

Agile Project Management

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[UKADGE: A Classic Project]

- BRUF: Big Requirements Up Front
- Serial approach
- Heavyweight process
- Long time frame
- Fixed, well-known technology



UKADGE radar console,
RAF Boulmer
From *Subterranea Britannica*,
<http://www.subbrit.org.uk>



Fracture Risk Calculator: An Agile Project

- Uncertain initial requirements
- Learn as you go
- Iterative approach
- Lightweight process
- Short time frame
- Moving-target technologies

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10-Year Fracture Risk Calculator

The FRAX 10-Year Fracture Risk Calculator estimates 10-year fracture risk for postmenopausal women aged 50-90 years who are not receiving treatment for osteoporosis. This Fracture Risk Calculator is based on research published in *Lancet* (2008; 371: 406-13), *Journal of Bone and Joint Society UK*, *Journal of Bone and Joint Society USA* (2008; 90: 1202-1210), *Journal of Bone and Joint Society UK* (2008; 90: 1202-1210), *Journal of Bone and Joint Society USA* (2008; 90: 1202-1210).

To use the calculator simply fill in the boxes below and click the Calculate Risk button.

Help for entering data: [Fracture risk calculator help](#) (accessed by hovering the cursor over the [?](#)) in the right of each data entry field. Additional information can be found in [Fracture risk calculator help](#). For more information or assistance, please contact frax@imperial.ac.uk.

Age (years) (opt)

Height (cm)

Weight (kg)

BMD - Hip Z-Score

Smoking Status

Corticosteroids

Drugs that increase 25(OH) vitamin D levels (per day)

Alcohol consumption

Degrees of rheumatoid arthritis?

Are there any other falls?

Major medical history?

Secondary hyperparathyroidism?

10-year risk of any fracture is 23%
10-year risk of hip fracture is 6%
10-year risk of spine fracture is 7%

