Mastering Systems Integration; Early Validation

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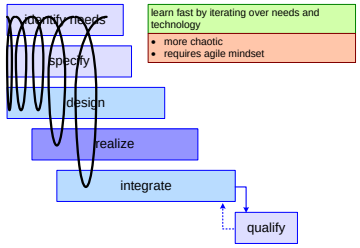
Abstract

The core principle of systems integration is early validation; are the assumptions of the needs, specifications and design decisions valid? it is better to fail early, then to hit faulty assumptions, unknowns, or uncertainties late in development.



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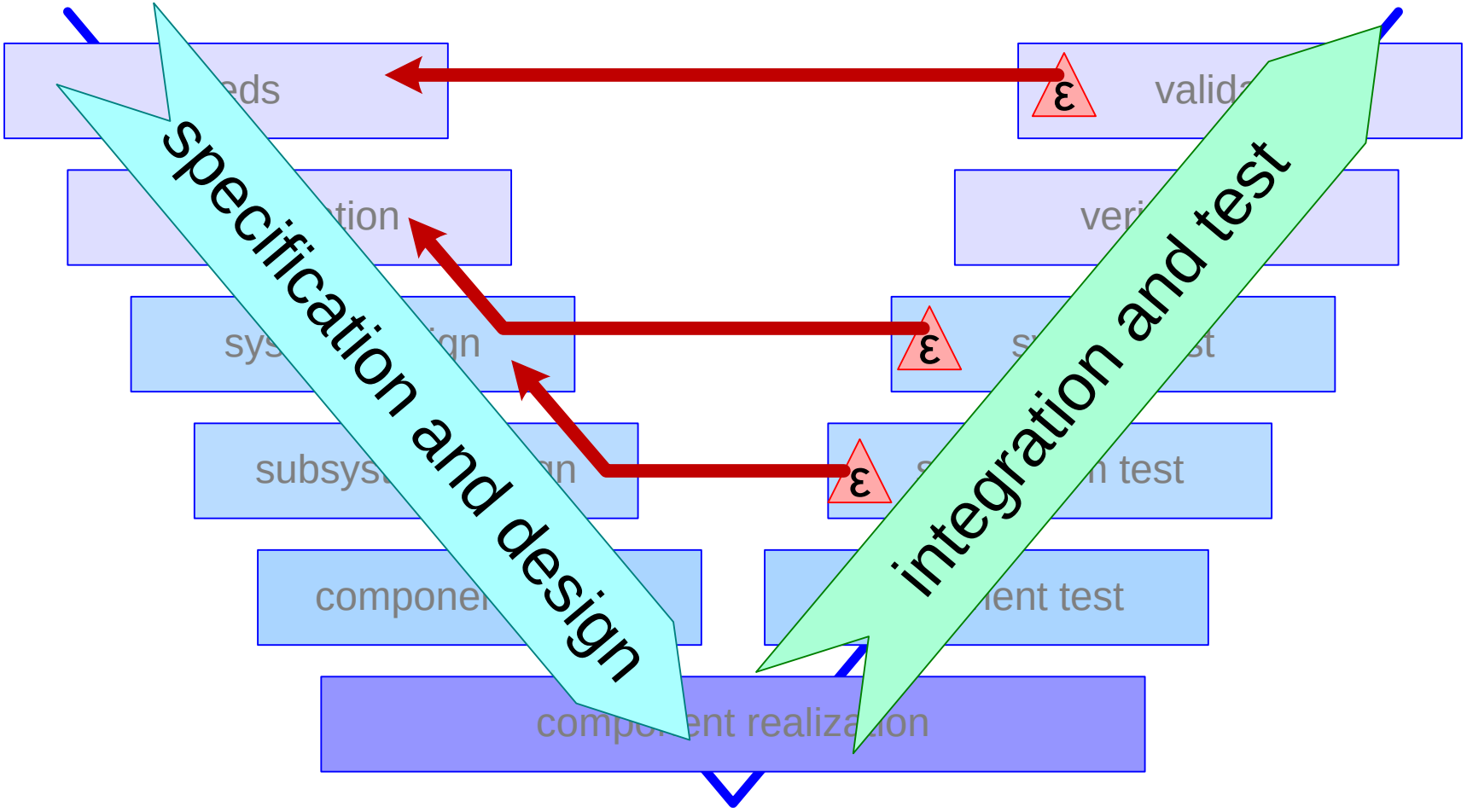
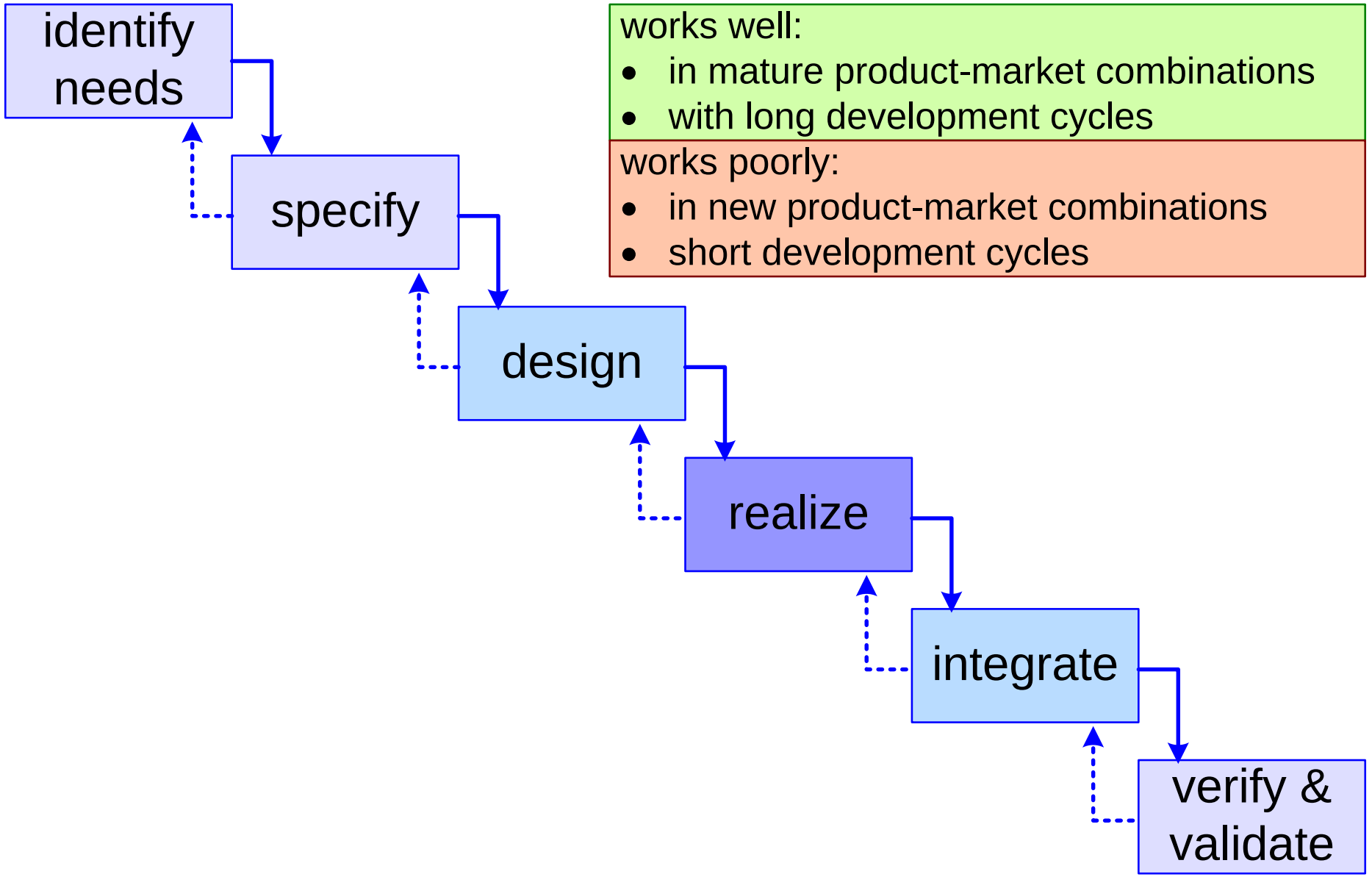
Most Problems are Found Late

