Project	Identify Knowledge and Skills	Knowledge and product)	Training Records (work product)		
304	3	IT	1	1.2	Assign Appropriate Team Members		Plan an Iteration	Form Iteration Team	Team assi against r Chart f	Task WI's with history and time recording		
305							Plan Project	Form Project Team	Tean ag	Task WI's with history and time recording		
306	**3**	**IT**	**2**		**Govern Team Operation**							
307	3	IT	2	2.1	Establish a Shared Vision		Capture Product Vision				A bug has been added for the	
308					("")		Capture Product Vision					
309	3	IT	2	2.2	Establish a Team Charter		Plan Project					
310	3	IT	2	2.3	Define Roles and Responsibilities		Plan Project					
311							Plan Iteration					
312	3	IT	2	2.4	Establish Operating Procedures		Plan Project					
313	3	IT	2	2.5	Collaborate among Interfacing Teams		Plan Project	Plan		Communication Plan		
314							Plan Iteration	Establish Communication Plan		Communication Plan		

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Trustworthy Transparency

- *VSTS lets everyone see exactly what is happening to all the customer valued work on a project. That transparency is trustworthy because it comes from the same tool that is used to do the work. It necessarily has to reflect the working reality of the project.*

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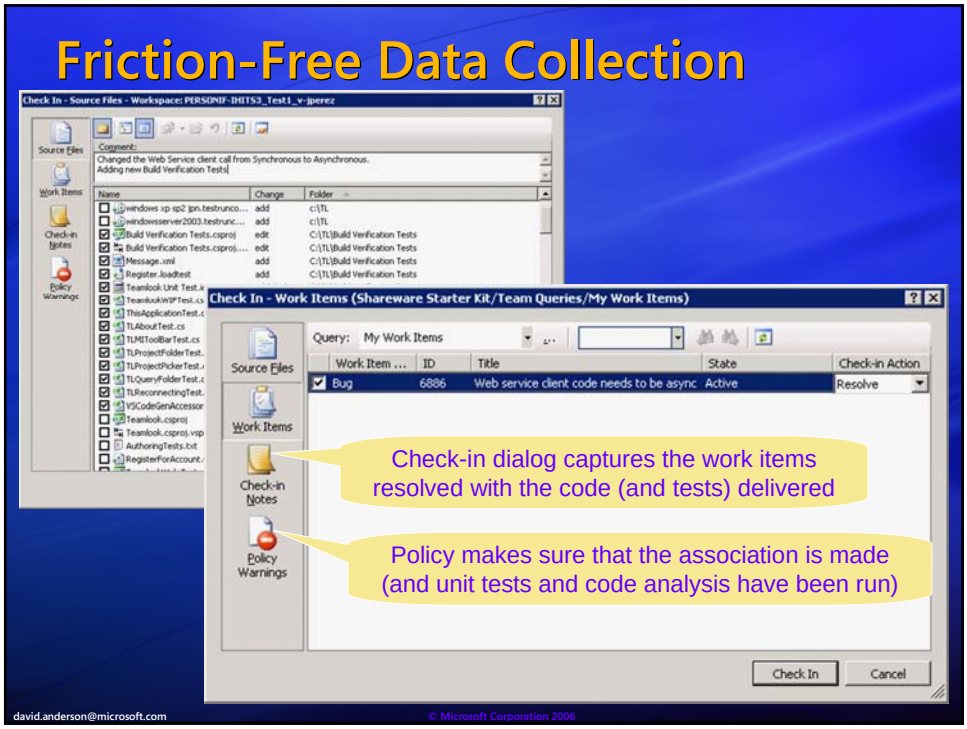
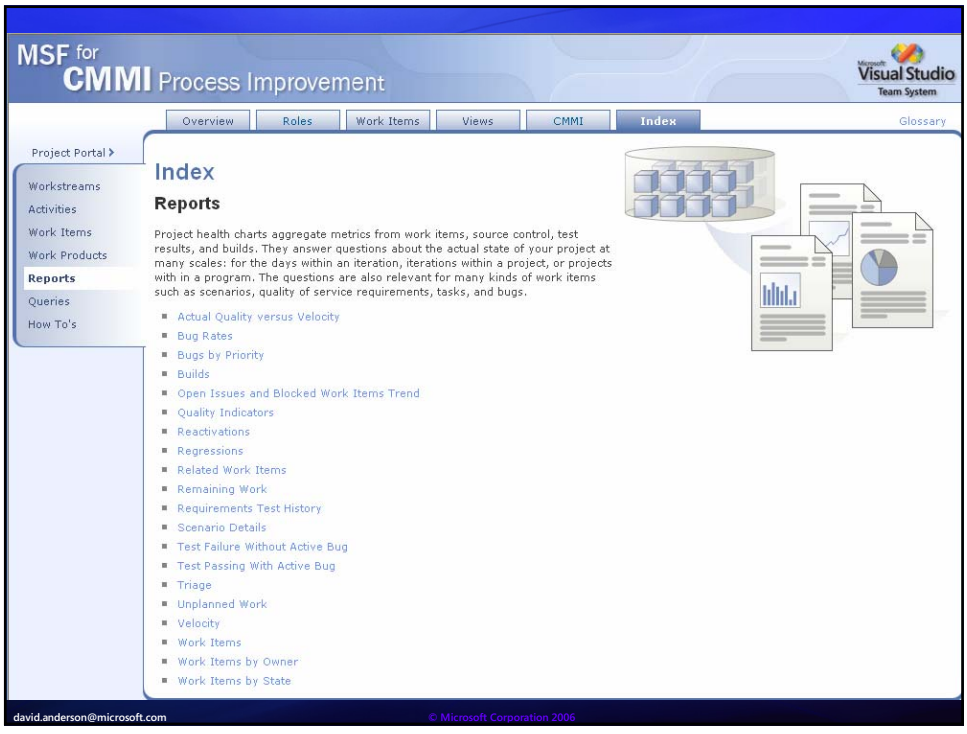
Friction-Free Data Collection





