Blending Agile And Waterfall in Project Management
An Introduction
An Overview of Waterfall and Agile
Scrum Lifecycle
Agile and Waterfall Differentiation
PMBOK Practices Mapped to Agile Practices
Blending Agile and Waterfall
Water-Agile-Fall Model
Agile Waterfall Implementation
Benefits of Blending Agile and Waterfall in Project Management
An Recommendations for success with Blended model
Q & A
An Introduction

• Big Planning Up Front
• Fixed Delivery Dates and Fixed Scope
• Organizations transition to agile efficiently
• Focus On Change Control
• Provides high level planning and low level agility
• Two dimensional structure with phases and disciplines
• Four stages i.e. inception, elaboration, construction, and transition
• Smooth transitions between the models
An Overview of Waterfall and Agile

Waterfall

1. Requirements
2. Design
3. Development
4. Testing
5. Deployment

Agile

- Preliminary Outcome
- Intermediate Outcome
- Final Outcome
Scrum Lifecycle

Vision

Iteration 1

Iteration 2

Iteration 3

Iteration 4

Continue

Implementation & Developer Testing

Design & Analysis

Detailed Requirements

QA / Acceptance Testing

Evaluation / Prioritization

(Deployment)
Waterfall Pros and Cons

Pros:
- Best for projects that deal with physical objects – from a construction project to a hardware installation project.
- Best for projects with defined tasks and phases that must be completed in a specific sequence (e.g., build the first floor of a building before the second floor).
- Project plans are repeatable for identical or similar projects in the future.

Cons:
- Requires substantial scope and schedule planning before work begins.
- Scope changes can be slow and require formal change control processes.
- Less effective for software, design and other non-physical or services-based projects.
Agile Pros and Cons

**Pros:**
- Best for projects that deal with services-oriented and non-physical deliverables like code, copywriting and design projects.
- Allows for quick course correction based on stakeholder feedback.
- Empowers project teams to work creatively and efficiently.
- Includes engagement and collaboration from all team members.

**Cons:**
- Not suited for projects with strictly defined requirements and scope.
- Uncertainty around scope and schedules can make stakeholders and executives nervous (at first).
- Requires vigilant backlog and documentation maintenance, and tech debt management.

This is a fast and flexible approach to project management based on principles of collaboration, adaptability and continuous improvement.

Unlike the orderly stages of a waterfall approach, agile project management is typically set up in quick, iterative project release cycles.

The project management method you choose will vary based on the project, your team and goals. Once you select a planning style, make sure you use project management software that lets you and your team set up your projects the way you want.
Did you Know?

Project Management Institute Founded on 1969
Scrum Overview

- Sprint Retrospective: 1h
- Sprint Planning: 2-4h
- Sprint Review: 2-4h
- Daily Standup: 15min
- Backlog Grooming: 0.5-2h
Agile and Waterfall Differentiation

**Agile**

1. Requirements
2. Plan
3. Design
4. Develop
5. Release
6. Track & Monitor

**Waterfall**

- Requirements
- Design
- Implementation
- Verification
- Maintenance

**Agile Development**

- Continuous cycles
- Small, high-functioning, collaborative teams
- Multiple methodologies
- Flexible/continuous evolution
- Customer involvement

**Waterfall**

- Sequential/linear stages
- Upfront planning and in-depth documentation
- Contract negotiation
- Best for simple, unchanging projects
- Close project manager involvement
Waterfall vs Agile
Team Structure

Traditional Team Structure

Agile Team Structure
Did you Know?

Total Active PMI Members: 550,000+ (2018)
<table>
<thead>
<tr>
<th>Traditional</th>
<th>Agile</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Initiating</strong></td>
<td><strong>Envisioning</strong></td>
</tr>
<tr>
<td>Defines and authorizes the project.</td>
<td>Defines the product sufficiently to provide a sandbox with borders in which to work.</td>
</tr>
<tr>
<td><strong>Planning</strong></td>
<td><strong>Roadmap</strong></td>
</tr>
<tr>
<td>Describes how the project will be managed.</td>
<td>Translates the vision into a set of features and an expected timebox in which to deliver them.</td>
</tr>
<tr>
<td><strong>Executing</strong></td>
<td><strong>Release</strong></td>
</tr>
<tr>
<td>Helps the project groups work together to complete the work.</td>
<td>Helps the team incrementally and iteratively develop potentially shippable code.</td>
</tr>
<tr>
<td><strong>Monitoring and Controlling</strong></td>
<td><strong>Adapting</strong></td>
</tr>
<tr>
<td>Checks the progress of the project and corrects problems.</td>
<td>Integrates planned stopping points to inspect and adapt the process and product.</td>
</tr>
<tr>
<td><strong>Closing</strong></td>
<td><strong>Closing</strong></td>
</tr>
<tr>
<td>Formally closes each phase or the project and receives approval of the project work.</td>
<td>Team reflects on achievements and decision-making per lessons learned.</td>
</tr>
</tbody>
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Blending Agile and Waterfall
Water-Agile-Fall Model
Did you Know?

