



Using Agile Surveillance Points Instead of Milestone Reviews

Systems and Software
Technology Conference (SSTC 2012)

Dick Carlson

Richard.Carlson2@Boeing.com

Philip J. Matuzic

Philip.J.Matuzic@Boeing.com

Introduction

Robert Gates, the United States Secretary of Defense, said in a September 2008 speech,

“Our conventional modernization programs seek a 99% solution in years. Stability and counterinsurgency missions—the wars we are in—require 75% solutions in months. The challenge is whether in our bureaucracy and in our minds these two different paradigms can be made to coexist” [Gates 2008].

Why the DoD is Interested in Agile Methods:

“In the DoD, the competitor is the adversary, and the consequences of providing competitive capabilities to warfighters too slowly are potential loss of life, not just loss of market share.”

Source: *Agile Methods: Selected DoD Management and Acquisition Concerns*, CMU/SEI-2011-TN-002, October 2011

About Surveillance Points

- Surveillance points include all iterations and their releases throughout the project duration where stakeholders can observe completed increments of functionality
- Each iteration concludes with an informal demo/review
 - Iteration demos provide an opportunity for key stakeholders to see incremental product development
- A release demo/review is conducted at the end of every iteration series for the customer, users, and other relevant stakeholders to see
 - A release demo/review consists of a brief technical interchange meeting (TIM) followed by a demo where completed functionality is demonstrated

Tyranny of the Waterfall Model

- Development is done in isolation from systems engineering, integration, or test
- Heavy overhead for technical reviews and programmatic
- Aggravates complexity overload and analysis paralysis (large steps with overwhelming degrees of complexity are attempted)
- Pushes many high-risk and difficult elements toward the end of a project
- Does not accommodate uncertainty or changing requirements well
- Does not yield a working version of the product until late in the process – problems are not discovered until late in the process
- No intrinsic feedback loops

Source: *Agile and Iterative Development: A Manager's Guide*, Larman [2004]

Classic Waterfall Milestones

- Assume stable requirements & design early
- Focus heavily on documents and formal reviews
 - Docs: SSS, OCD, SSDD, SRS, SDD, STP, etc.
 - Reviews: SSR, PDR, CDR, TRR, FQT
- High overhead
- Not required by DoD 5000
- Scope change results in significant impacts to design and construction

Customer Surveillance

- Supports incremental development
 - Encourages combining critical reviews (e.g. PDR/CDR)
 - Focuses on functional product
- Each iteration finishes with additional functionality
 - Allows stakeholders to see incremental development progress
- Each release includes demonstrable functionality
 - Elicits customer/stakeholder feedback
 - Adds low-overhead formality
 - Accommodates well to scope growth
- Not prohibited by DoD 5000

Establish a Product Vision

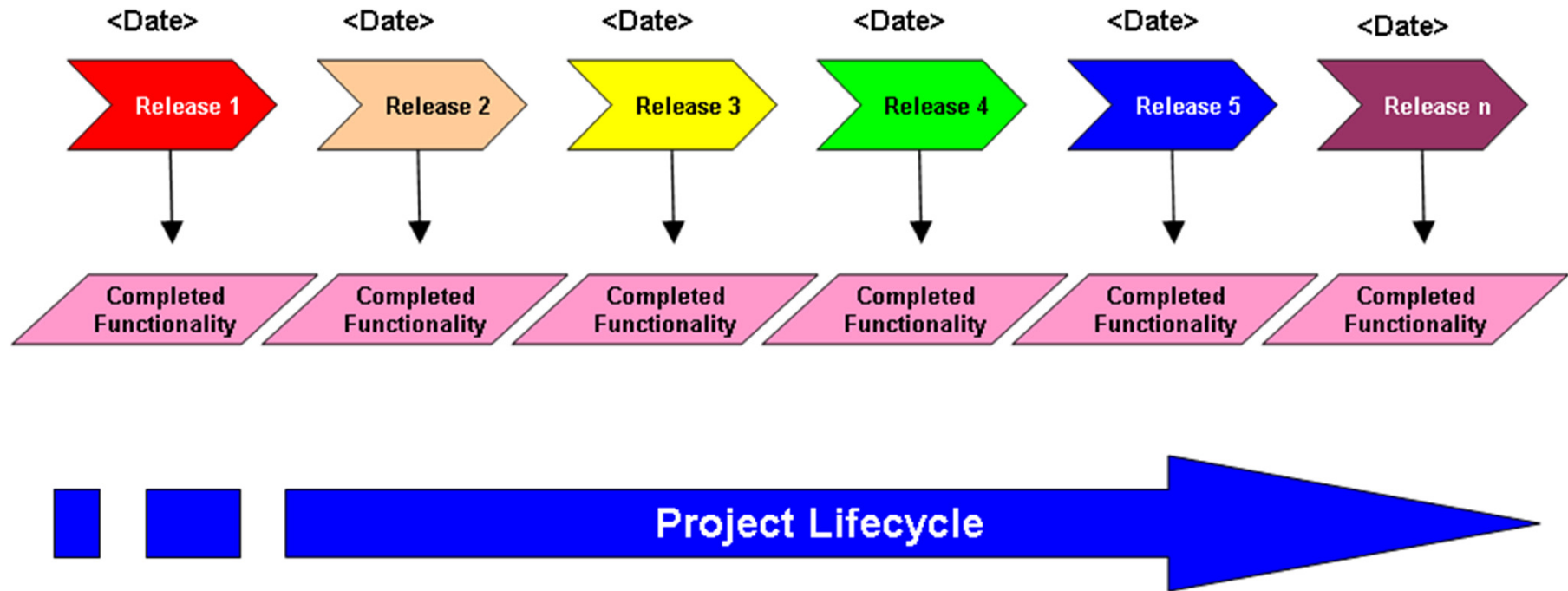
One that encourages and supports:

- Customer Satisfaction
- Frequent Delivery
- Motivated Team
- Working Software
- Technical Excellence
- Emergent Design
- Embracing Change
- Collaboration
- High Bandwidth
- Sustainable Pace
- Simplicity
- Continuous Improvement

Agile Release Planning

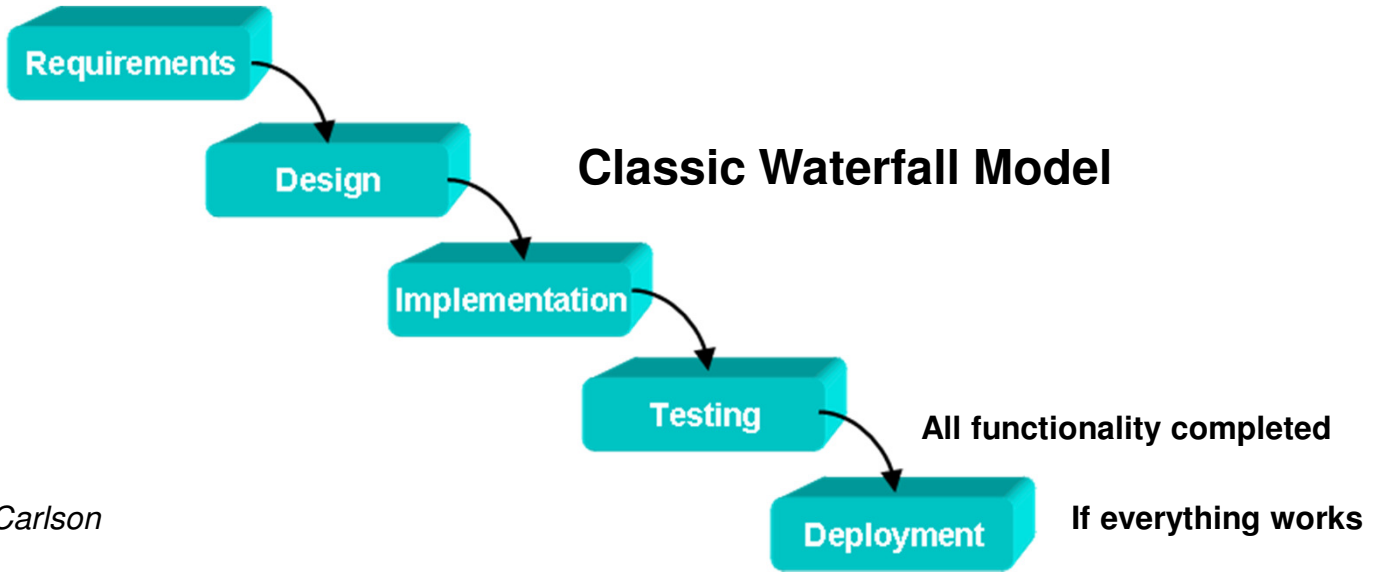
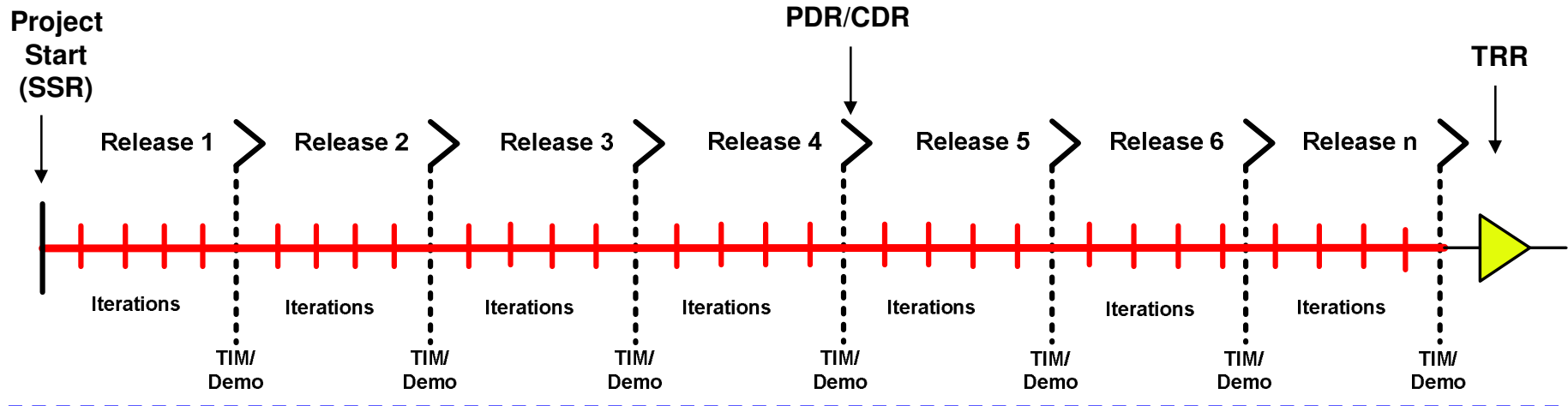
- Identifies functionality to be implemented
- Includes a release plan that speaks like a storyboard
- Emphasizes importance of customer involvement and feedback
- Requires customer approval
- Helps transition away from milestone reviews

