



The Agile/Waterfall Cooperative



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More and more large companies are looking to adopt agile practices. As a consultant I hear one of two things in most every engagement:

From the teams themselves:

“We’re an agile team in a waterfall enterprise – how on earth are we going to pull this off?”

Or from the executives:

“We want to move to agile in a reasonable fashion, meaning pilot a few teams, and transition the organization slowly over time – so how do we make sure our agile teams are successful in the interim?”

That’s what we’ll look at today – how to deal with the interim awkwardness, and how to get along long-term in companies with no plans to move everyone and everything to agile.

Background on Speaker



- Michele Sliger
 - 15+ years software development experience
 - PMP (Project Management Professional)
 - CSM-P (Certified Scrum Master Practitioner)
 - 6 years experience on Agile teams
 - Agile Denver Board Member
 - Agile consultant for Rally Software Development
 - Adjunct instructor at the University of Colorado - Boulder

Objectives for Today

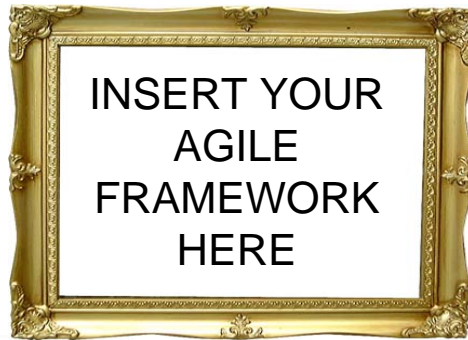
- **Three Principles for successful transitioning**
- **During transition, how to deal with:**
 - Waterfall up front
 - Waterfall at end
 - Waterfall in tandem
- **10 Keys for Success**

**NO
SILVER
BULLETS**



The Discipline of Agility

“Discipline: a system of techniques (principles) of dealing constructively with the pain of problem solving – instead of avoiding that pain – in such a way that all...problems can be (re)solved.” -M. Scott Peck, *The Road Less Traveled*



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Agile and waterfall are so utterly different—from the way projects start (diving right into coding vs. spending long weeks in analysis and design) to the types of meetings held (quick, daily planning meetings vs. long, weekly status meetings), to what we expect of the team (self-organized vs. directed), and even the expected deliverables (chunks of working code early and often vs. documentation early with code at the end). These two practices have different ways of measuring progress, determining success, managing teams, organizing, and communicating. How can they be managed as part of a cohesive project portfolio? Can agile and waterfall methodologies coexist and still make the company successful?

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Will it look like this?

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Or like this?

Principles That Lead to Success

- Continuous improvement through time-boxed iterative deliveries and reviews
- Implementation of the most important items first
- Constant collaborative communication

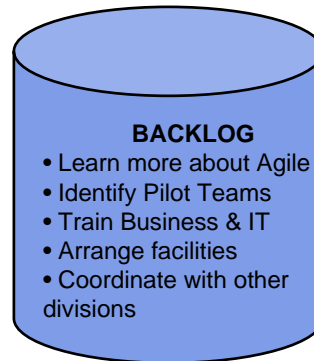


Agile Isn't Just for Software Development!

Management's Role:

- Support the teams
- Share the vision
- Use the agile principles in creating and monitoring organizational change
- Use Lean practices to eliminate waste and improve delivery

