

Mastering Systems Integration; Introduction

by *Gerrit Muller* TNO-ESI, University College of South East Norway

e-mail: `gaudisite@gmail.com`

`www.gaudisite.nl`

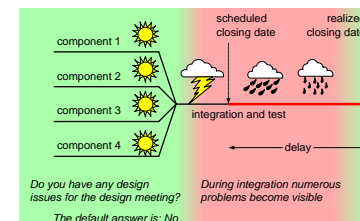
Abstract

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.

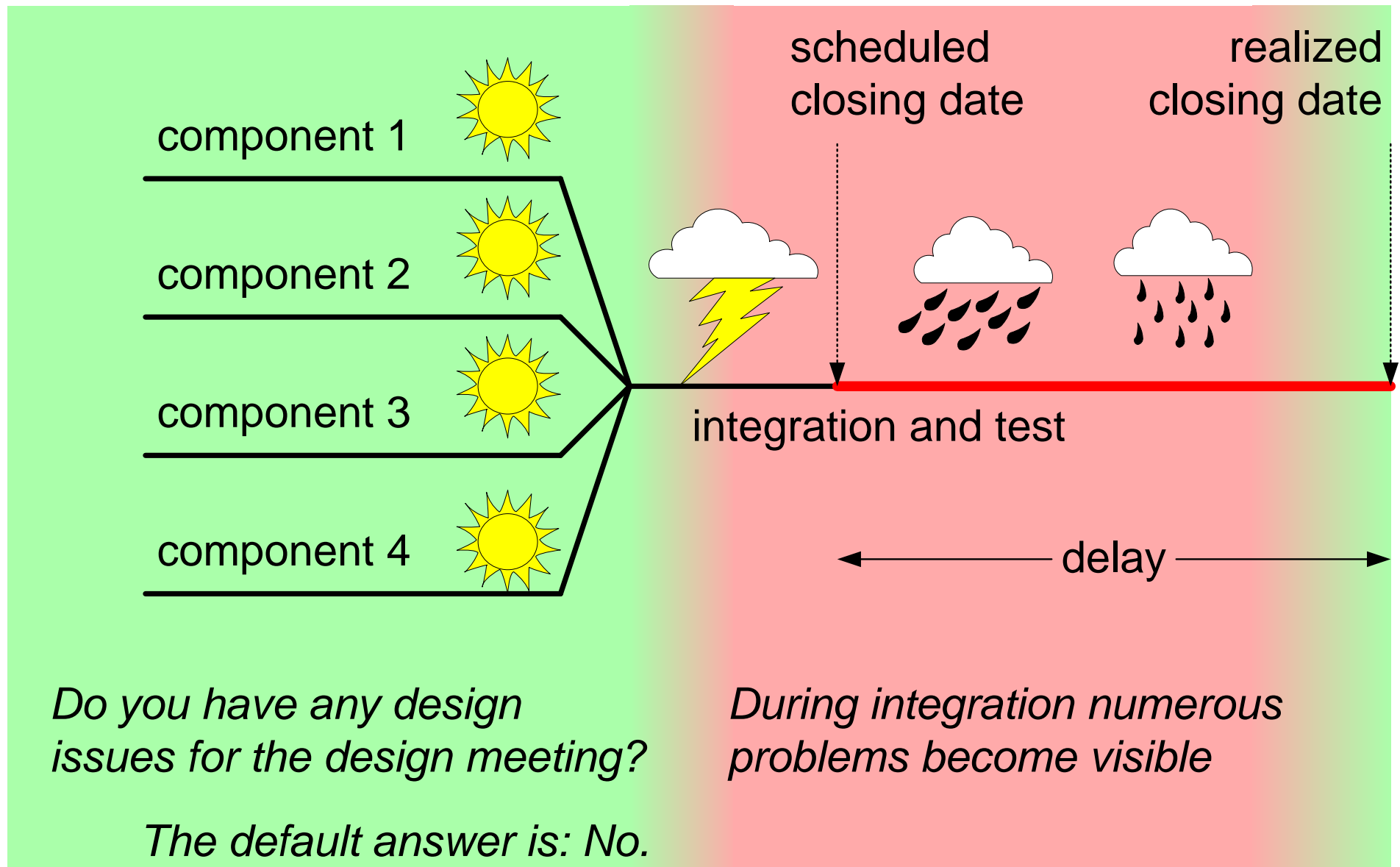
Distribution

This article or presentation is written as part of the Gaudí project. The Gaudí project philosophy is to improve by obtaining frequent feedback. Frequent feedback is pursued by an open creation process. This document is published as intermediate or nearly mature version to get feedback. Further distribution is allowed as long as the document remains complete and unchanged.