PMI Revenue $300 million (2018)
Agile Waterfall Implementation
Hybrid Project Management Workflow
## Delivery Models

<table>
<thead>
<tr>
<th>Waterfall</th>
<th>Design Team</th>
<th>Design</th>
<th>Build</th>
<th>Test</th>
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<tbody>
<tr>
<td>Dev Team</td>
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<tr>
<td>Test Team</td>
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<table>
<thead>
<tr>
<th>Iterative (sequential)</th>
<th>Design Team</th>
<th>Design 1</th>
<th>Design 2</th>
<th>Design 3</th>
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</thead>
<tbody>
<tr>
<td>Dev Team</td>
<td>Build 1</td>
<td>Build 2</td>
<td>Build 3</td>
<td></td>
</tr>
<tr>
<td>Test Team</td>
<td>Test 1</td>
<td>Test 2</td>
<td>Test 3</td>
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</table>

<table>
<thead>
<tr>
<th>Iterative (overlap)</th>
<th>Design Team</th>
<th>Design 1</th>
<th>Design 2</th>
<th>Design 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dev Team</td>
<td>Build 1</td>
<td>Build 2</td>
<td>Build 3</td>
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<tr>
<td>Test Team</td>
<td>Test 1</td>
<td>Test 2</td>
<td>Test 3</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Agile</th>
<th>Designer</th>
<th>Sprint 1</th>
<th>Sprint 2</th>
<th>Sprint 3</th>
<th>Sprint 4</th>
<th>Sprint 5</th>
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</thead>
<tbody>
<tr>
<td>Developer</td>
<td></td>
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<tr>
<td>QA</td>
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<table>
<thead>
<tr>
<th>Multi-Method</th>
<th>Agile Team 1</th>
<th>Sprint 1</th>
<th>Sprint 2</th>
<th>Sprint 3</th>
<th>Sprint 4</th>
<th>Sprint 5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Agile Team 2</td>
<td>Sprint 1</td>
<td>Sprint 2</td>
<td>Sprint 3</td>
<td>Sprint 4</td>
<td>Sprint 5</td>
</tr>
<tr>
<td>Iterative Teams</td>
<td>Design 1</td>
<td>Design 2</td>
<td>Design 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Build 1</td>
<td>Build 2</td>
<td>Build 3</td>
<td></td>
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<tr>
<td></td>
<td>Test 1</td>
<td>Test 2</td>
<td>Test 3</td>
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</table>
**Blended Model**

### Traditional
- Deterministic
  - Detailed plan for entire project
  - Scope-boxed phases
  - Track progress by tasks and milestones completed
  - Detailed documentation for all requirements
- Up-front
  - Design all before coding in complete detail
  - Periodic builds
  - Integrate only once all code complete
  - Partial unit test coverage
- Low
  - Business involvement only at project start and completion
  - "Throw it over the wall" requirements communication model
  - Communication via periodic state meetings (monthly or greater)

### Blended Agile
- Project Management
  - Short to medium length time-boxed iterations
  - Varying granularity plans
  - Track progress by value delivered
  - Risk-driven requirements documentation
- Design & Development
  - Risk and value-driven design choices
  - Spike solutions for riskiest components
  - Daily builds
  - Continuous functional testing, largely automated
  - 80% unit test coverage
- Collaboration
  - Frequent, regular business involvement
  - Cross-group collaboration via frequent checkpoints
  - Cross-functional teams
  - Daily "standup" meetings

### Pure Agile
- Evolutionary
  - 1-2 week time boxed iterations
  - Plan only current iteration
  - Track progress by working code
  - Tests are only long-term requirements documentation
- Just-In-Time
  - Design all just-in-time – nothing up front
  - Minimal design documentation
  - Continuous integration builds
  - Test-driven development; 100% unit test coverage
- High
  - Continuous face-to-face business involvement
  - Cross-functional teams
  - Pairing
  - Daily "standup" meetings
PMO Role

- Recommends an agile project management office (PMO) that provides governance across all teams

- The PMO would maintain the same core functions as a traditional PMO, but use agile and lean concepts in its operation.

- Establishing a common and agreed-upon governance across all teams, the PMO is able to monitor and steer the overall portfolio to map to the organization's vision

- Provide the necessity training to the core team
Benefits of Blending Agile and Waterfall in Project Management

- Improving predictability
- Improving the ability to respond in a timely manner to feedback from users, team members, and management
- Benefits of allowing additional user input/involvement
- Benefits of ongoing development / testing for quality and improved business value
- Reduced risk of failure
- Earlier usability/replacement of non-functional existing options
- More Flexibility than other models
- Increase the speed, decrease the cost and improve the quality
Did you Know?

PMI Volunteers: 10,000 (2017)
Why and When no Blending?

• Full life cycle vs Multiple increment life cycle
• Role Challenges
• Weightage of documentation
• Working software or early documentation
• Time commitment
• Testing consistency
• Requirements remain fixed
An Recommendations for success with Blended model

- Be Clear About Your Goals
- Lesson Learned
- Don’t Mix and Match
- Measures as much as possible
- Leverage Bi-Modal Approaches
- Use Value Stream Mapping to Improve Water – Scrum – Fall
- Focus on Outcomes – Business Goals and Customer Satisfaction
### Choose Right Project and Right Model

Which PM Method Is Right for You?

Use this quick list to compare 3 popular project management methodologies and determine which one will work best for your project and your team.

<table>
<thead>
<tr>
<th>Project type</th>
<th>WATERFALL</th>
<th>AGILE</th>
<th>BLENDED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Campaign, event, physical product, or structure</td>
<td>Software</td>
<td>Tech-focused project where dev is just part of the bigger puzzle</td>
<td></td>
</tr>
<tr>
<td>Scope</td>
<td>Any size with a defined scope</td>
<td>Small-to-medium, iterative</td>
<td>Any project size or scope</td>
</tr>
<tr>
<td>Budget</td>
<td>Fixed</td>
<td>Flexible</td>
<td>Flexible, but with an understanding of boundaries</td>
</tr>
</tbody>
</table>
Q & A
Thanks Note

Linda Stachera, MSM, PMP, CSPO
Tim Larson, PMP
&
PMI Nashville Chapter and Volunteers
Thank You