Mastering Systems Integration; Early Validation

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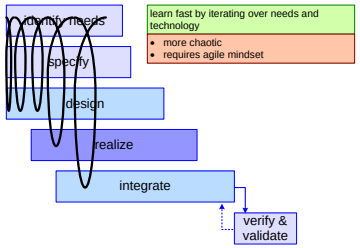
Abstract

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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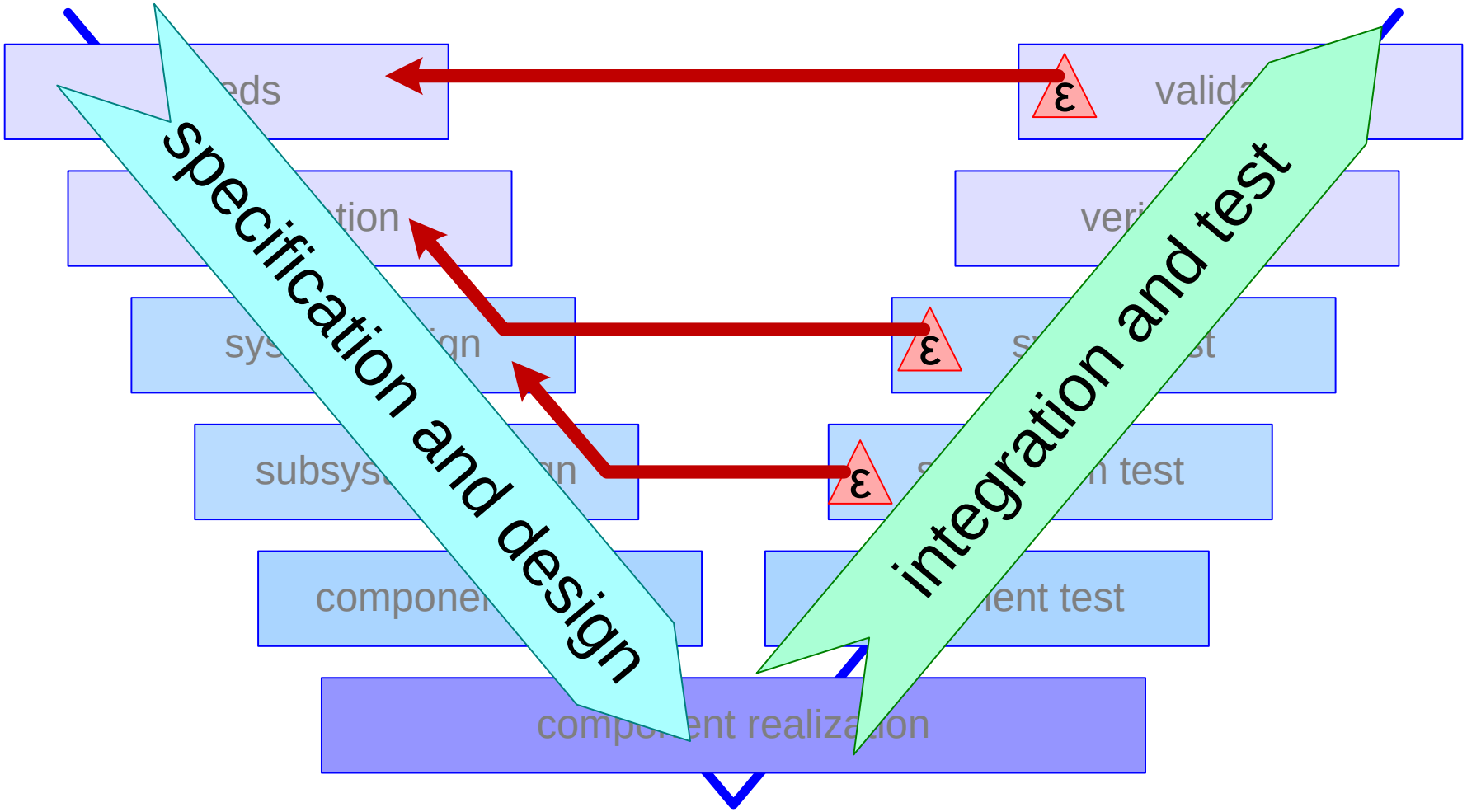
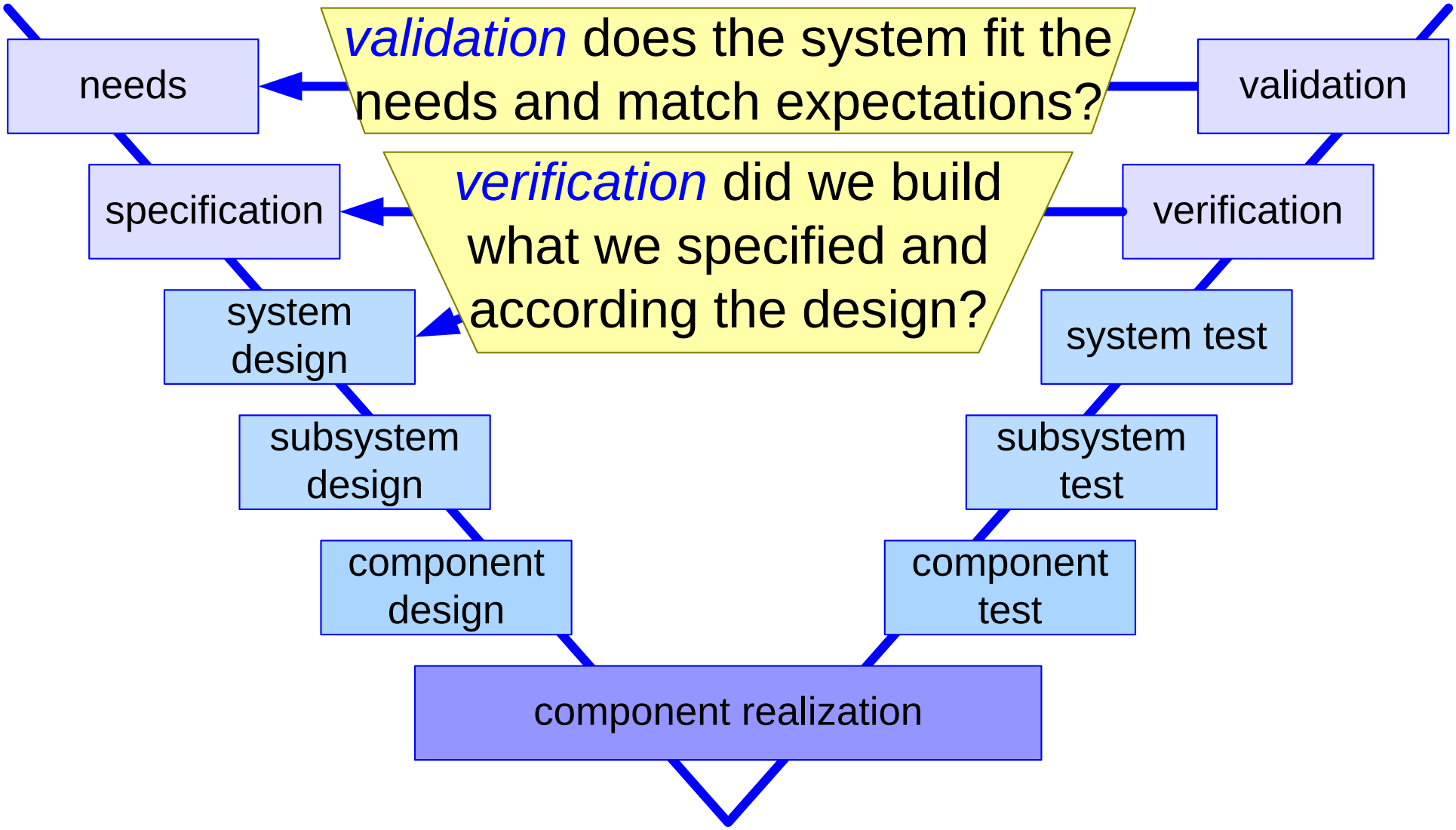
Most Problems are Found Late