June 5, 2018
status: preliminary
draft
version: 0.5



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

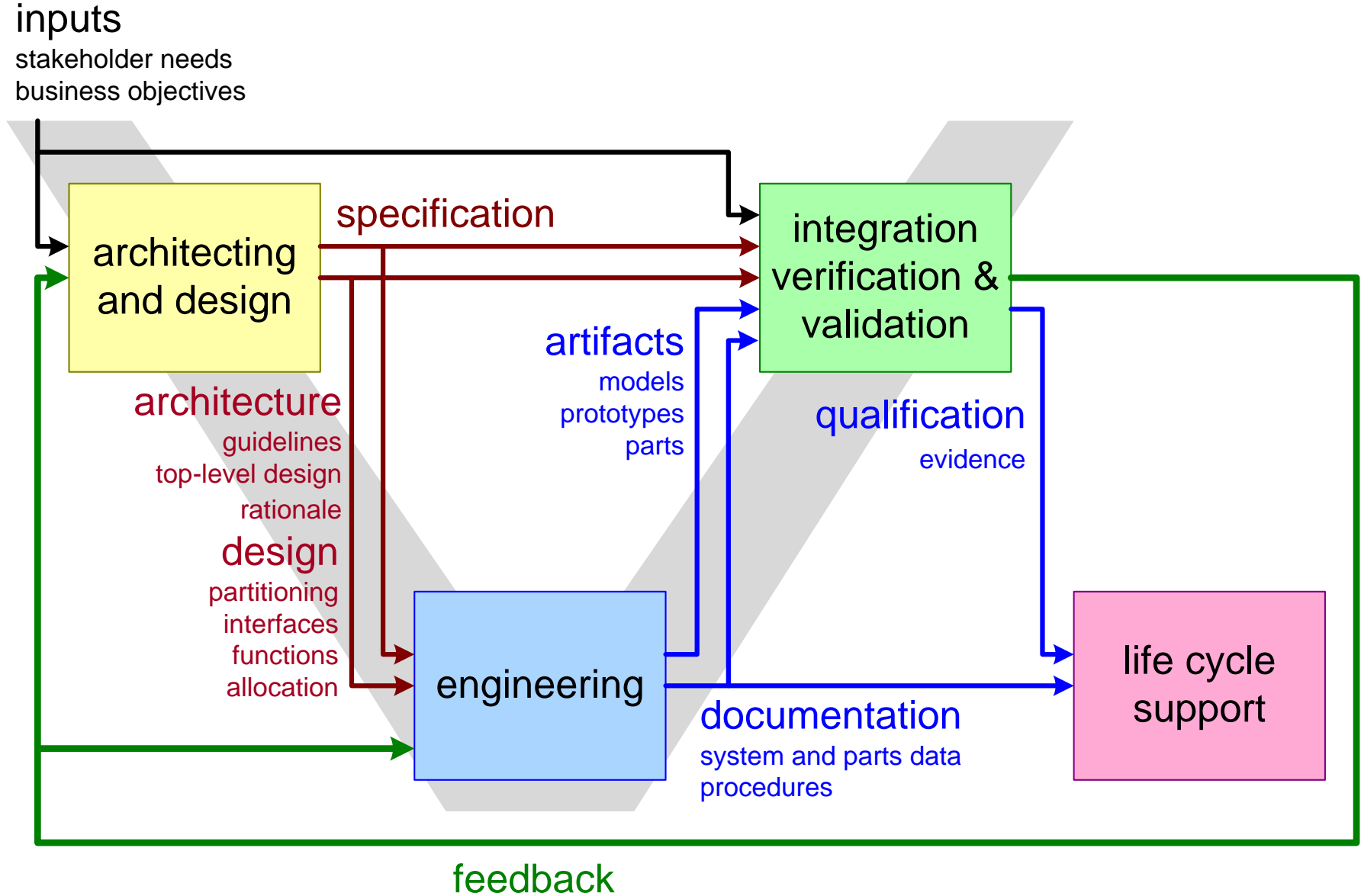
- *testing*
- *test configuration*
- *testware*
- *test specifications*
- *test reports*