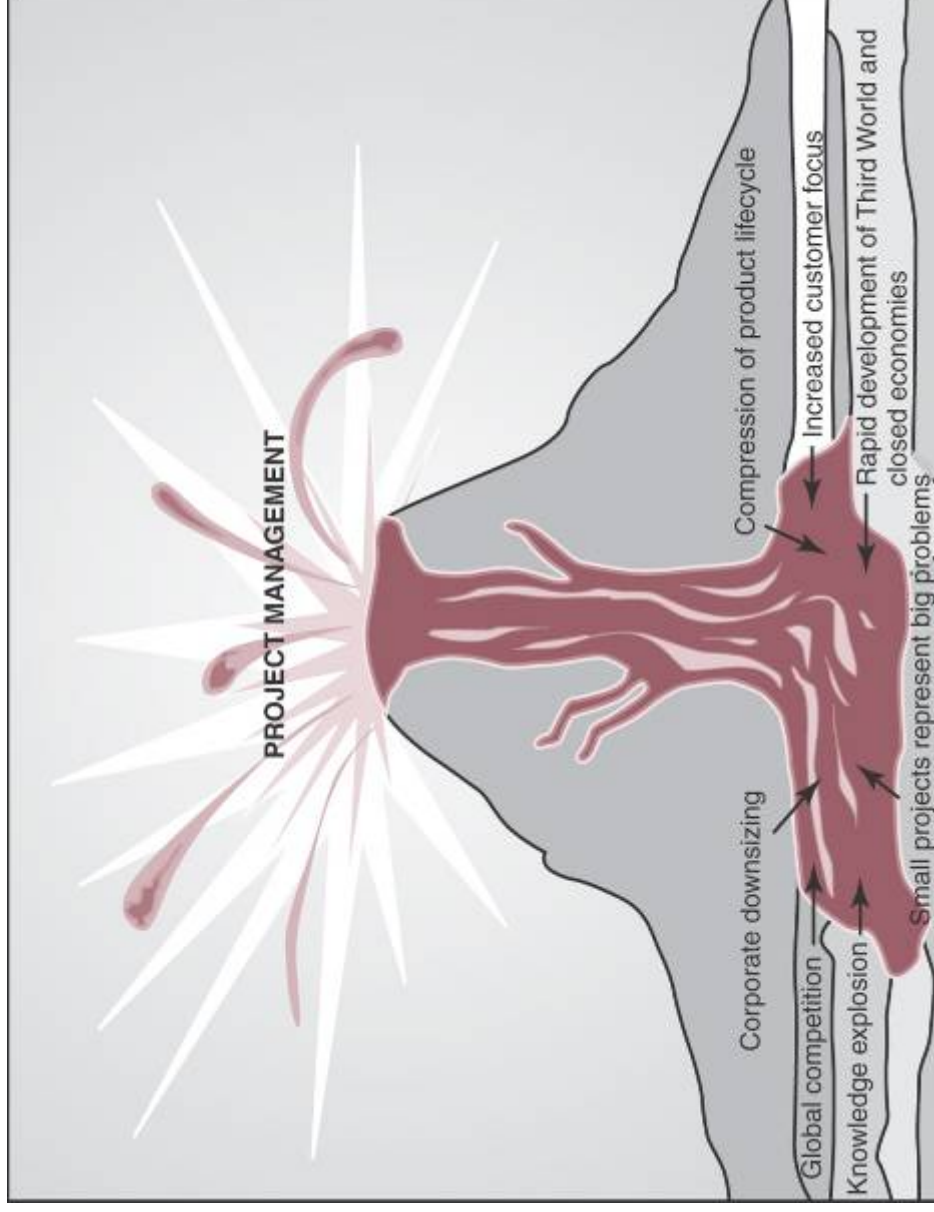
Calculate Risk

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[Agenda

- Challenges to Classic Project Management
- What is Agile Project Management?
- Scrum
- Sprints
- Backlogs and Burndown Charts
- Daily Stand-Up Meetings
- Management Responsibilities
- Agile Success Stories
- When is Agile Appropriate?
- Resources
- Q&A

Challenges to Classic Project Management



From *Project Management: The Managerial Process* by Clifford F. Gray & Erik W. Larson, 2nd Ed. (McGraw-Hill, 2003), Figure 1-2.

Evolution of Software Development

- Undisciplined Approach
 - “Build and fix”, “Cowboy Programming”
 - Depends on “genius” developers
 - Little or no documentation
 - Unpredictable and often brittle results

- Engineering Approach
 - Tightly structured and controlled
 - Single pass “Waterfall” methodology
 - “Big Design Up Front” (BDUF)
 - Heavyweight documentation
 - Slow and inflexible

- Agile Approach
 - Iterative (multiple passes)
 - Overlapping phases
 - Lightweight documentation
 - “Learn as you go”
 - Highly responsive to change

[Agile Software Development: Values]

- **Individuals and interactions** over processes and tools
- **Working software** over comprehensive documentation
- **Customer collaboration** over contract negotiation
- **Responding to change** over following a plan

Agile Software Development: Principles

- Satisfy the customer
- Welcome changing requirements
- Deliver working software frequently
- Business people and developers work together
- Support and trust motivated people
- Convey information through face-to-face conversations
- Measure progress by working software
- Maintain a sustainable pace
- Pay attention to technical excellence and good design
- Simplicity is essential
- Use self-organizing teams
- Adjust behavior at regular intervals