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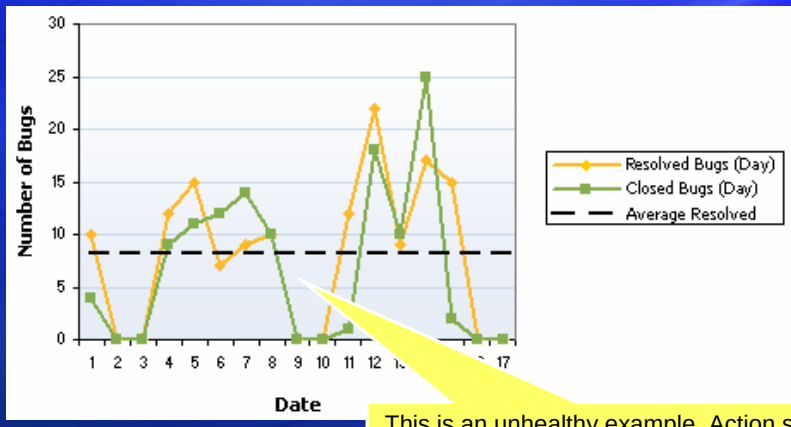
Velocity



This is an unhealthy example. Action should be taken to resolve issues blocking work items and to change the working environment to reduce randomization of team members.

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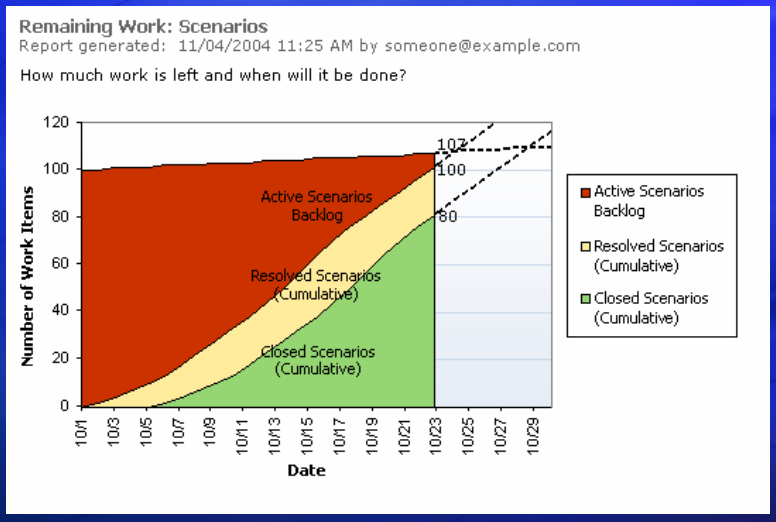
Work Remaining



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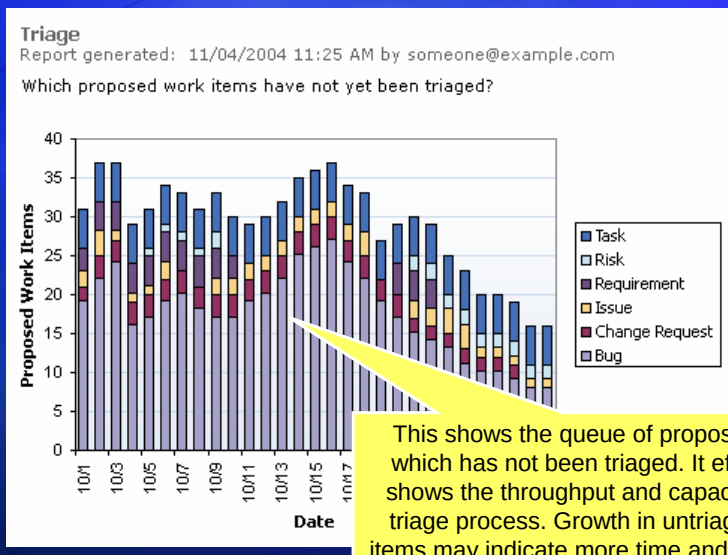
Triage



This shows the queue of proposed work which has not been triaged. It effectively shows the throughput and capacity of the triage process. Growth in untriaged work items may indicate more time and resources need to be spent on triage activties.

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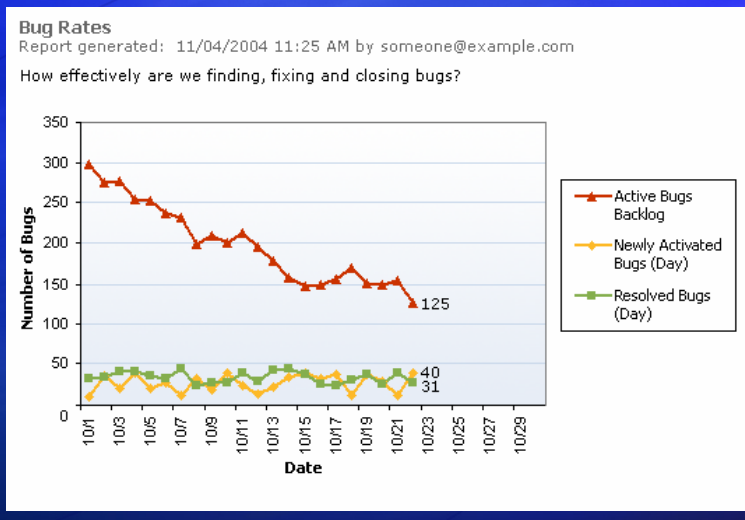
Bug Rates