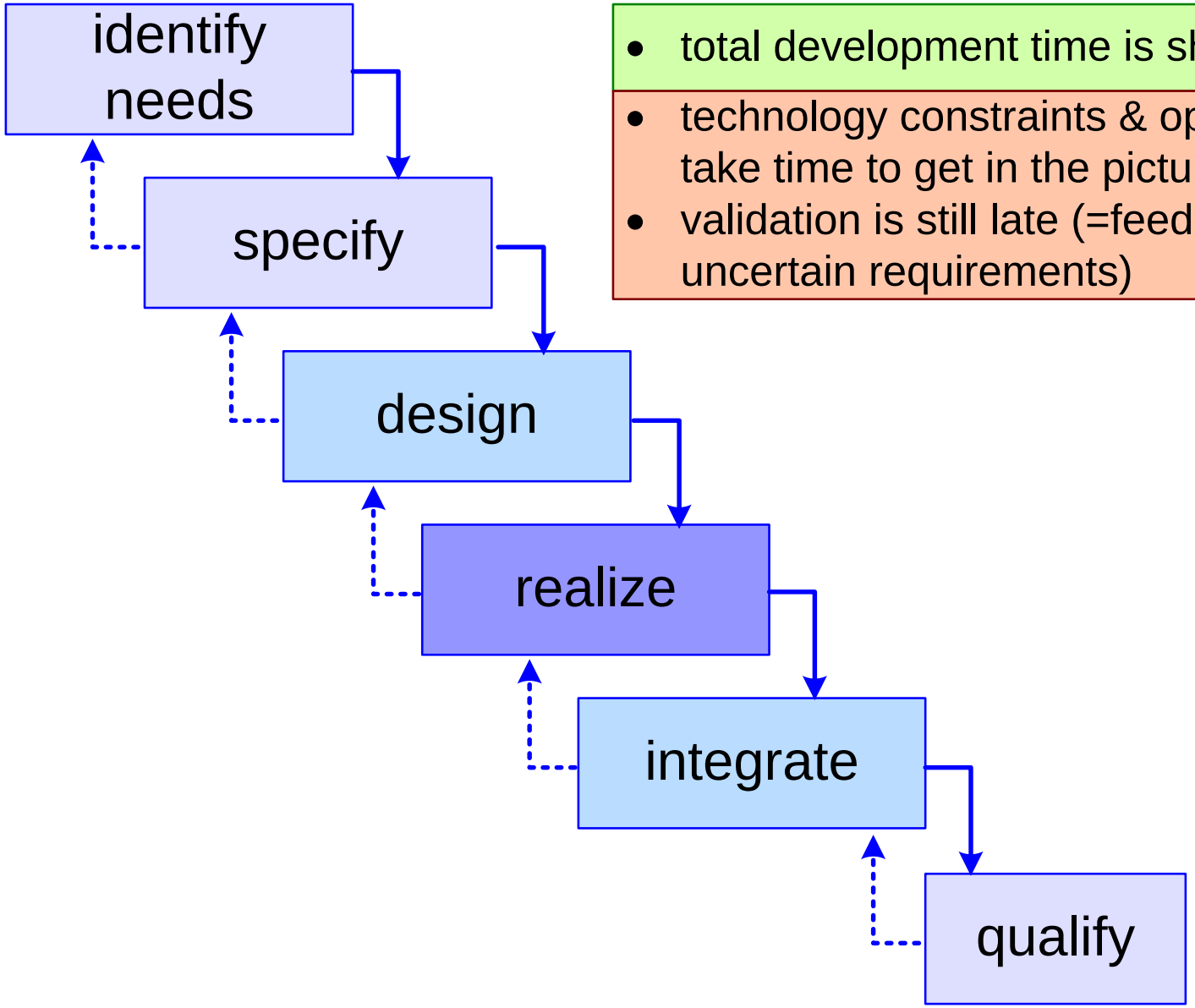
failures found during integration and test can be traced back to ***unknowns***, ***unforeseens***, and ***wrong assumptions***