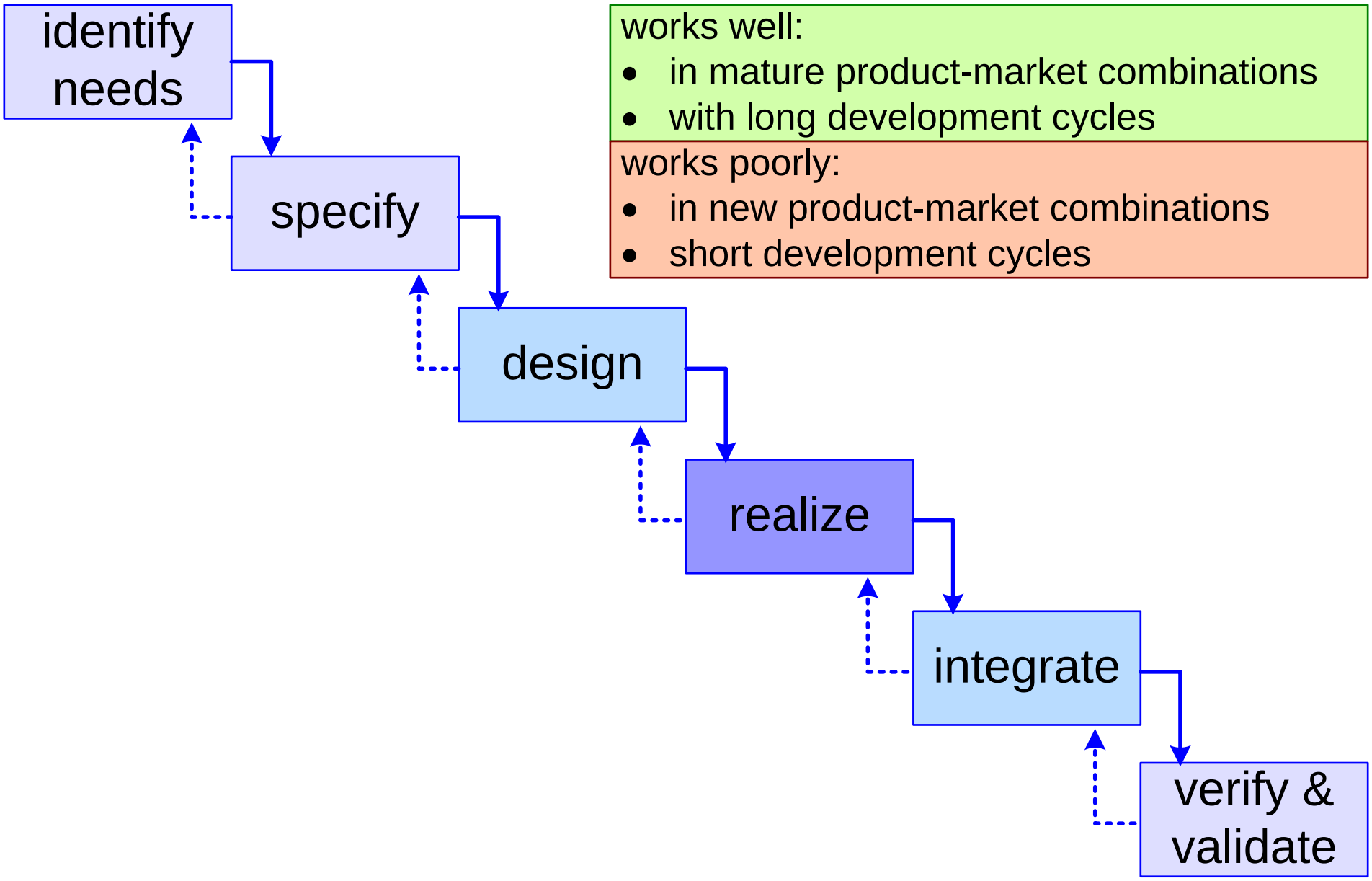
failures found during integration and test can be traced back to *unknowns*, *unforeseens*, and *wrong assumptions*



