Mastering Systems Integration; Introduction

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Abstract

This presentation introduces the ideas behind the course Mastering Systems Integration. Systems integration requires cooperation from many project members, such as project leader, product manager, architect, lead designer, integrator, and tester. Integration is more than a simple aggregation as the reverse of the decomposition. The purpose of systems integration is to detect anything nasty that has not been foreseen as early as possible.

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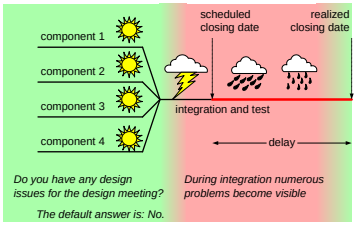
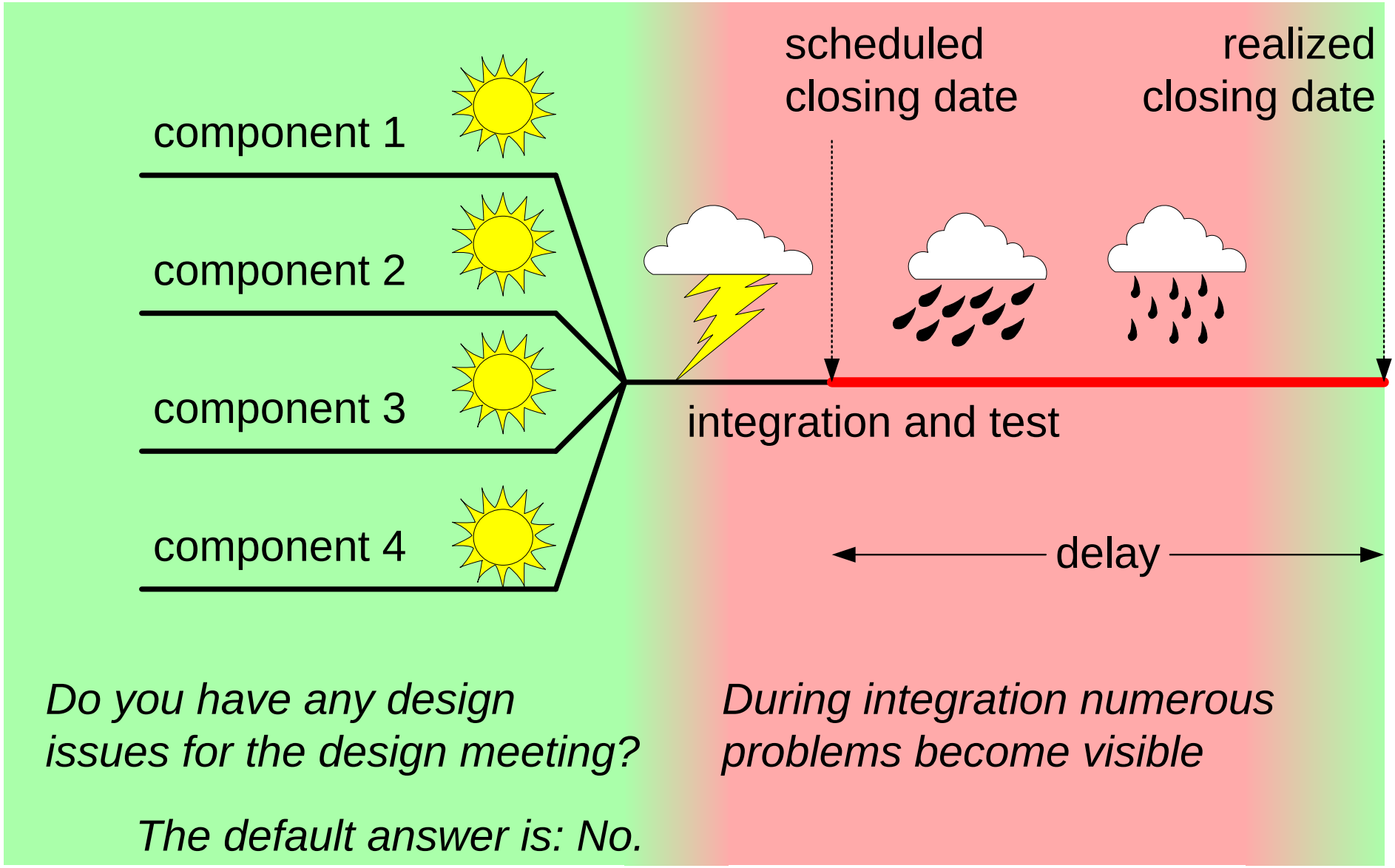