Waterfall model



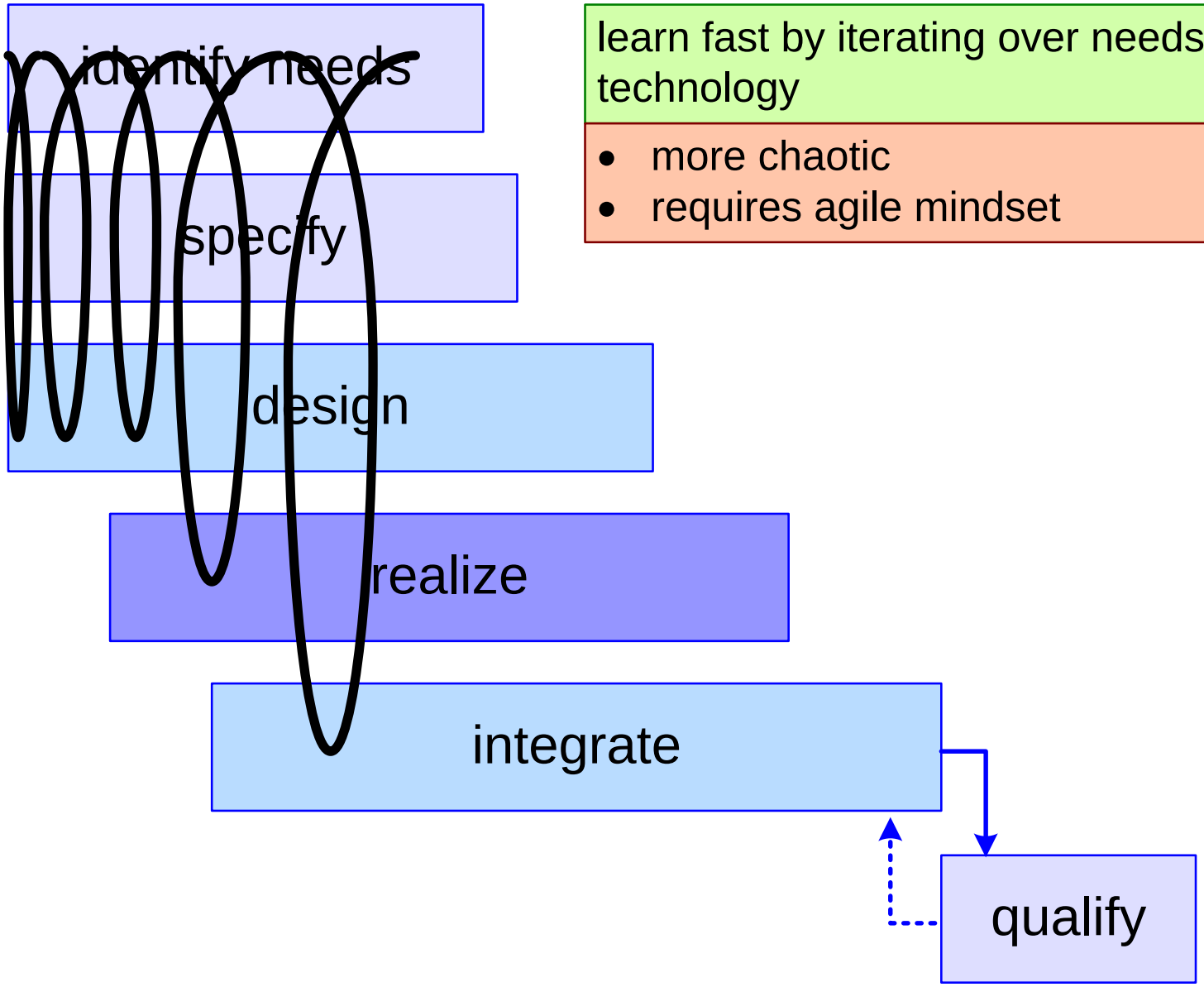
Concurrent Engineering



- total development time is shorter

- technology constraints & opportunities take time to get in the picture
- validation is still late (=feedback on uncertain requirements)