Validation and Verification in the V-model



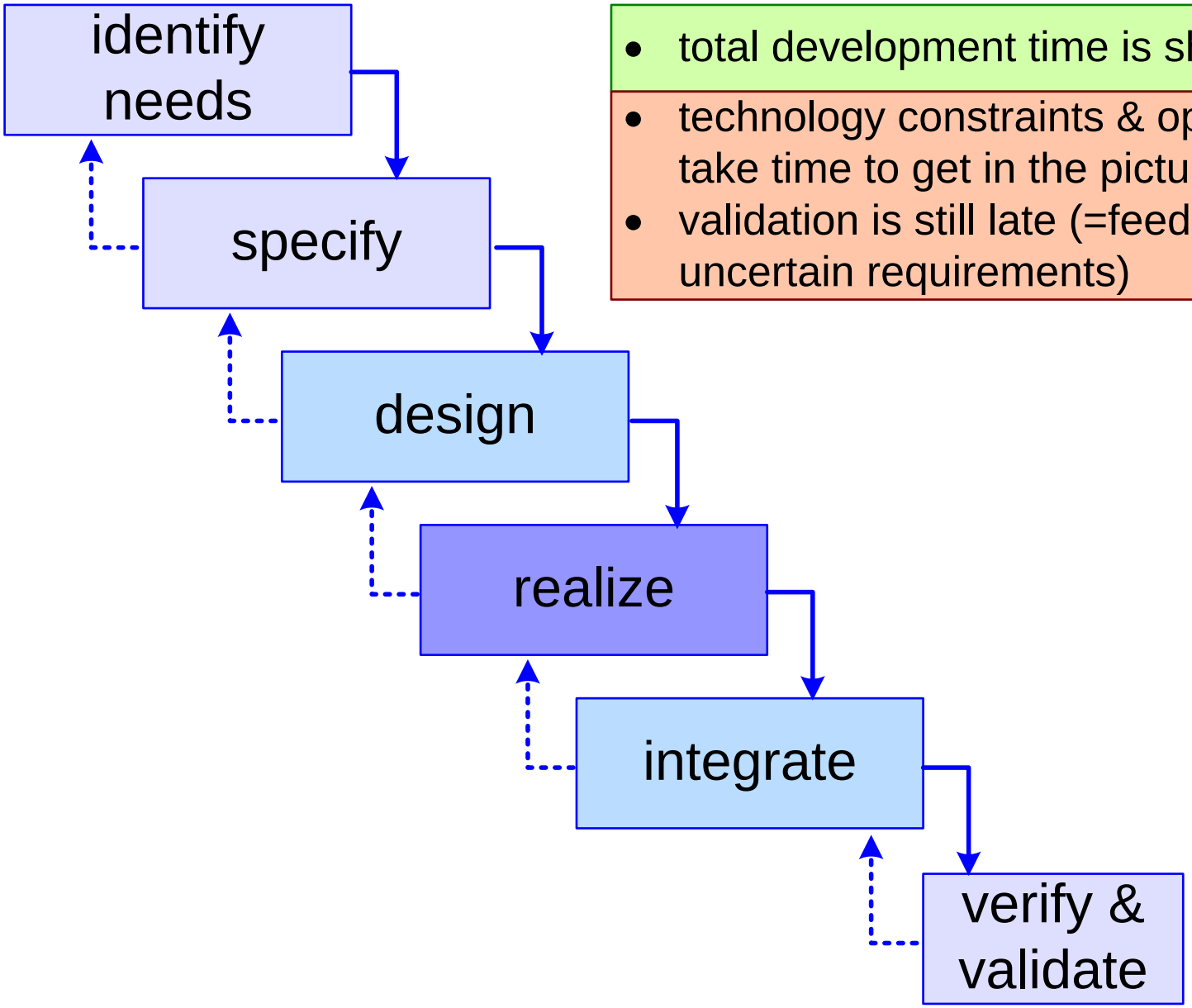
Waterfall model



works well:
- in mature product-market combinations
- with long development cycles