Transition Plan



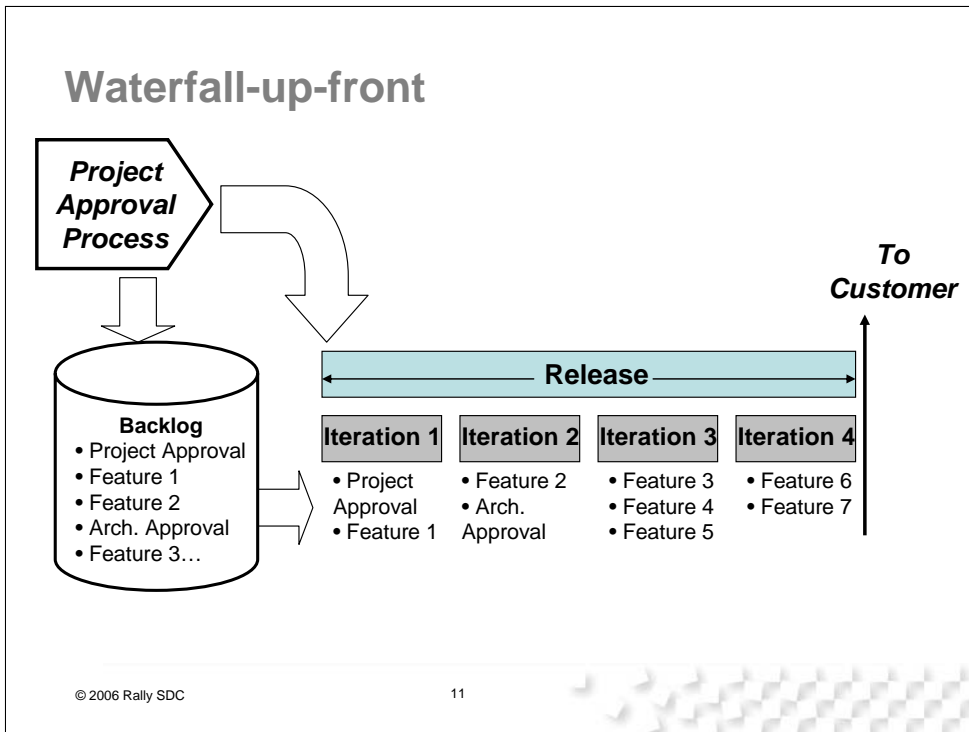
Lean Practices: Specify Value, Identify the Value Stream, Flow, Pull, Perfection

Specifically, identify value and the process of achieving those goals, and eliminate waste (type 2 muda), making the remainder (type 1 muda) such that it is of a barely sufficient nature.

Waterfall-up-front

- Project approval process
- Architecture approvals
- Facilities, procurement, contracting....





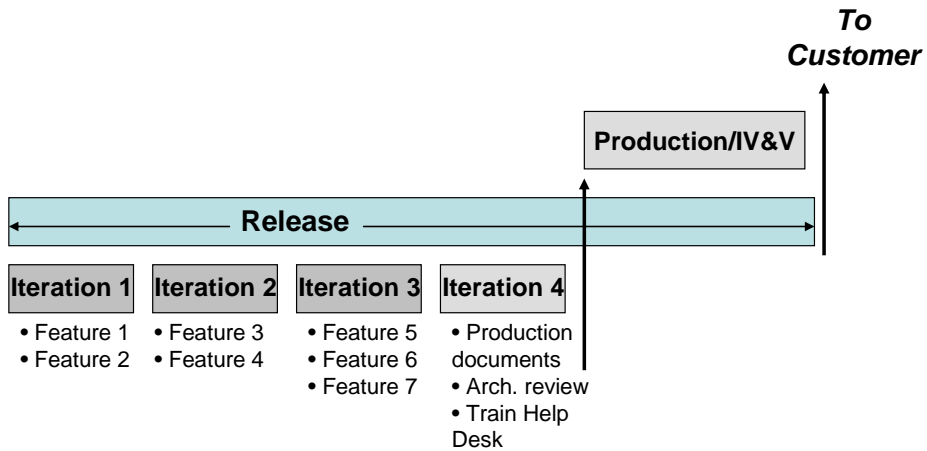
Use the backlog to track project initiation work. If possible, start the project and begin delivery of at least one feature/story while still working on satisfying the project approval requirements.

Waterfall-at-end

- Separate Production department
- Independent Validation and Verification (IV&V)
- FDA Audit
- Sarbanes-Oxley Audit
- Hand-off to a waterfall team...