Integration uncovers hidden problems



Project Team; Contributions to Integration

Operational

Project Leader

- *planning*
- *organizing*
- *resources*
- *progress*

Technical

Architect
Lead Designer
Integrator

- *key functionality*
- *key performance parameters*
- *concept selection*
- *system design*
- *integration sequence*

Tester

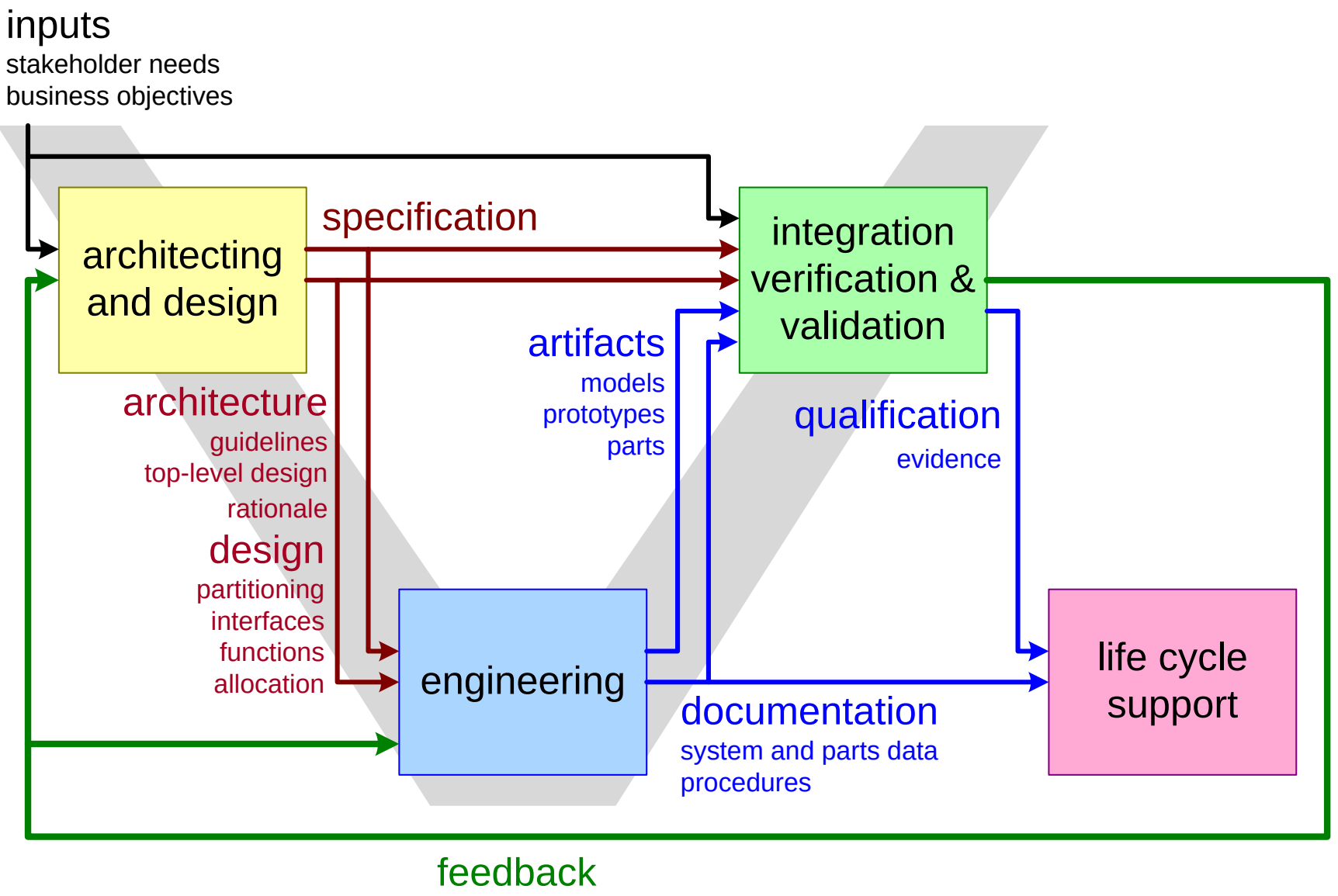
- *testing*
- *test configuration*
- *testware*
- *test specifications*
- *test reports*