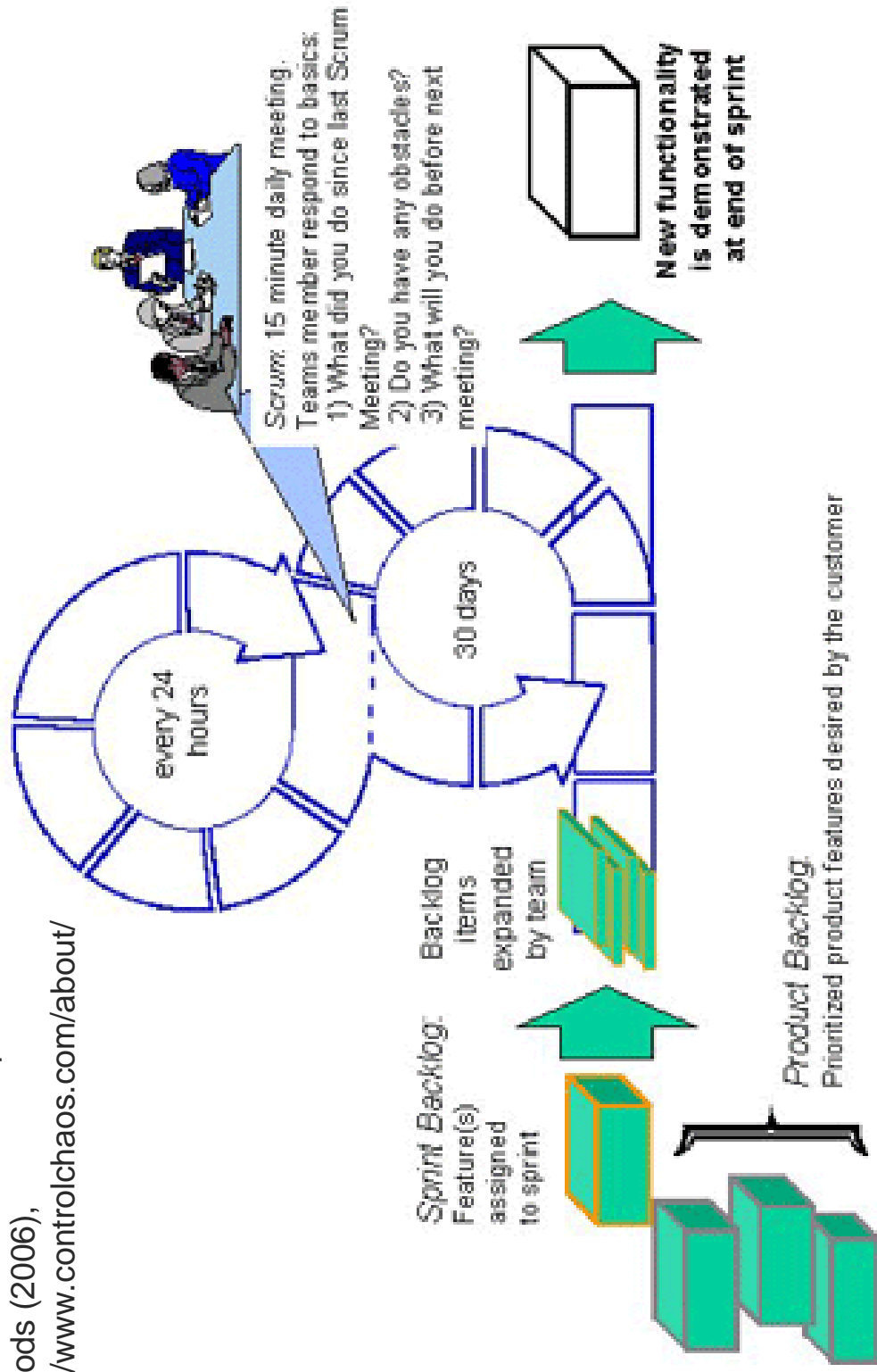
[Scrum: An Agile Methodology]



- Definitions of Scrum
 - A play in Rugby in which the two sets of forwards mass together around the ball and, with their heads down, struggle to gain possession of the ball. (*TheFreeDictionary.com*)
 - An iterative, incremental process for developing any product or managing any work. It produces a potentially shippable set of functionality at the end of every iteration. (*ControlChaos.com*)

[Scrum Process Overview]

Source: Advanced Development Methods (2006), <http://www.controlchaos.com/about/>



The Scrum Team and Scrum Master

- The Scrum Team
 - Typically small (5-10 people)
 - Use multiple interlocking teams for larger projects
 - Cross-functional
 - Self-organizing
 - Full-time
 - Membership only changes between sprints
- The Scrum Master
 - Project Manager or Team Leader
 - Interface between the team and upper management
 - Ensures that team follows Scrum practices and values
 - Facilitates Daily Stand-Up Meetings
 - Manages and maintains Product Backlog, Sprint Backlog and Burndown Chart
 - Protects the team
 - Removes impediments