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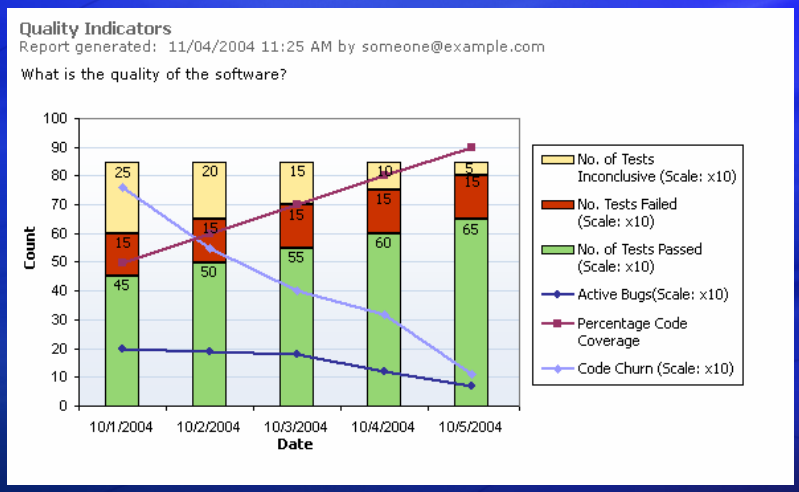
Quality Indicators



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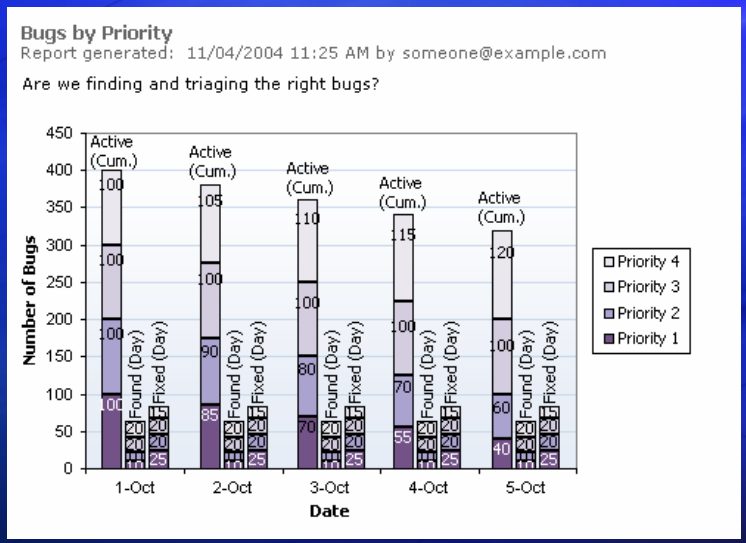
Bugs by Priority



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Builds

Builds
Report generated: 11/04/2004 11:25 AM by someone@example.com

Which builds are available and what are the build details for each?

Build ID	Build Quality	% Tests Passed	% Code Coverage	% Code Churn
41001.00	Failed	75%	42%	1.7%

Test Results: 4/4 test runs completed, 16/20 tests passed

Test Run	Total Tests	Passed	Failed	Other Result
BVT_TPSv21_04110600	5	3	1	1

Test Name	Test Name	Category	Machine	Description
TestMethod01	Passed	Nightly	DevMachine-00	This is a description of the test.
TestMethod02	Passed	Nightly	DevMachine-00	This is a description of the test.
TestMethod03	Passed	Nightly	DevMachine-00	This is a description of the test.
TestMethod04	Failed	Nightly	DevMachine-00	This is a description of the test.
TestMethod05	Inconclusive	Nightly	DevMachine-00	This is a description of the test.

BVT_TPSv21_04110601	5	4	1	0
BVT_TPSv21_04110602	5	4	1	0
BVT_TPSv21_04110603	5	4	1	0

Code Coverage Results: 42% lines covered, 49% lines not covered, 9% lines covered

Assembly	Covered (Lines)	Not Covered (Lines)	Partially Covered (Lines)	Date
CurrencyConverter.dll	330	600	70	04/15/2005
StoreInventory.dll	600	480	120	04/15/2005

Code Churn Details: 25990 Total LOC, 450 Churned LOC, 89 Deleted LOC

Relative Code Churn Measure	Value
Churned LOC/Total LOC	.017
Deleted LOC/Total LOC	.003
Churned LOC/Deleted LOC	5.056

41001.01	Failed	72%	50%	1.7%
41001.02	Failed	70%	50%	1.7%

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Tests Failing Without Bugs

Tests Failing Without Active Bugs
Report generated: 11/04/2004 11:25 AM by someone@example.com

Are there failing tests that don't have associated active bugs?

Test Name	Category	Machine	No. of Bugs	Description
TestMethod01	Nightly	DevMachine-001	5	This is a description of the test.

Bug ID	State	Title
1176	Resolved	Credit card validation delays the checkout
1190	Resolved	Security settings notification when cookies are disabled
1203	Resolved	Tab order incorrect
1204	Resolved	Required fields need correct background color
1205	Resolved	Do not cache credit card information on checkout page

TestMethod02	Nightly	DevMachine-001	2	This is a description of the test.
TestMethod03	Nightly	DevMachine-001	1	This is a description of the test.
TestMethod04	Nightly	DevMachine-001	1	This is a description of the test.
TestMethod05	Nightly	DevMachine-001	4	This is a description of the test.