Commercial

Product Manager

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

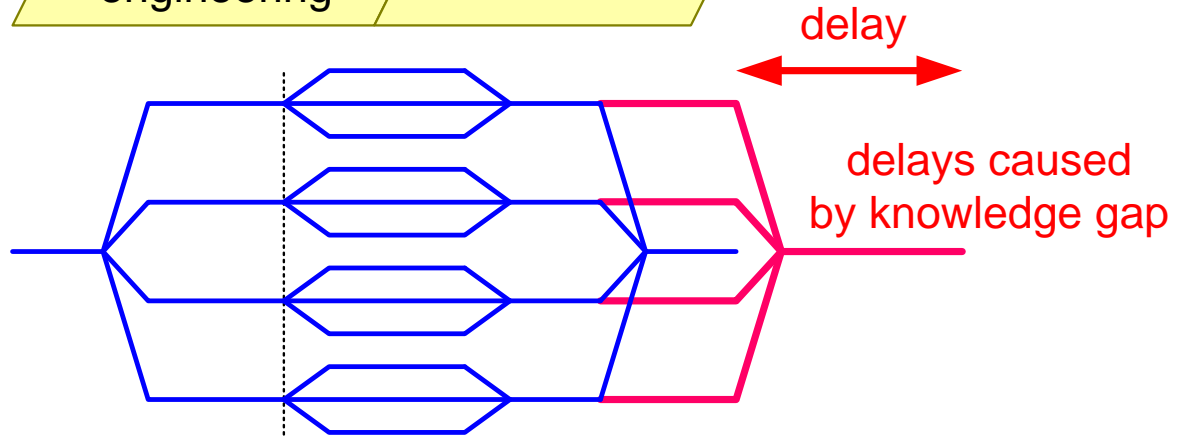
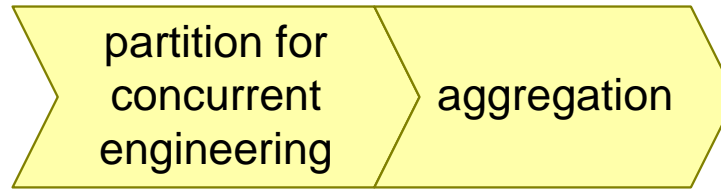
The Role of Integration in Development



The Pain of Systems Integration

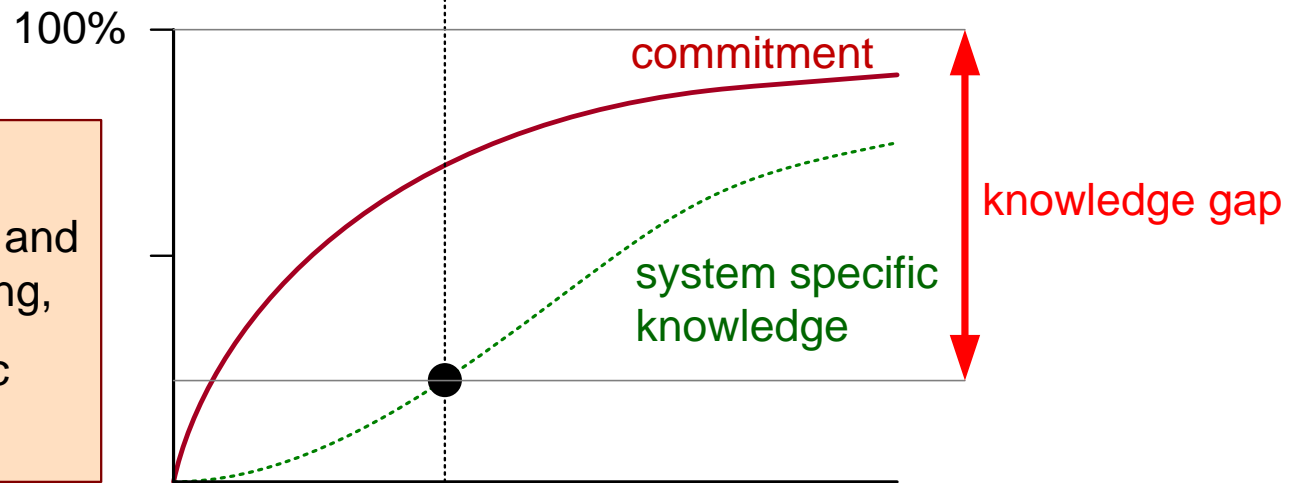
traditional project management focus

- time
- cost
- resources



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
 Copyright ©2011, ©2006, ©1998 by Pearson Education, Inc.
 Upper Saddle River, New Jersey 07458

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