Sprints

- Product is created through a series of cycles called *sprints*
 - 30 days is a typical sprint duration
- Sprint has an overall theme or goal
- Sprint Planning Meeting
 - Moves tasks from Product Backlog to Sprint Backlog
- Multiple project activities overlap during a sprint
- No changes to requirements are allowed during the sprint
- Daily Stand-Up Meetings keep the sprint on-track
- Must show customer something that works at the end
 - Informal
 - No PowerPoint
 - Max 2 hours prep time



Product Backlog

A	B	C	D	E
Priority	Item #	Description	Estimate	By
High				
	1	Locate Contract Vendors and Address	40	SL
	2	Create Food Vendor Table	5	JB
	3	Create Supply Vendor Table	5	JB
	4	Create Log in Id Table	5	JB
	5	Create location form	15	JB/MW
	6			
	7			
Medium				
	6	Create Security Folder	8	MW
	7	Creat Log In Id page	10	MW
	8	Create Alerts and Error Messages	15	KV
	9	Integrate mapping from Yahoo	25	RB
Low				
	10	Test login page	3	MW
	11	Test Alerts and Error Messages	5	KV
	12	Test Vendor Address	5	SL
	13			
	14			
	15			
	16			
	17			
	18			

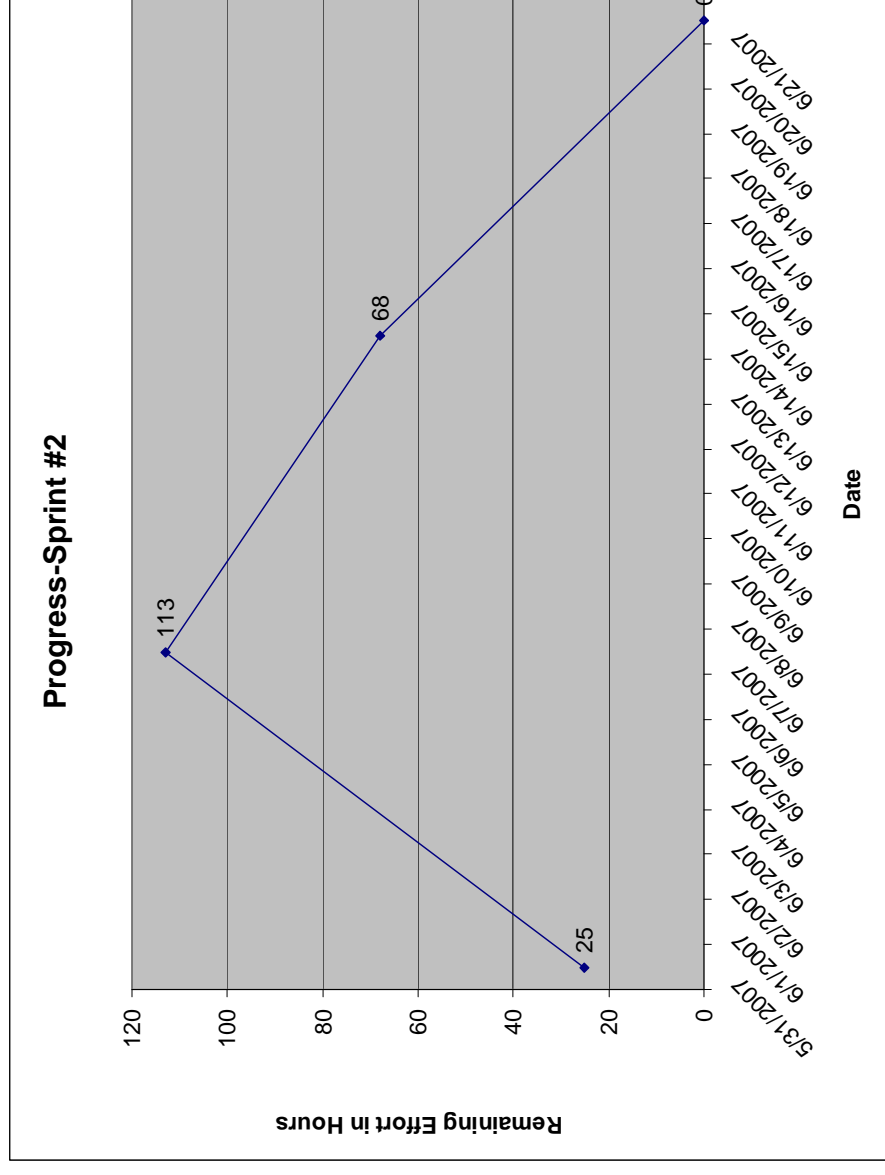
From a BIS-440 Student Project at DeVry Long Beach, Spring 2006 (students Ron Buencamino, Jarrod Bugayong, Sandra Lopez, Kia Vang, Martha Wolfe)