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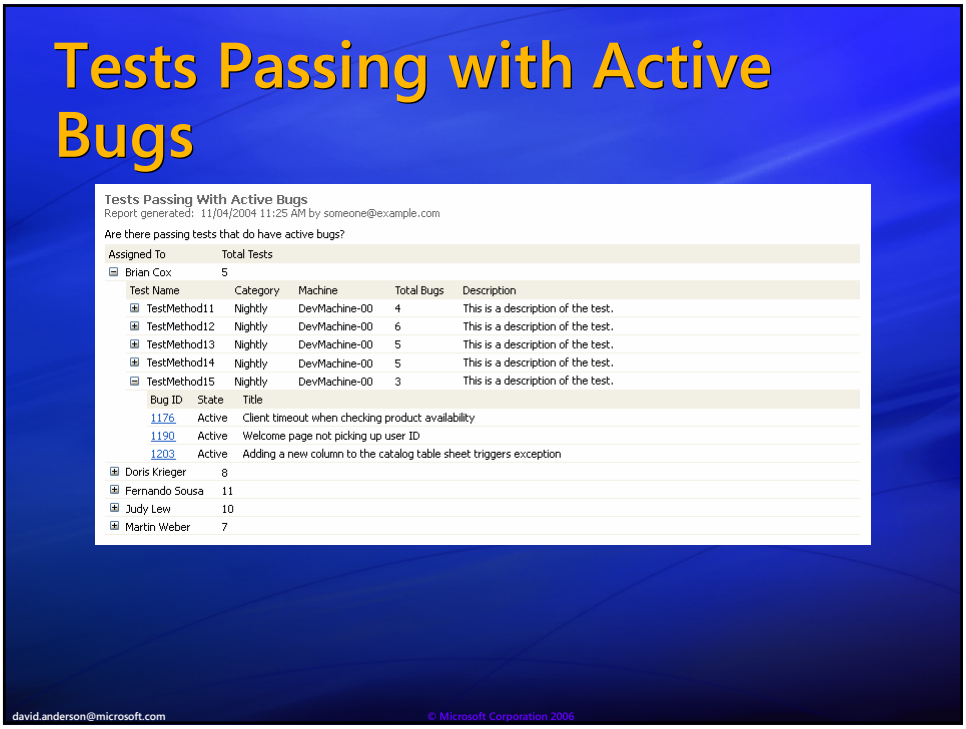
Tests Passing with Active Bugs



Tests Passing With Active Bugs
Report generated: 11/04/2004 11:25 AM by someone@example.com

Are there passing tests that do have active bugs?

Assigned To / Test Name	Total Tests / Category	Machine	Total Bugs	Description
Brian Cox	5			
TestMethod11	Nightly	DevMachine-00	4	This is a description of the test.
TestMethod12	Nightly	DevMachine-00	6	This is a description of the test.
TestMethod13	Nightly	DevMachine-00	5	This is a description of the test.
TestMethod14	Nightly	DevMachine-00	5	This is a description of the test.
TestMethod15	Nightly	DevMachine-00	3	This is a description of the test.
Bug ID	State	Title		
1176	Active	Client timeout when checking product availability		
1190	Active	Welcome page not picking up user ID		
1203	Active	Adding a new column to the catalog table sheet triggers exception		
Doris Krieger	8			
Fernando Sousa	11			
Judy Lew	10			
Martin Weber	7			

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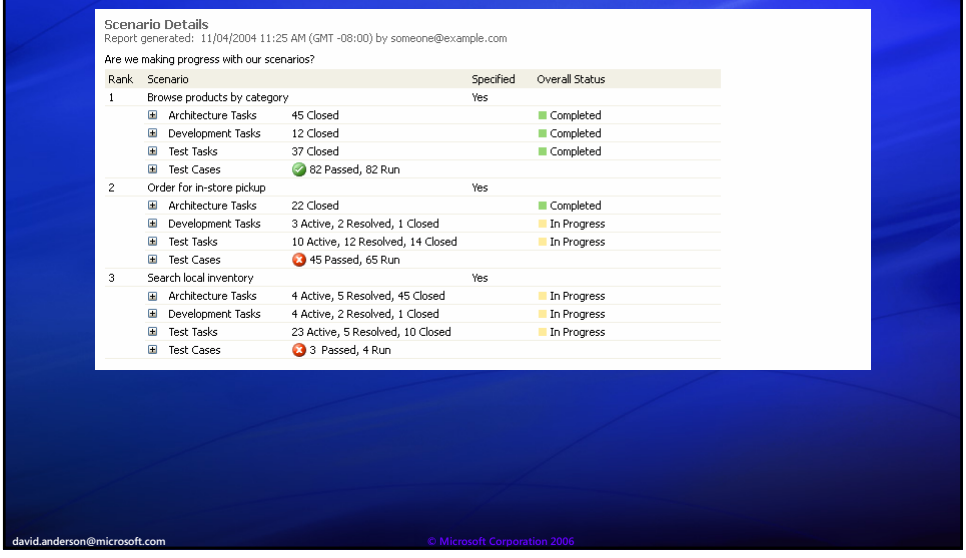
Requirements Details



Scenario Details
Report generated: 11/04/2004 11:25 AM (GMT -08:00) by someone@example.com

Are we making progress with our scenarios?

Rank	Scenario		Specified	Overall Status
1	Browse products by category		Yes	
	Architecture Tasks	45 Closed		Completed
	Development Tasks	12 Closed		Completed
	Test Tasks	37 Closed		Completed
	Test Cases	82 Passed, 82 Run		
2	Order for in-store pickup		Yes	
	Architecture Tasks	22 Closed		Completed
	Development Tasks	3 Active, 2 Resolved, 1 Closed		In Progress
	Test Tasks	10 Active, 12 Resolved, 14 Closed		In Progress
	Test Cases	45 Passed, 65 Run		
3	Search local inventory		Yes	
	Architecture Tasks	4 Active, 5 Resolved, 45 Closed		In Progress
	Development Tasks	4 Active, 2 Resolved, 1 Closed		In Progress
	Test Tasks	23 Active, 5 Resolved, 10 Closed		In Progress
	Test Cases	3 Passed, 4 Run		

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Agenda

- Why Process?
- MSF for Agile Software Development
- MSF for CMMI Process Improvement
- Trustworthy Transparency
- Continuous Improvement
- Implementing MSF