works poorly:
- in new product-market combinations
- short development cycles

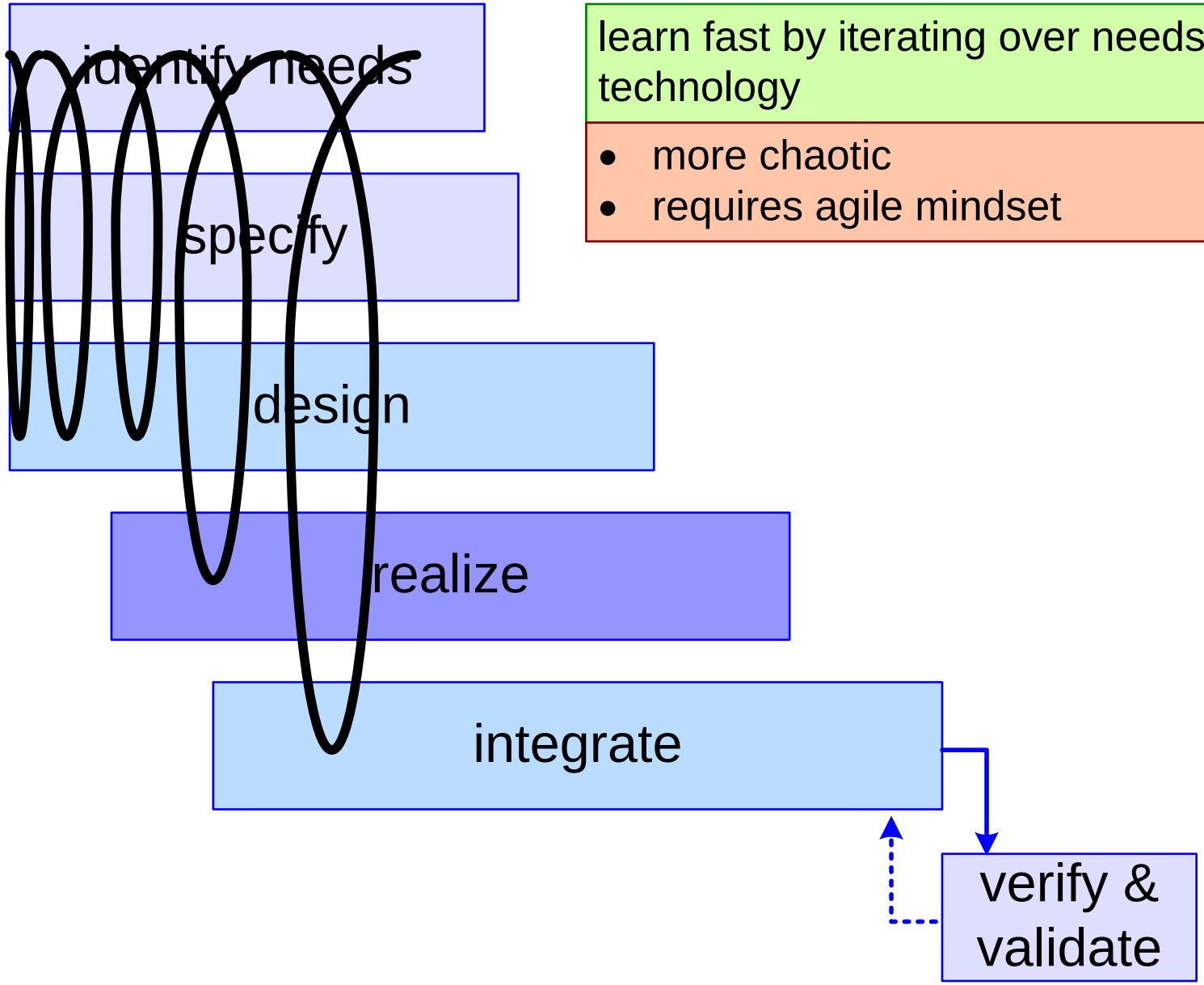
Concurrent Engineering



- 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

Life-cycle commitment, system-specific knowledge, and incu