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Lean-Agile Software

# Satisfying DoD Contract Reporting With Agile Artifacts

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# Environment

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- MIL-STD-1521B, the FAR, and DFAR are based on waterfall life-cycle stages for technical reviews and contract reporting, and have specific contract metrics and reporting requirements
- “Agile concepts have been around for decades. In recent years, Agile matured and personnel became skilled in applying Agile; some DoD contractors started to build internal Agile capabilities and use Agile on DoD programs. Many DoD acquisition programs have also begun to propose and use Agile processes, attempting to take advantage of contractor capabilities; however, they have done this without (as yet) any formal DoD guidance, templates, or best practices.”

(Source: Considerations for Using Agile in DoD Acquisition, April 2010, SEI)

- How can proven Agile practices and principles be applied to projects that are not software-centric?
  - Boeing experience implementing Agile system engineering activities

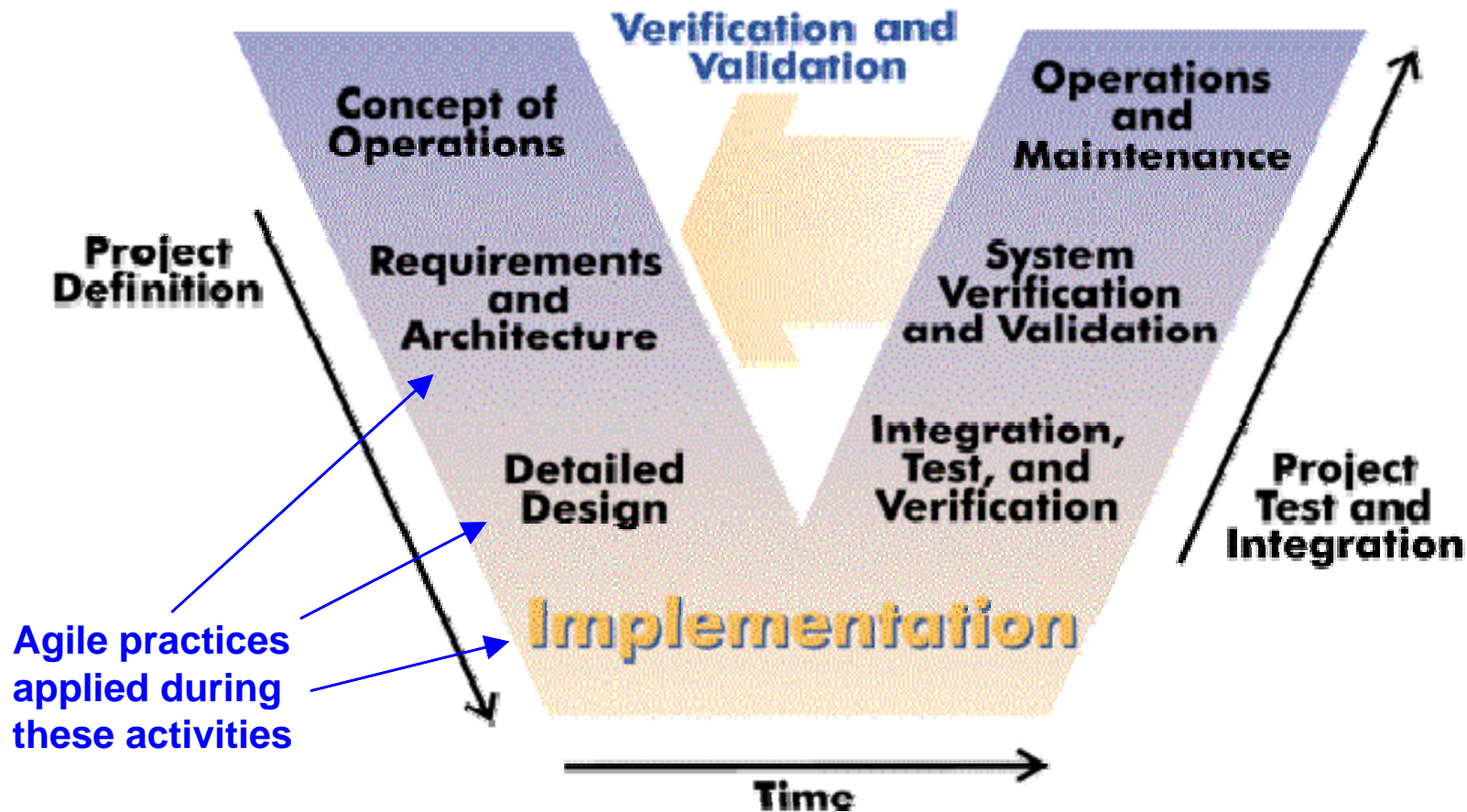
# Overview

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- In the context of this presentation “Agile Systems Engineering” or AgileSE is limited to the definition and development of requirements for software systems
- We will identify specific systems engineering activities to which Agile was applied
- We will also include recommendations for applying Agile for project execution
- What will not be included is production relating to assembly and manufacturing and contractual impacts