[Sprint Backlog]

	A	B	C	D	E	F
1	Days left in sprint:		21	14	7	0
2			Estimate to Complete			
3	Who	Description	5/31/2007	6/7/2007	6/14/2007	6/21/2007
4			25	113	68	0
5	MW	CREATE SWITCHBOARD	10	5	0	0
6	JB	CREAT LOGIN FORM	5	3	0	0
7	KV	CREATE LOGIN CODE	20	20	5	0
8	KV	CREATE BUTTON FOR MAP	0	10	10	0
9	RB	CREATE ANALYSIS AND DESIGN	0	10	5	0
10	SL	CREATE DFD DIAGRAM	0	10	3	0
11	SL	CREATE FLOWCHARTS	0	15	5	0
12	MW	CREATE COMMAND BUTTON FOR MAPPING	0	5	5	0
13	RB/KV	CUSTOMIZE YAHOO MAP CODE	0	15	15	0
14	RB	CREATE FILE MAP	0	10	10	0
15	ALL	CREATE USER MANUAL	0	15	10	0
16		Total Estimated Hours:				

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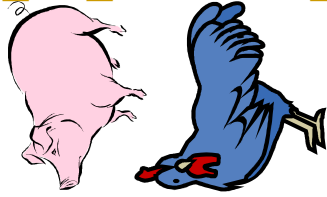
Burndown Chart



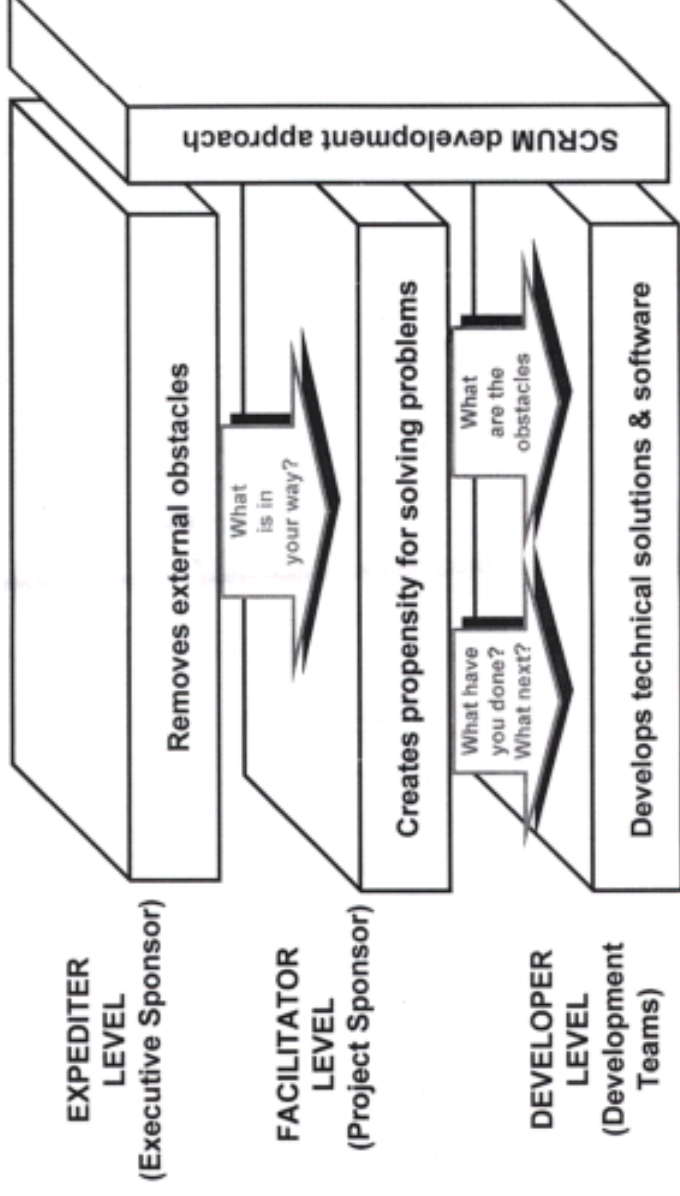
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[Daily Stand-Up Meeting]