Waterfall-at-end



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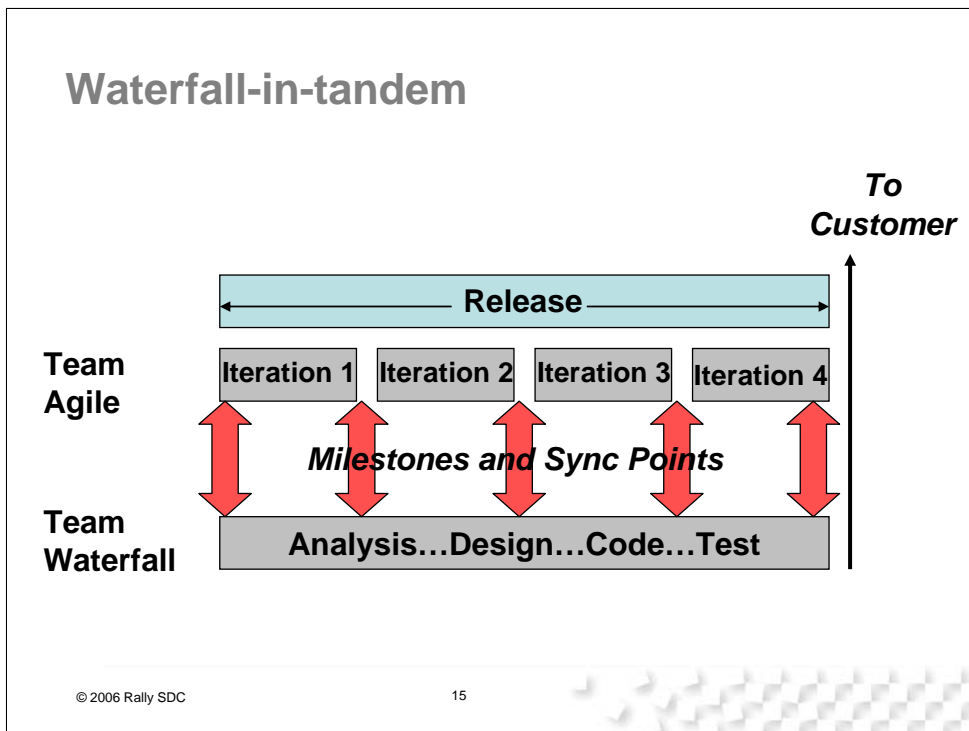
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Use the last n iterations to prepare for the product handoff. Items in the backlog may be solely corporate and product support, such as “prepare documentation for architecture review committee” or “meet with auditors and review code and wiki proofs”.

Waterfall-in-tandem

- Large complex systems
- Multiple teams
- Multiple platforms
- Matrixed resources....





Teams need to coordinate during all planning meetings. Especially important are the release planning meetings, where milestones/deliverables are determined by both waterfall and agile project managers and teams. Continued follow-up and adjustments are covered in iteration planning meetings and daily standups.

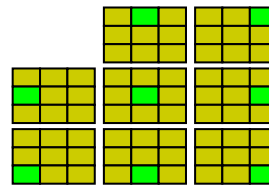
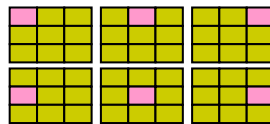
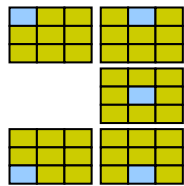
Agile teams may choose to create mocks or stub out missing code rather than wait for waterfall deliveries. Last iterations may be more devoted to integration than feature delivery.

Coordinate Using Scrum of Scrums

Coordinating Scrum
Or MetaScrum



Scrum of
Scrums



Daily Scrums

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Scrum of Scrums meetings may be required to keep the waterfall teams up to date, or to help program managers or product managers coordinate progress and status across the teams.

The Heck With Cooperation – Keep ‘Em Separated



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The Anomalies That Work



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Stealth Agile – As Jim Highsmith once said in response to a question about how to sell agile to upper management – don't. "They don't know what you're doing anyway." Do as much agile as you can where you can. Some benefit is better than none at all.

SWAT team – outside the domain of the process police, brought in on projects that are in trouble. Agility is prized in this situation. They take over however – they don't work in a cooperative mode.

Skunk Works - "a small group of experts who drop out of the mainstream company operations in order to develop some experimental technology or new application in secrecy or at speed, unhampered by bureaucracy or the strict application of regulations." Sanctioned and protected by management, these teams are rare. This formation however, prevents the headaches involved in org structure, project approval hoops, portfolio metrics and management, budget calls, and other bureaucratic nightmares.



Ten Keys to Success



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1. Find an Executive Champion



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The executive sponsor or champion should clear the path for the pilot teams. Many champions may feel that once the team has been kicked off their work is done, but this is not so in an agile environment. These executives have to be available to facilitate and drive ongoing improvements in the organization. There should be an open audience with the executive to inform them of problems that the agile team uncovers. As this is all about continuous improvement, the communication between the teams and the executives is also constant and neverending.

2. Socialize, Don't Evangelize



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Talk with waterfall stakeholders about how you'd like to work together. Answer their questions about agile, and ask for their help in making the relationship as pain-free as possible. The executive sponsor should be part of the initial discussion, to share her commitment to the process, her dedication to removing roadblocks, and the importance of each team's involvement.

Don't try to convert the waterfall team to agile. Would you like it if someone did that to you? Instead be clear that you want to work with them toward your common goal of a successful delivery, and let your agile team's success and increased performance speak for itself.