# Agile Practices Applied to SE “V” Model

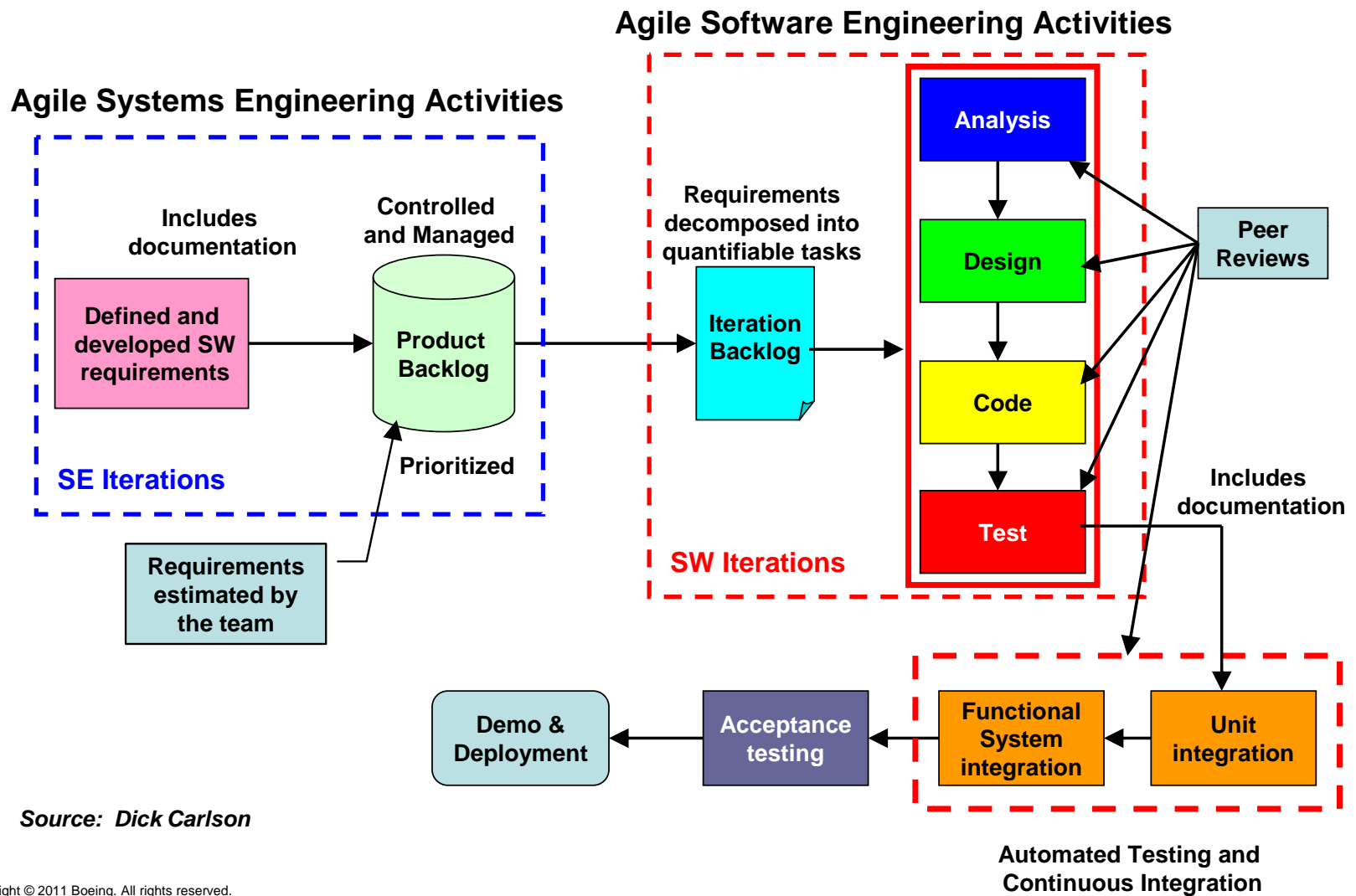
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Source: <http://www.thefullwiki.org/V-Model>

# Agile SE/SW Experience Model

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Source: Dick Carlson

# Getting Started

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- Conduct an assessment to 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 in Agile
  
- Request an Agile coach be assigned to the project
  
- Focus more on planning than developing plans

# Implement Simple Agile Practices

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- Empower teams to self-manage and self-organize
- Close customer collaboration
- Daily stand-up meetings
- Planning and estimating
- Short iterations
- Prioritize requirements
- Artifact reviews – demonstrate functional prototypes