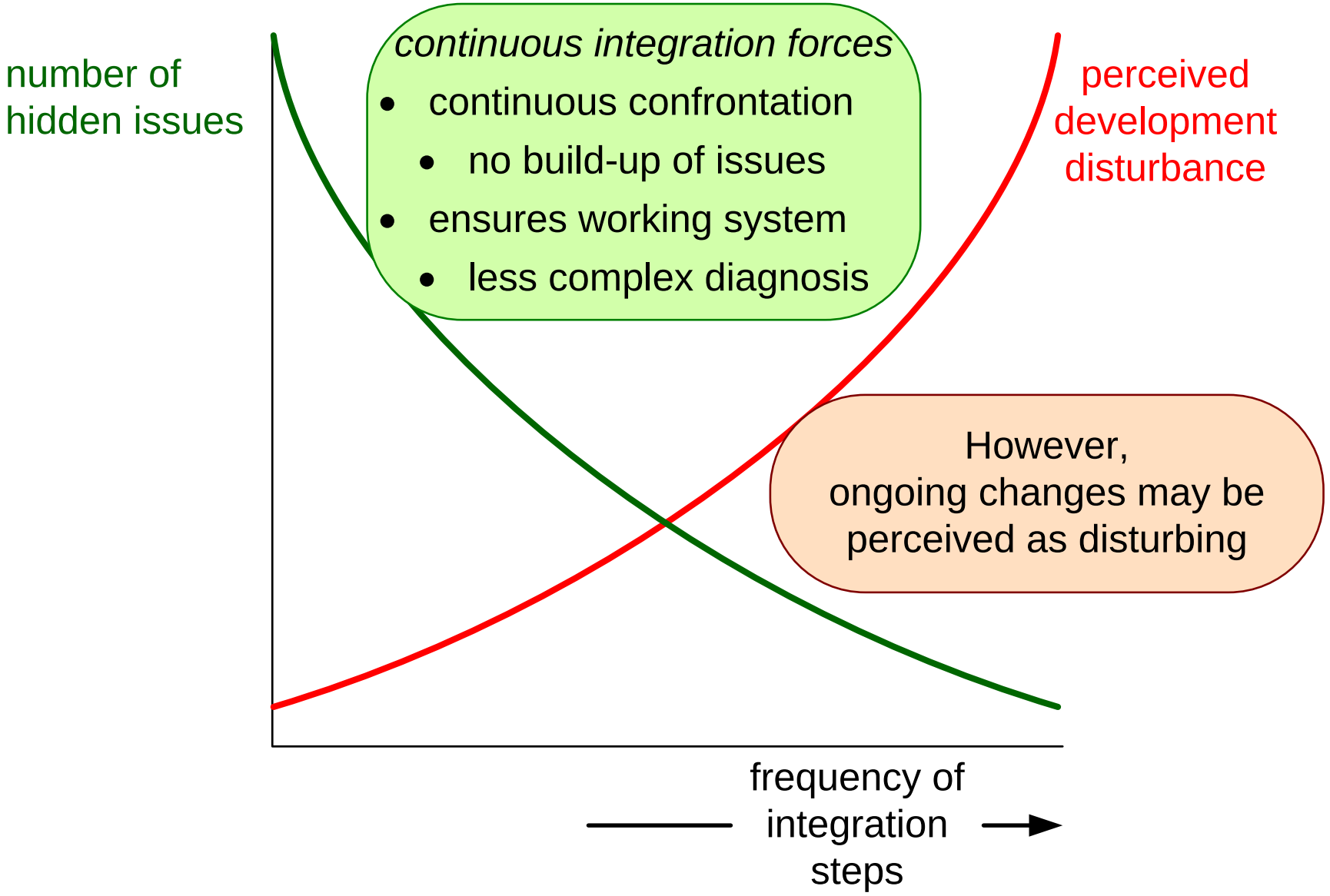
Iterative Approach



learn fast by iterating over needs and technology

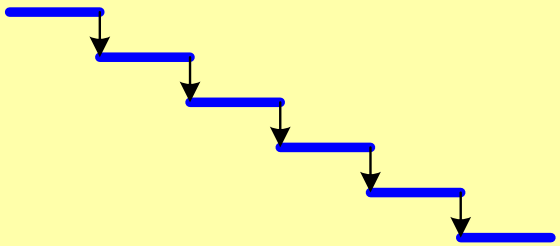
- more chaotic
- requires agile mindset

Continuous Integration



Development Processes From Waterfall to Agile

waterfall

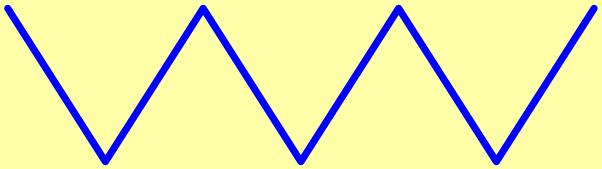


triple-V

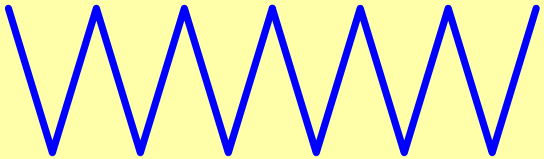
M1 functional model

M2 prototype

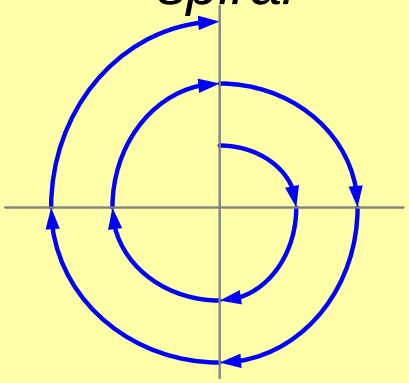
M3 product



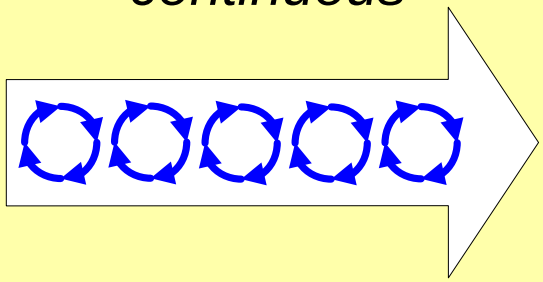
many Vs



spiral



agile/incremental/ continuous



and all kinds of hybrids