The Agile V Model
Oxymoron or Best Practice?

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Introduction

- The V model: a dead relic of deluded waterfallers?
- Advocates of the V model: anachronistic dinosaurs?
- Actually, the V model was ahead of its time in many ways
- Let’s look at the way the debate is framed, then smash a few myths
- I’ll review a number of best practices of agile development that are actually V model best practices
The ISTQB syllabi and most test experts (pro and con) consider the V model sequential…

…but is the V model always necessarily sequential? Can we extend its core ideas into agile?
Agile Looks Like...

Yeah, the model looks totally different than the V model. However, I’ve identified nine test-related agile concepts (so far) that are clearly rooted in, derived from, or related to V model best practices.
Agile Best Practices from the V Model

Agile best practices rooted in V model ideas:
- Testing and quality throughout iteration
- Whole team approach
- Kill bugs at the source
- Acceptance criteria
- Acceptance test driven development and behavior driven development
- Definition of done
- Test quadrants
- Planning poker
- Burndown charts and velocity

Don’t believe me? I’ll show you…
Testing and Quality Throughout

- Agile emphasizes testing and quality throughout each iteration, not just at the end
  - Working software is the primary measure of progress
  - Emphasize technical excellence and good design
- Consider the V model principle of early testing and quality assurance
  - User story grooming at start of each iteration
  - Test driven development
- Both are examples of activities related to this principle
Whole Team Approach

- It’s an agile best practice to use the whole team approach.
- This means developers, testers, and business stakeholders collaborate throughout the process.
  - This collaboration is essential to testing and QA throughout.
  - It also promotes efficiency, teamwork, and high morale.
- The V model calls for same collaboration, for same reasons.

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Kill Bugs at the Source

- An agile best practice is to fix bugs in the iteration in which they are found
  - “Fix bugs first in next iteration” is seen as a weaker strategy
  - Hardening or stabilization sprints seen as waterfall by purists
- This concept is similar to phase containment, a V model best practice
  - Phase containment seeks to increase quality and reduce costs by removing defects at point of introduction
  - Agile seeks to increase quality and reduce costs by removing defects in the iteration of introduction
- Lifecycle aside, the song remains the same: it’s cheaper and better to find ‘em and fix ‘em sooner
Acceptance Criteria

User stories (the usual agile version of requirements) are supposed to include acceptance criteria.

Acceptance criteria tell developers, testers, and business stakeholders:
- What will be tested (the test conditions)
- How to recognize successful implementation (the test oracle)

Identifying test conditions and test oracles before coding (i.e., test analysis before code) is a long-standing V model best practice.
**ATDD and BDD**

- An agile best practice is the elaboration of user stories and acceptance criteria into tests
  - Acceptance Test Driven Development (ATDD)/Specification by Example
  - Behavior Driven Development (BDD)
- ATDD/BDD provide specific test cases, readable by business and technical stakeholders, that show how a feature should work
- Creating test cases before coding (i.e., test design before code) is another long-standing V model best practice
Definition of Done

- In Scrum (a dominant agile test management process), participants create a “definition of done” for:
  - Process activities
  - Work products
- Promotes quality and efficiency
- Very similar to the form and motivation behind a V model best practice, the definition of exit criteria
- However, in the V model, exit (and entry) criteria are often used to enforce sequentiality, a no-no in agile
## Test Quadrants

An agile best practice is to use the test quadrants to identify the right tests at the right time in each iteration.

This maps directly to the V model concept of test levels with varying focus and owners…

…but again without sequentiality.

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<th>Support the team (verify)</th>
<th>Business oriented</th>
<th>Technology oriented</th>
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<tr>
<td>Automated</td>
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<td>be included in</td>
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<td>regression tests</td>
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Evaluate the product (validate)
Planning Poker

- Planning poker is a Scrum estimation practice using story points, t-shirt sizes, or person-hours
  - Each member of the team estimates task size privately in a group meeting
  - All reveal their estimates at once (avoids anchoring)
  - Discussion is used to build consensus if needed
- This is nothing more than the Delphic oracle estimation technique, used for years in V model projects
Burndown Charts and Velocity

- After estimation, burndown charts are used to track work completed
  - This gives the team’s true velocity (capability for completion)
  - Velocity is used to estimate future iterations
- This is a form of metrics-based estimation, a long-standing V model best practice
What to Lose and to Keep in an Agile V

Lose

- Sequentiality (with its enabler, limiting change)
- Delivery only at the end
- Any adversarialism
  - IV&V (process cop)
  - Testers approving releases (quality cop)

Keep

- Independent testers
- (Flexible) up-front design
- Tasks outside iterations (e.g., automation, perf test, data, env, etc.)
- Other lifecycles where needed
- Lifecycle tailoring
- Defect tracking
Conclusions

- The V model is dead…long live the V model!
- In fact, sequential lifecycles (as well as other lifecycles) still have a place
- Many agile best practices arose from V model ideas
- Too bad that too few teams ever really followed these V model best practices (until now, under the guise of agile)
- Escape from purist dogmas to embrace good ideas where you find them, in any lifecycle
- Dualism (either/or) is seldom a useful mental model; usually it’s an obstacle
- Instead: tailor, adapt, blend, and extend
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