# Prioritize Activities & Work Products

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- Complete most important stuff first
- Lean out verbose documentation
- Defer architectural and design decisions until needed
- Verify all completed items
- Review completed items with key stakeholders



# Establish a Vision

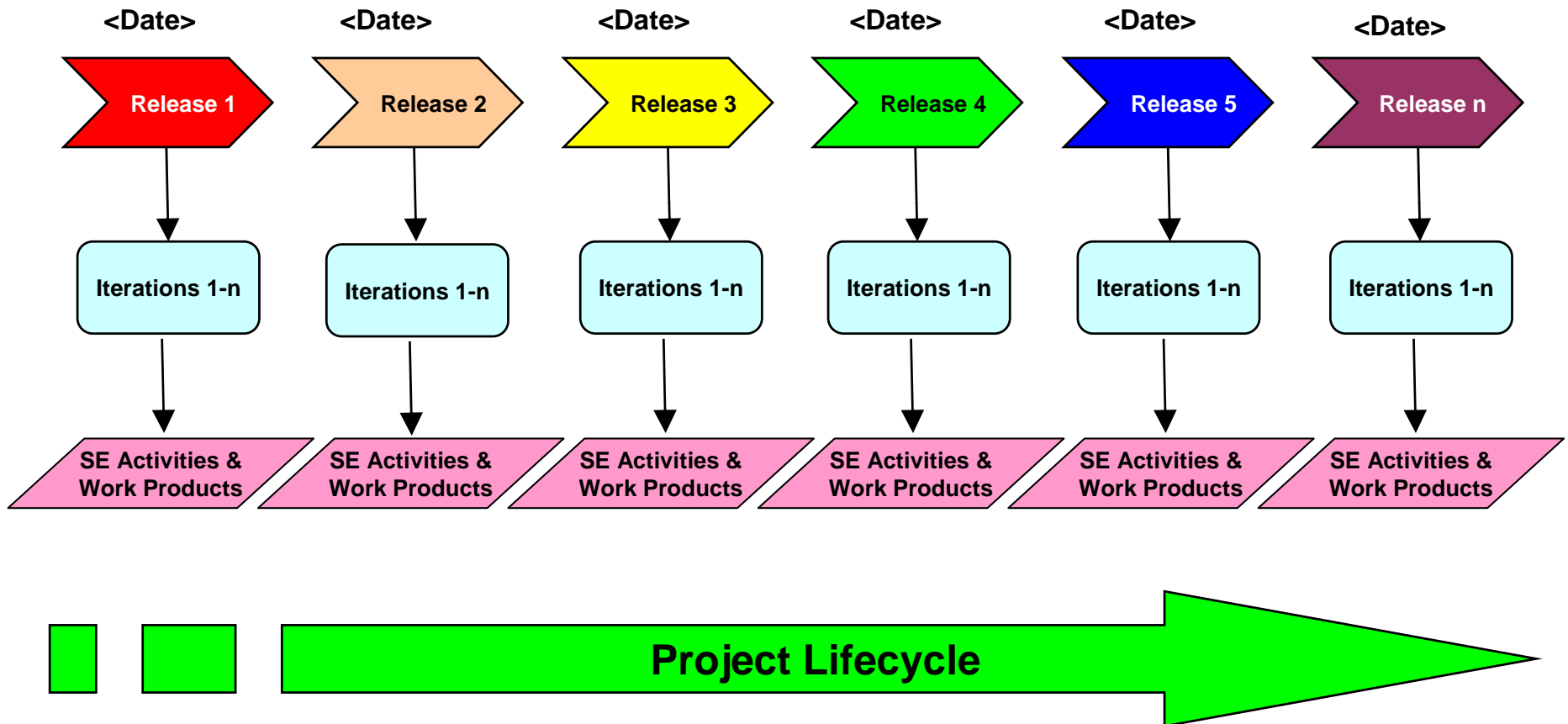
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A vision that encourages and supports:

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

# Create a Project Roadmap

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# Document Your Agile Approach

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- Plan a release strategy through a series of short iterations to complete work products
- Use simple Agile modeling techniques
- Conduct daily standup meetings to identify previous work completed, what needs to be completed next, and any impediments
- Hold iteration reviews at the end of every iteration with key stakeholders
- Conduct team retrospectives to identify what worked well and improvement opportunities

# Establish a Viable Release Plan

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- Identify artifacts that will be developed incrementally
- Explain the importance of active customer involvement and feedback
- Elaborate through the project's Agile approach
- Obtain customer approval
- Distribute to everyone!
- Update often