Commercial

Product Manager

- *customer needs*
- *customer value*
- *system specification*

The Role of Integration in Development

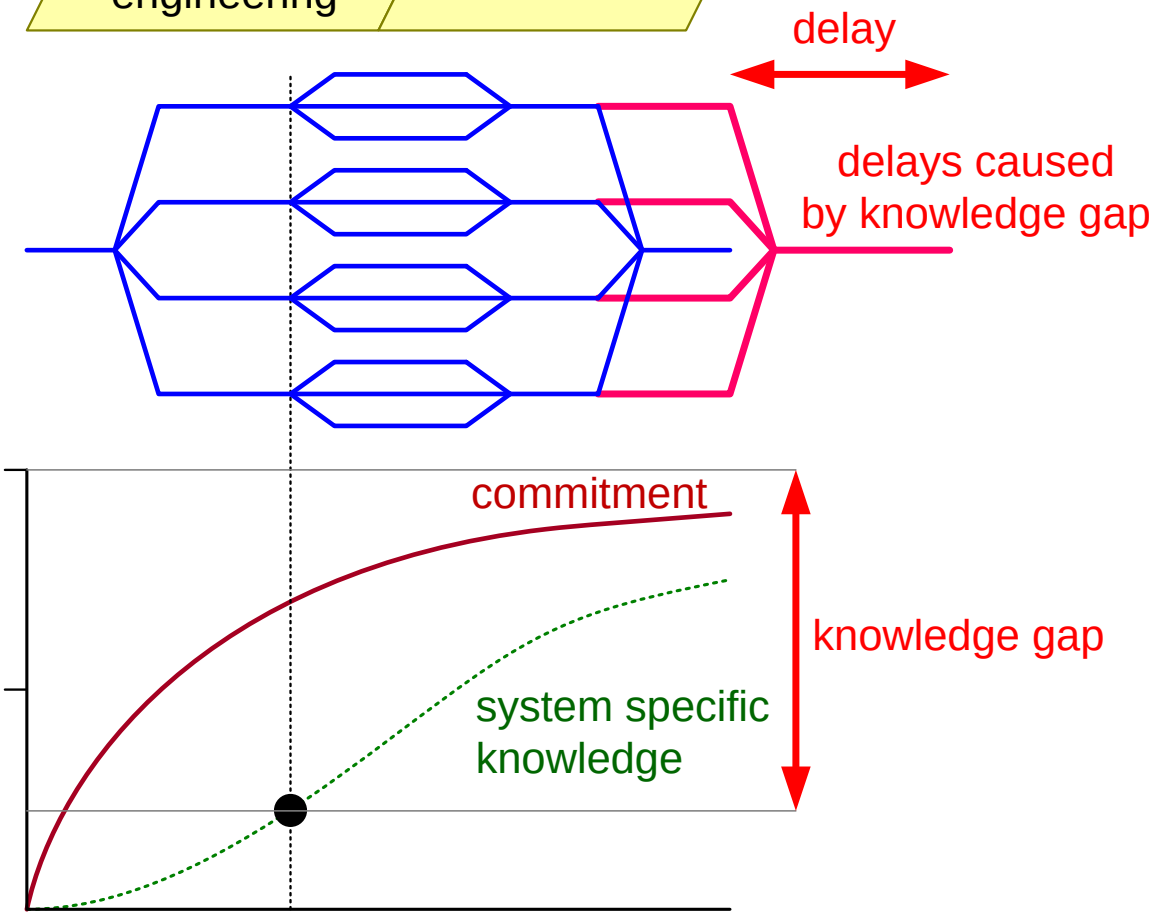


The Pain of Systems Integration

traditional project management focus

- time
- cost
- resources

partition for concurrent engineering → aggregation



problem

when specifying parts and during project planning,

the system specific knowledge is low

after: *Systems Engineering and Analysis*, Fifth Edition
Benjamin S. Blanchard • Wolter J. Fabrycky

Systems Integration Approach

Systems Integration starts when the project starts

The Integration perspective **drives** the project schedule by addressing the **major risks** from

volatility, **uncertainty**, **complexity** and **ambiguity**

Systems Integration strives to **Fail Early**; it is an early verification and validation

Systems Integration requires **multidisciplinary teamwork**, e.g.

Integrators, **Testers**, **Architects**, **Designers**, **Engineers**, **Project Leaders**, **Product Managers**, and others

Systems Integration complements Systems Architecting