3. Use the Power of the Backlog!

- Transition/Organization backlog
- Non-product items like start-up requirements and production readiness items



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The waterfall requirements of the project should become stories in the agile team's backlog. Include waterfall stakeholders in the agile planning meetings, so that everyone understands what qualifies as barely sufficient deliverables, what assumptions the teams are making, and what dependencies exist.

Executive and middle management should create their own prioritized backlog of transition issues they need to focus on, implementing corporate process and organizational change iteratively and incrementally.

4. *Jump Right In, the Water's Fine*



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Don't try to fix everything before you start agile adoption. Just dive right in—you'll find a way to work within the current constraints. Use the iteration reviews and retrospectives to make change recommendations and implement incremental improvements as you go. Be reasonable about this by focusing on only the top two or three things for the next iteration. It's a backlog of recommendations and, like the backlog of product features, they all can't be implemented at once.

5. Use the “Barely Sufficient” Guideline

Is this something that we really must do? If so, then what is the simplest thing we can do to satisfy this request?

Lean: Muda Type 1 or Type 2?



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Alistair Cockburn’s “barely sufficient” philosophy should be applied in order to avoid doing more than absolutely necessary when faced with waterfall-associated deliverables. Is this something that we really must do? And if it is, then what is the simplest thing we can do to satisfy the need of the requestor?

Follow up with the Five Whys, in trying to determine if the request is waste or truly needed. Make the distinction between type 1 and type 2 muda, and work to eliminate the type 2.

6. Include Waterfall Reps in All Agile Planning Meetings



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At a minimum, include the waterfall project managers. They may find that they'll want to start inviting the architect, or lead programmer, etc. to these meetings.

The release planning meeting should be considered mandatory for the waterfall project manager.

7. Establish a Rhythm of Inspection and Adaptation



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In the review and retrospective held at the end of each iteration, analyze the benefits and challenges you've just experienced and make recommendations on how to improve the experience in the next iteration. Again, be sure to include the waterfall stakeholders.

Don't try to make too many changes at once. Focus on the items that can be easily fixed, and those that could potentially provide the biggest pain relief.

8. Send Agility Up the Chain



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Work with executives to determine the best way to report retrospective results up the ladder. When the issue is outside the control or domain of the team, then these problems that the team has uncovered should be escalated. Examples are time slicing, matrixed or non-dedicated teams, fuzzy vision, and documentation/meetings/approvals required by other divisions.

9. Pay Attention to Behaviors



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Pay attention to behaviors and avoid reverting to old habits. For example, if you notice that you're depending on the specification that you had to create in the waterfall-up-front iteration instead of having discussions with the product owner, set the document aside.

Don't kill yourself trying to do both agile and waterfall practices at the same time. Do what you must, what is barely sufficient. Escalate issues to upper management when needed. Go ahead and eat your own dogfood, but stop if it's killing you or starts to smell funny.

Remind the team that it is okay to fail, and in fact failing early is often a given in new agile teams. But early failures = better knowledge about the product and the process, leading to more reliable results and fewer surprises.

And don't sweat the small stuff. Arguing over whether or not a team is really doing Scrum because their iterations are only 2 weeks and not 30 days is a waste of time. Walk away from this silliness!

10. Include Everyone in the Project Retrospective



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Invite all stakeholders to participate in a project retrospective at the end. These meetings are crucial to help identify and implement broader transition changes that affect the entire enterprise. While attendees may be more open and honest without management present, the executives (champions, sponsors, etc.) will need to hear and understand the results in order to assess outcomes and make appropriate changes at an enterprise level.

Yes, Agile and Waterfall Can Coexist!

“He that would be a leader must be a bridge.” – Welsh proverb



Additional Sources

Websites:

- “A CIO’s Playbook for Adopting the Scrum Method of Achieving Software Agility,” a whitepaper by Dean Leffingwell and Hubert Smits; and “A Project Manager’s Survival Guide to Going Agile,” a whitepaper by Michele Sliger: http://www.rallydev.com/agile_knowledge.jsp
- “Balancing Lightness with Sufficiency,” by Alistair Cockburn: <http://alistair.cockburn.us/crystal/articles/blws/balancinglightnesswithsufficiency.html>
- “Stretching Agile to Fit CMMI Level 3,” an experience report by David J. Anderson: <http://www.agilemanagement.net/Articles/Papers/StretchingAgiletoFitCMMIL.html>

Books:

- Lean Thinking by James P. Womack and Daniel T. Jones
- Lean Software Development by Mary and Tom Poppendieck
- Agile Project Management with Scrum by Ken Schwaber





Thank You!

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