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Continuous Improvement

- MSF enables Lean Thinking, Constraints Management, and Six Sigma for IT

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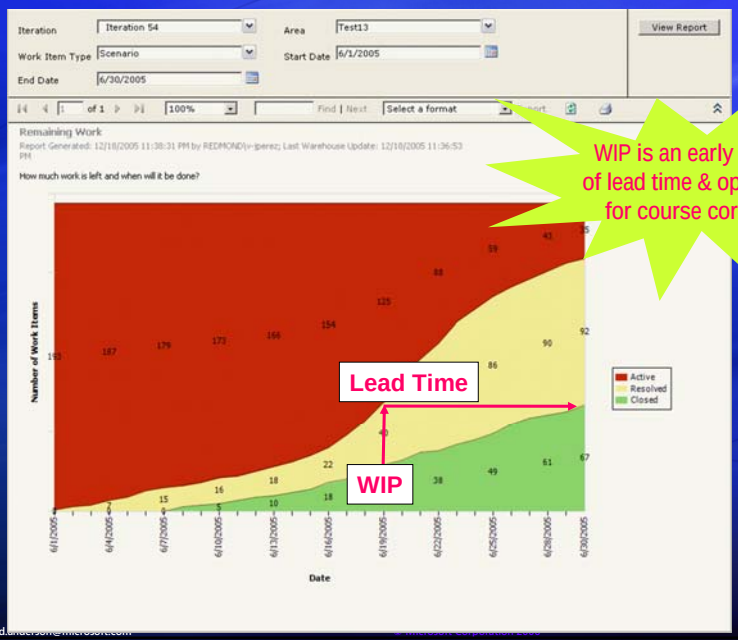
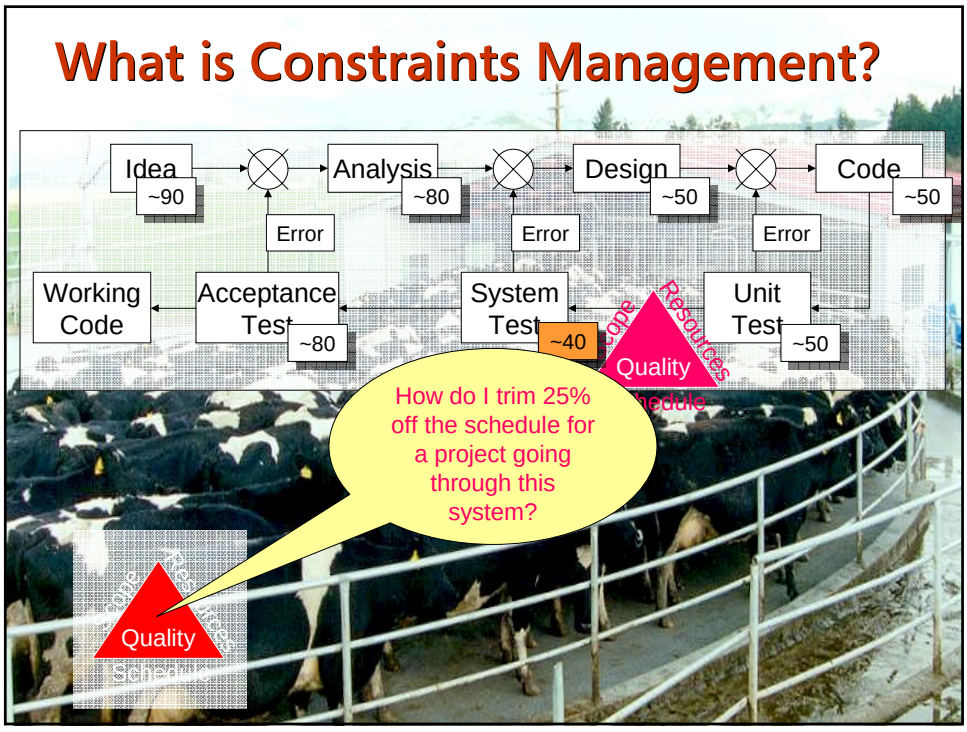
Lean: Managing with Queues



What is Constraints Management?



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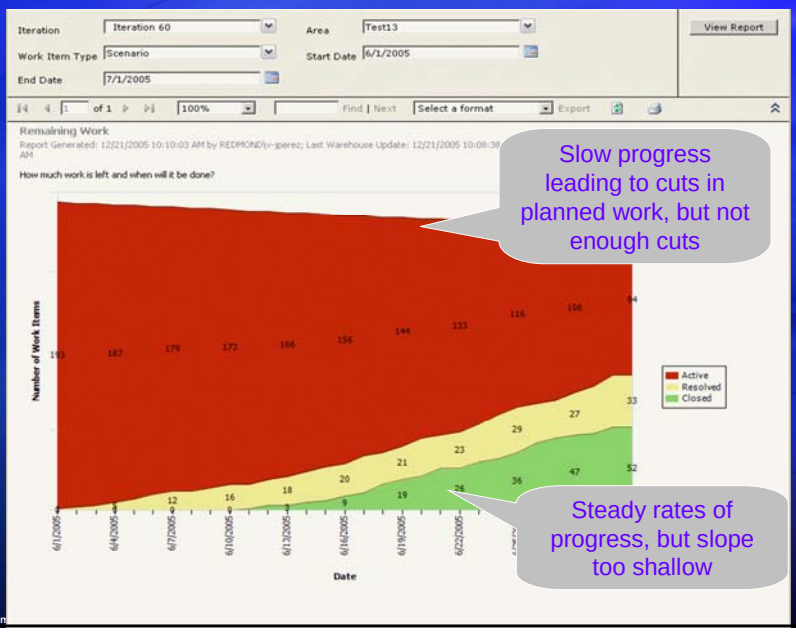
Constraints Become Visible



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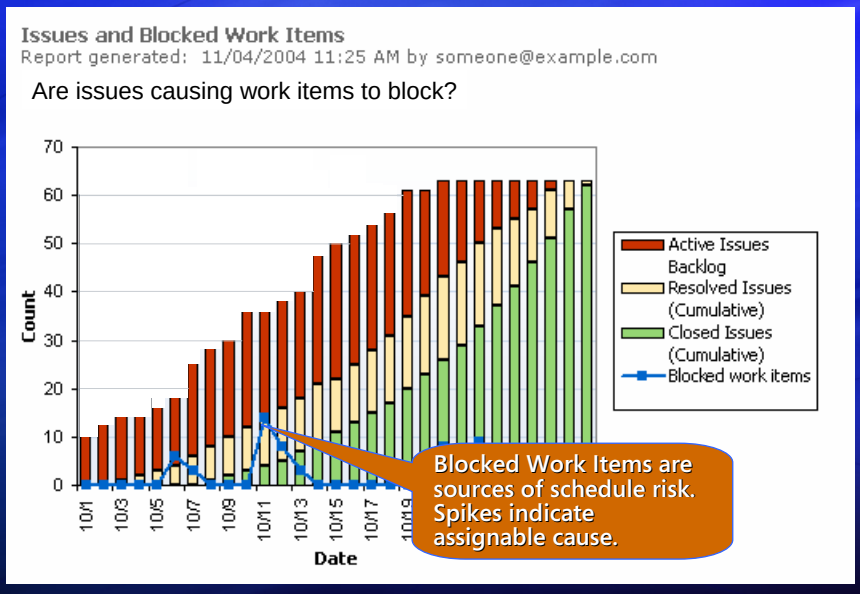
Removing Unforeseen Causes of Risk