- Typically 15 minutes long
- Stand-up
- Not for problem solving
- Pigs (working team members) and chickens (others) attend
 - Only pigs can speak
- Each team member answers 3 questions:
 - What did you do since the last meeting?
 - What will you do today?
 - What impediments (obstacles) are holding you back?



Scrum Management Responsibilities



- Listen to the team
 - Step in and problem-solve when needed
 - Keep the team working (fast decisions)
 - Remove impediments
 - Scrum Master escalates impediment to upper management if needed
- Graphic from ADP, <http://www.controlchaos.com/about/management.php>

[Agile Success Stories]

- Sabre Air-Travel Reservation System Modernization
 - \$125 million non-agile effort failed
 - Agile effort succeeded, accommodated major technology changes
 - Source: "Big IT: Doomed" by Frank Hayes (*ComputerWorld*, June 7, 2004)

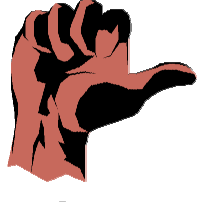
- Verizon
 - Uses agile methods in its Global Delivery Model for worldwide distributed software development
 - Source: "Agile Project Management of Non-Collocated Teams" by Harsha Srivatsa, Ganapathi M Kumar and Scott Presley (white paper published on TechRepublic.com)

When is Agile Appropriate?



Go Agile When...

- Customer can accept delivery in "chunks"
- Requirements are uncertain, changing
- Technology or other factors are uncertain, changing
- High degree of visibility needed
- Need to build relationship with frequent, shared success



Probably not when...

- Customer requires extensive formal documentation
- Customer or management culture will not accept loss of tight control within a sprint
- Adversarial or strict contractual relationship with customer
- Both timing and content of deliverables are locked in
- Large projects and teams not easily divided into discrete sub-projects

[Resources]

- Web Sites
 - Agile Alliance <<http://www.agilealliance.org/>>
 - Advanced Development Methods (ADM) Scrum Site <<http://www.controlchaos.com/>>
 - Agile Project Leadership Network <<http://www.apln.org/>>
 - Mountain Goat Software Scrum Site <<http://www.mountaingoatsoftware.com/scrum/>>
- Articles
 - "The Scrum Software Development Process for Small Teams" by Linda Rising & Norman S. Janoff (*IEEE Software*, July/August 2000)
<<http://members.cox.net/rising1/Articles/IEEEScrum.pdf>>
 - "It's Not Just Standing Up: Patterns of Daily Stand-Up Meetings" by Jason Yip
<<http://www.martinfowler.com/articles/itsNotJustStandingUp.html>>
 - "Managers Manage" by Scott Ambler (Dr. Dobb's Portal, September 10, 2002)
<<http://www.ddj.com/dept/architect/184414912>>
- Books
 - *Agile Project Management: Creating Innovative Products* by Jim Highsmith (Addison-Wesley, 2004)
 - *Agile Project Management with Scrum* by Ken Schwaber (Microsoft Press, 2004)
 - *Managing Agile Projects* by Sanjiv Augustine (Prentice Hall, 2005)
 - *Agile Project Management: How to Succeed in the Face of Changing Project Requirements* by Gary Chin (AMACOM, 2003)

[Q&A]

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For a copy of this presentation, visit <http://www.RussellWalker.com/agilepm>