Project Roadmap



Source: *Dick Carlson*

Customer Surveillance Points



Source: Dick Carlson

Agile Release TIM/Demo

- Conducted for the benefit of the customer
 - Demonstrates completed functionality
 - Includes a brief TIM
 - Reduces need for time & budget-consuming milestone reviews
- Serve as logical customer surveillance points
 - To evaluate product development progress
 - To evaluate team progress and schedule commitment
 - To determine technology adequacy

Enlighten Your Customer

- Let your customer know there is a viable alternative to the Waterfall model (3 ways to do this)
 - Respond to a proposal need for Agile
 - Pre-proposal – recommend an Agile approach
 - Post-proposal – provide examples and show them how
- Train/coach your customer on how Agile is deployed
- Encourage your customer to actively participate in development validation—their feedback is vital!

Negotiate With Your Customer

- Discuss contractual reporting requirements with customer and program office
 - Technical Progress
 - Earned value
- Demonstrate how surveillance points can satisfy those reporting requirements
- Work with program office and contracts organization to formalize agreements

Propose the Approach

- Plan a release strategy where each release duration includes a series of short iterations
- Use simple Agile modeling techniques
- Conduct daily standup meetings to optimize communication
- Conduct iteration reviews with stakeholders to demonstrate incremental development
- Conduct release reviews to validate completed functionality
- Conduct retrospectives to identify lessons learned and opportunities for improvement

Keep Everything Transparent

- Measure performance, productivity and quality
- Keep all work visible to everyone
- Announce all activities
- Improve continuously
- Celebrate successes!

Where to Start

- Determine if implementing Agile adds or reduces risk. For example:
 - Is the customer willing to actively participate, i.e. requirements clarification, product demos, incremental development?
 - Will there be regular and frequent customer communication?
 - Would the customer be willing to drive and prioritize requirements?
 - Is the customer willing to provide frequent feedback on items completed?
- If Agile can be applied with minimal risk, then train team and the organization on Agile implementation
- Find and use an experienced Agile coach or champion



Thank You!