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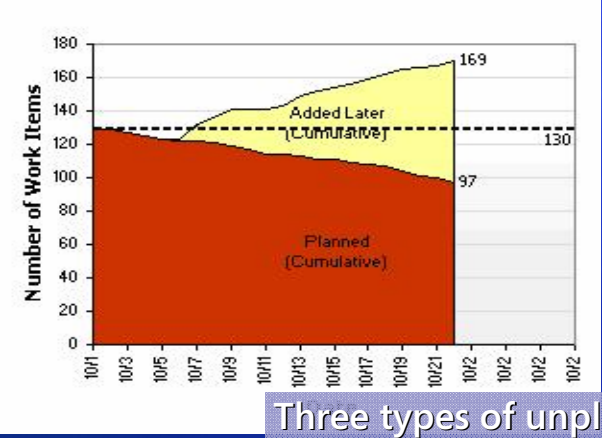
Unplanned Work Report



Three types of unplanned work:
- Bugs (Defects),
- Dark Matter
- Change Requests

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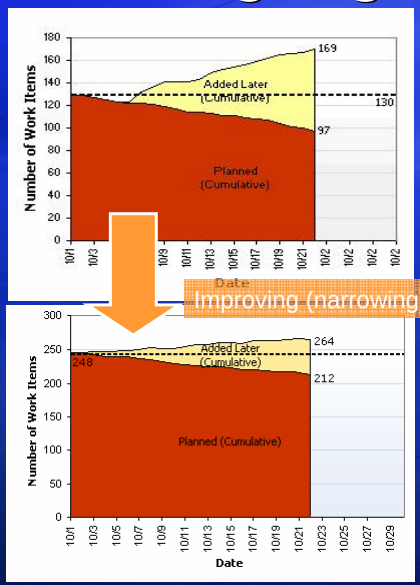
Reducing Engineering Variation



- Over a series of iterations improve accuracy of planning through better analysis
- Requires a Kaizen or Six Sigma event (management intervention) to change the engineering method

CMMI
Level 4 & Beyond

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- ➢ Implementing MSF

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Implementing MSF

- Start with Workflow Modeling - Design Work Item Types for Team Foundation Server to enable reporting in context

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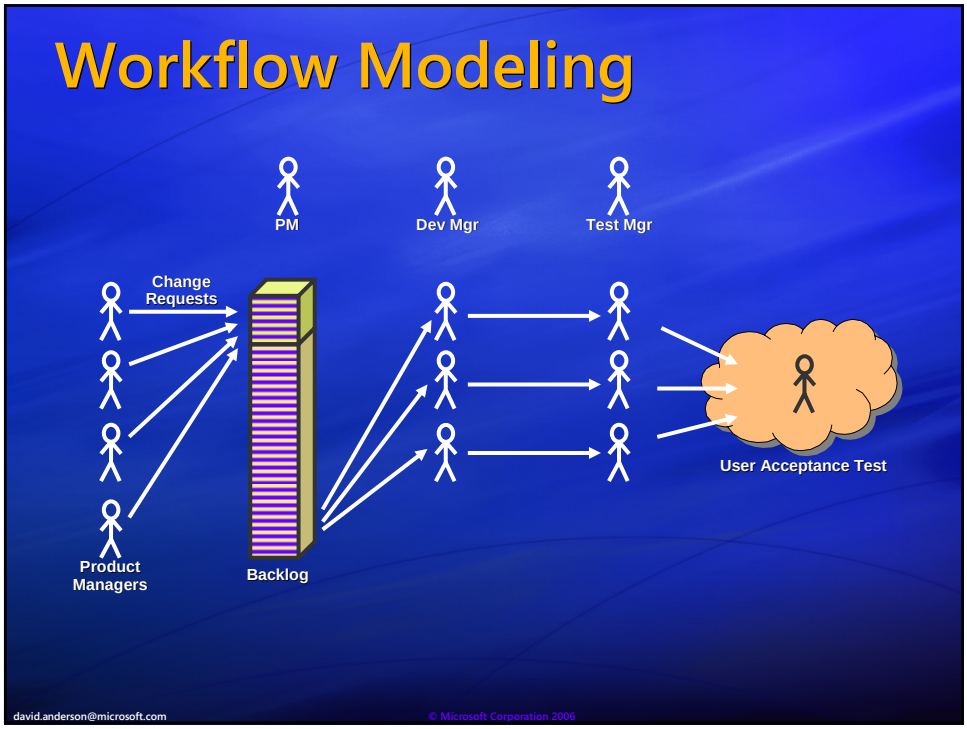