# Enlighten Your Customers

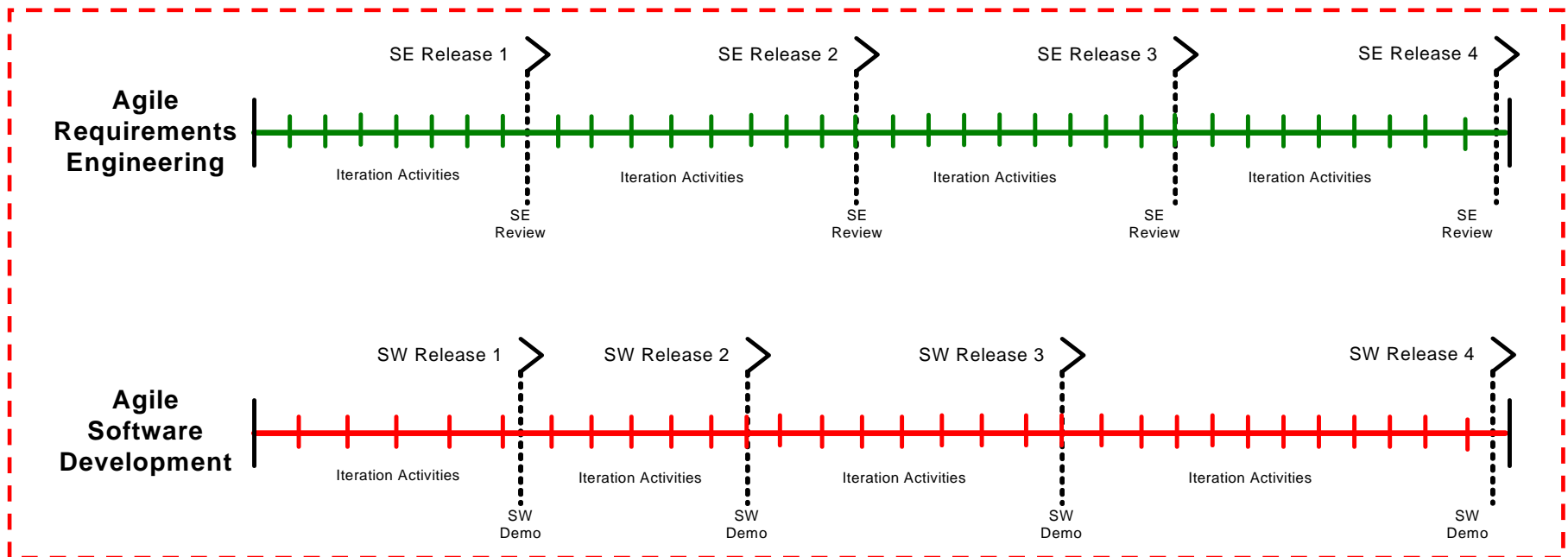
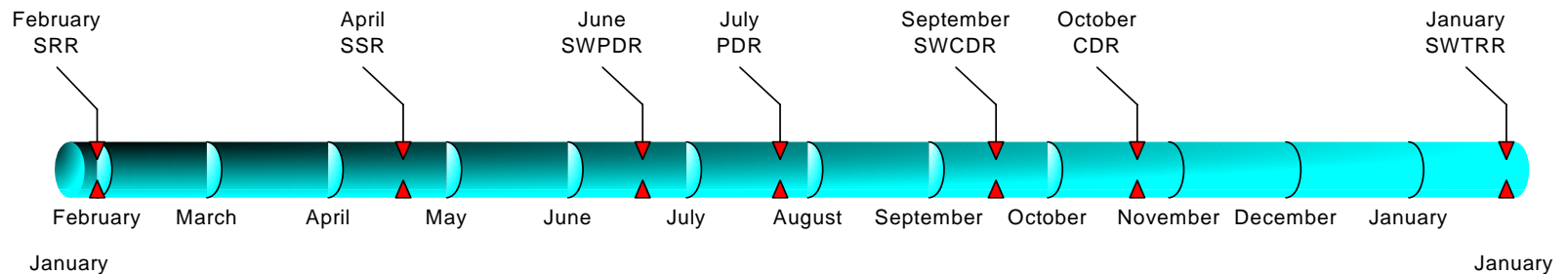
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- Talk to them – let them know there is a viable alternative to the waterfall model (3 ways to do this)
  - Respond to a proposal need for Agile
  - Pre-proposal – recommend an Agile approach
  - Post-proposal – provide examples and show them how
- Identify the importance of their role in product development
- Train them on how to do this
- Get them to actively participate in the development validation process – their feedback is vital!
- Develop an accurate and meaningful release strategy

# Meet Customers Half-Way

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## Project Milestone Reviews



# Make Everything Transparent

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



**Questions?**

# Thank You!