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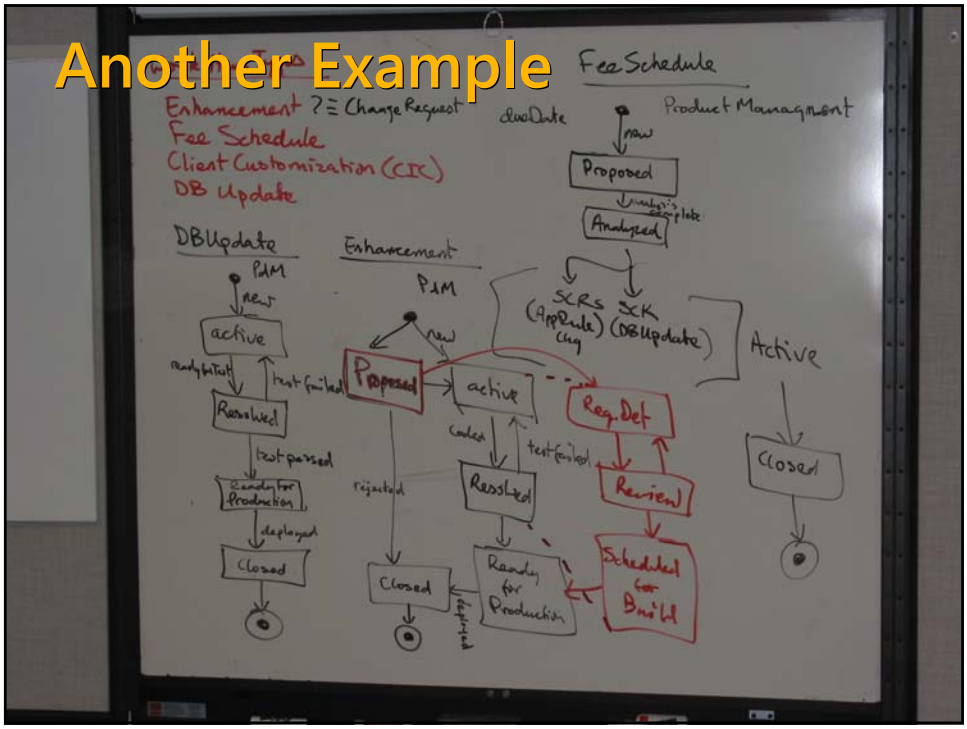

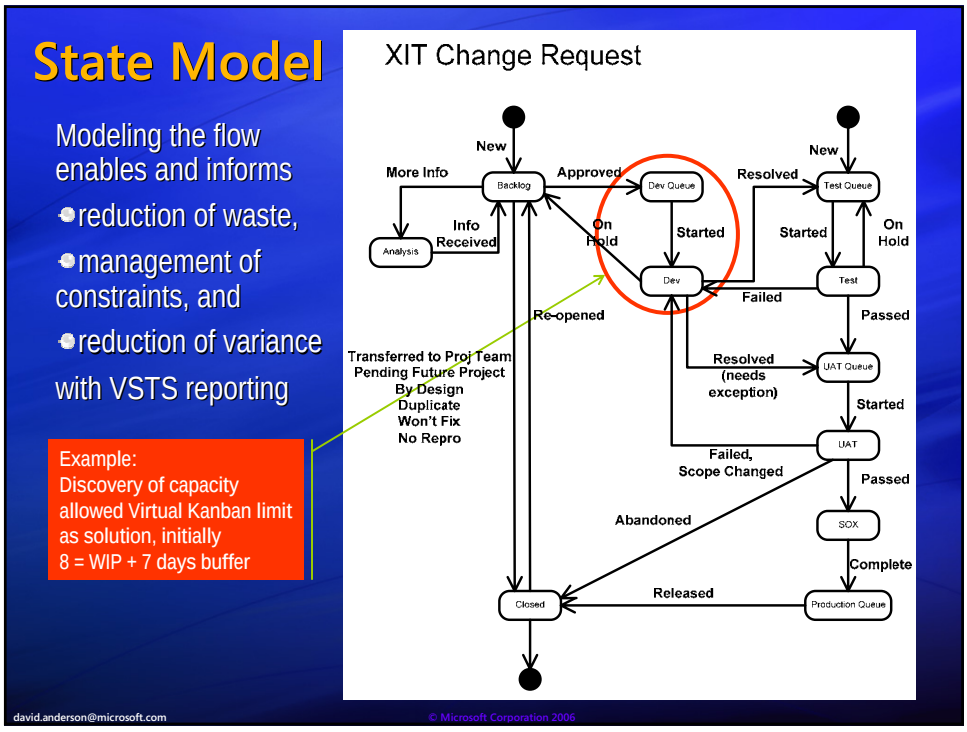

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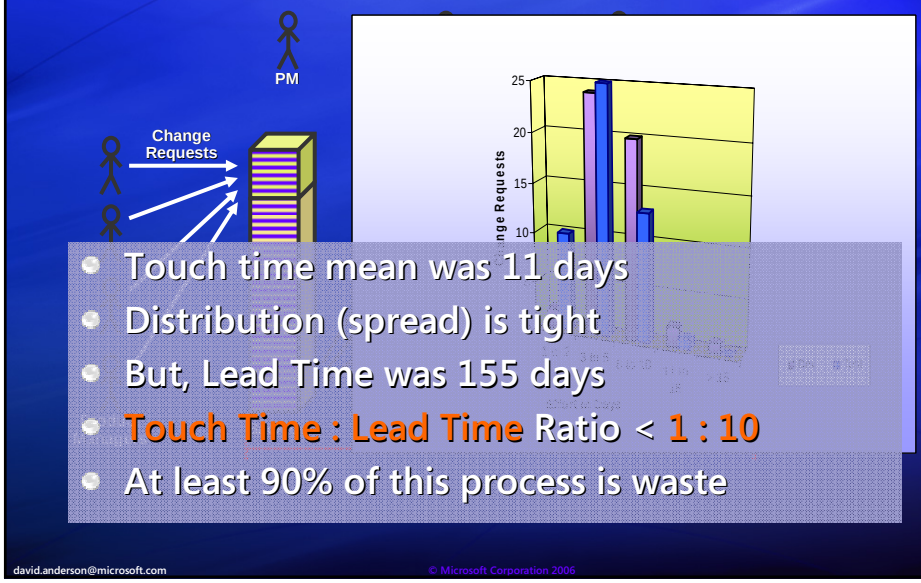
How much waste is there in the process?



- Touch time mean was 11 days
- Distribution (spread) is tight
- But, Lead Time was 155 days
- Touch Time : Lead Time Ratio < 1 : 10
- At least 90% of this process is waste

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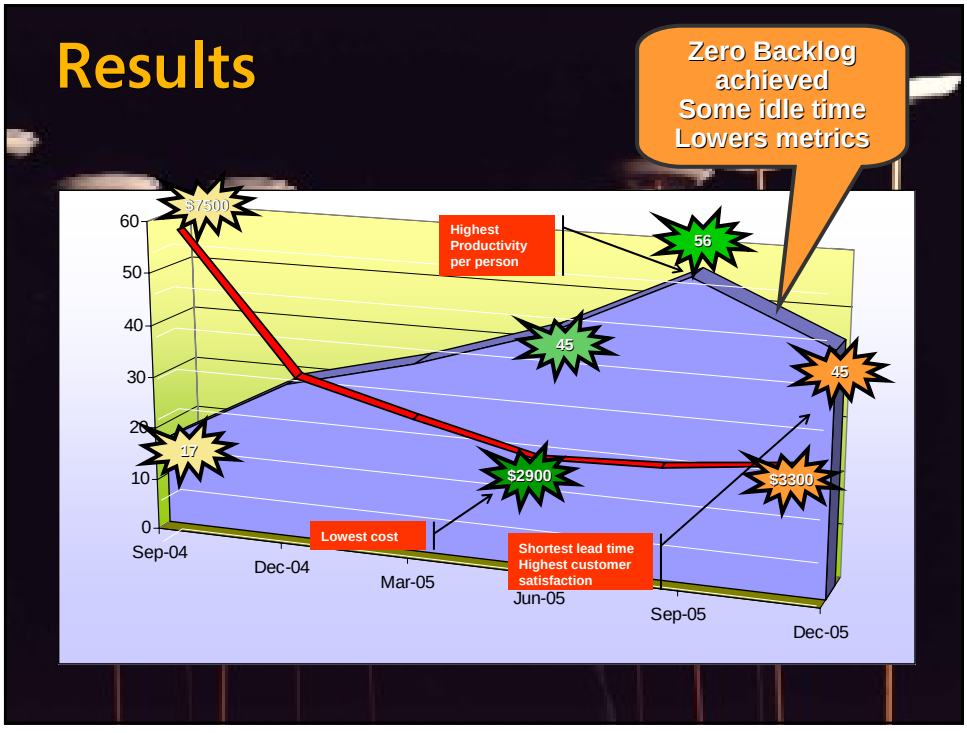
Results



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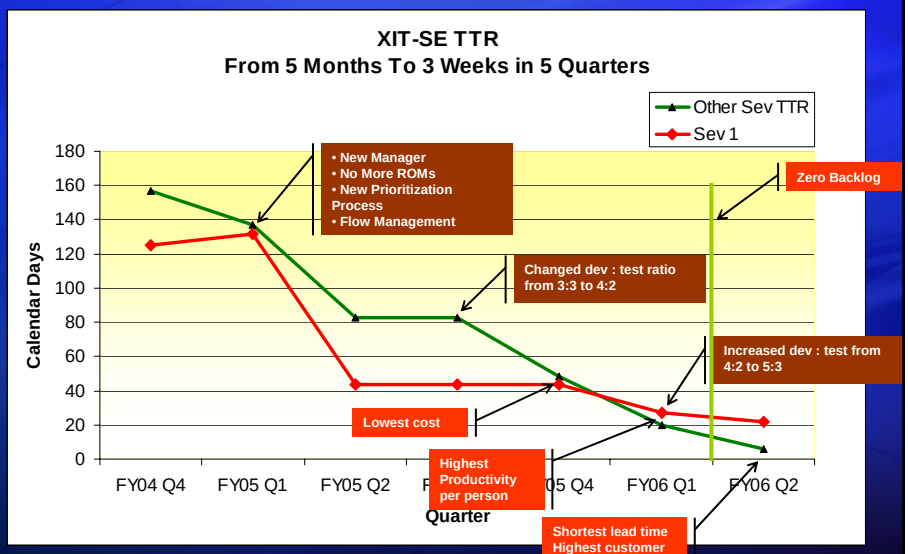
Change Request Lead Time



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Bottom Line

- Realize Your Potential
  - Model workflow
  - Enable reporting
  - Achieve Trustworthy Transparency
  - Drive positive cultural change
- Deliver Continuous Improvement
  - Agile
  - CMMI, Lean, Six Sigma

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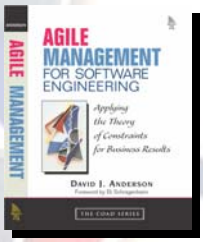
agilemanagement BLOG
Thoughts on Software, Management, Constraints and Agility

http://www.agilemanagement.net/



- Book published September 2003
- Winner - Best Project Management Blog 2005 by readers of Inside Blogging
- Agile Project Leadership Network Founder http://www.apln.org/

APLN

insideblogging.com

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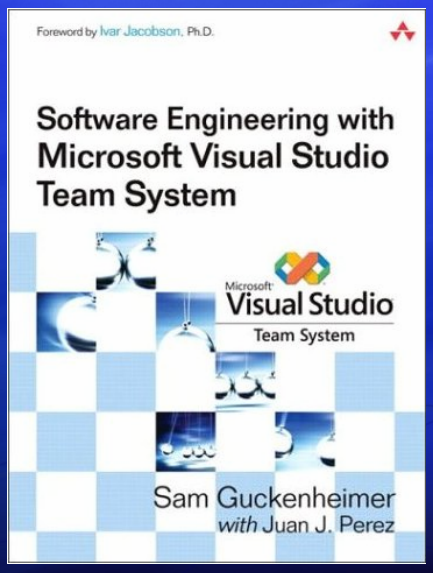

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- VSTS Content
  - //vsts/
- Competitive Content
  - //evangelism/vs/compete/
- MSF Webcasts
  - Introducing Microsoft Solutions Framework for CMMI Process Improvement (Level 100)
  - Returning to the Roots of CMMI (Level 200)
  - Microsoft Solutions Framework for CMMI Process Improvement and the Standar CMMI Assessment Method for Process Improvement (SCAMPI) (Level 200)

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