

# System Integration How-To

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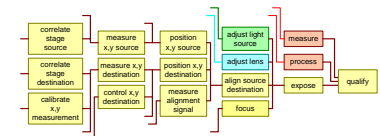
## Abstract

In this document we will discuss the full integration flow. We will discuss the goal of integration, the relation between integration and testing, what is integration and how to integrate, an approach to integration, scheduling and dealing with disruptive events, roles and responsibilities, configuration management aspects, and typical order of integration problems occurring in real life.

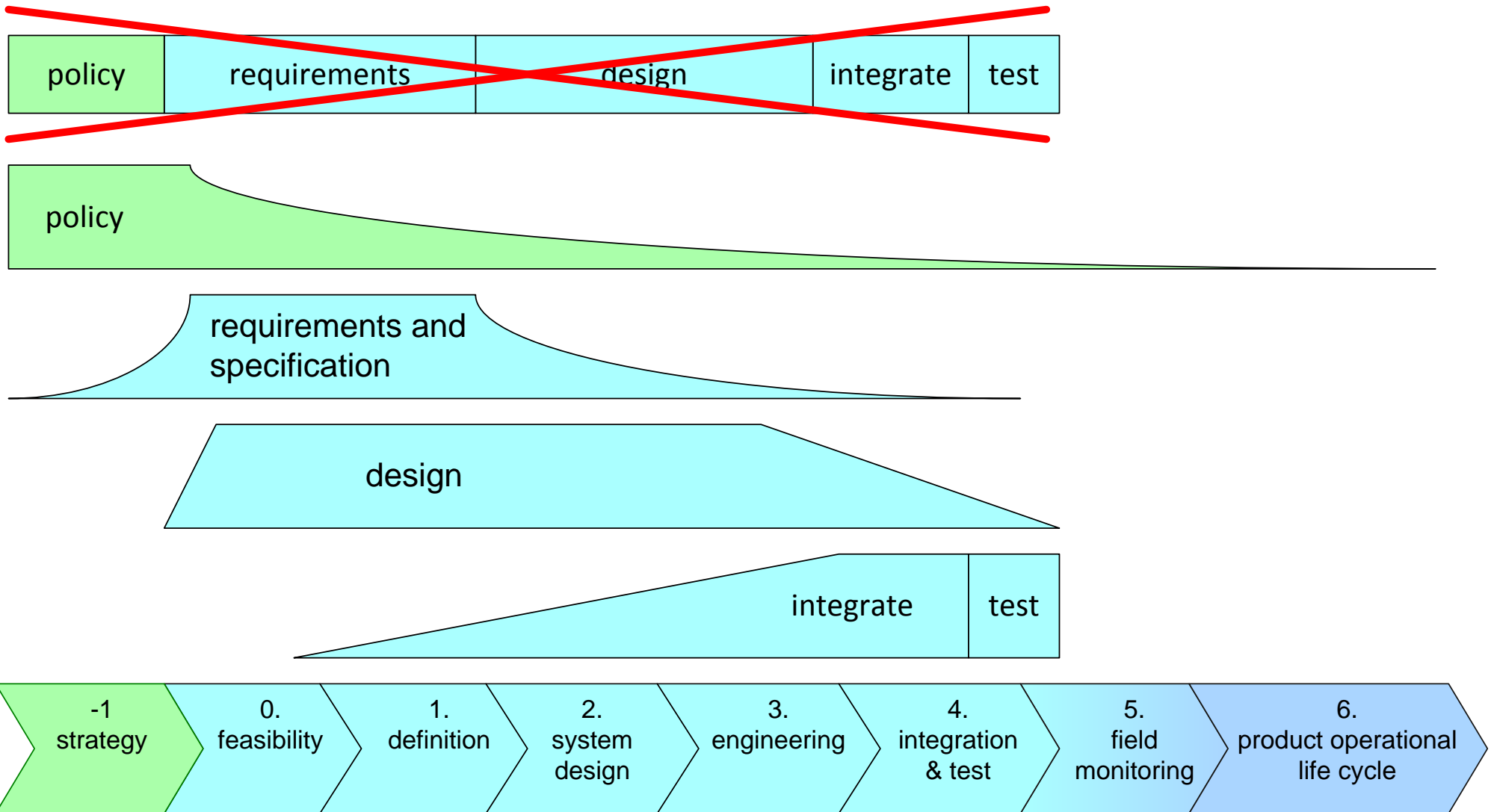
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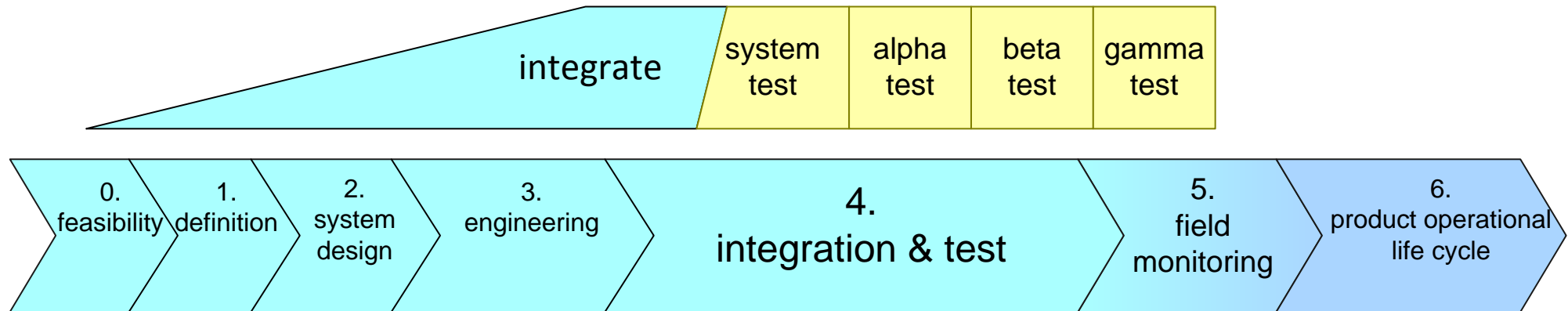
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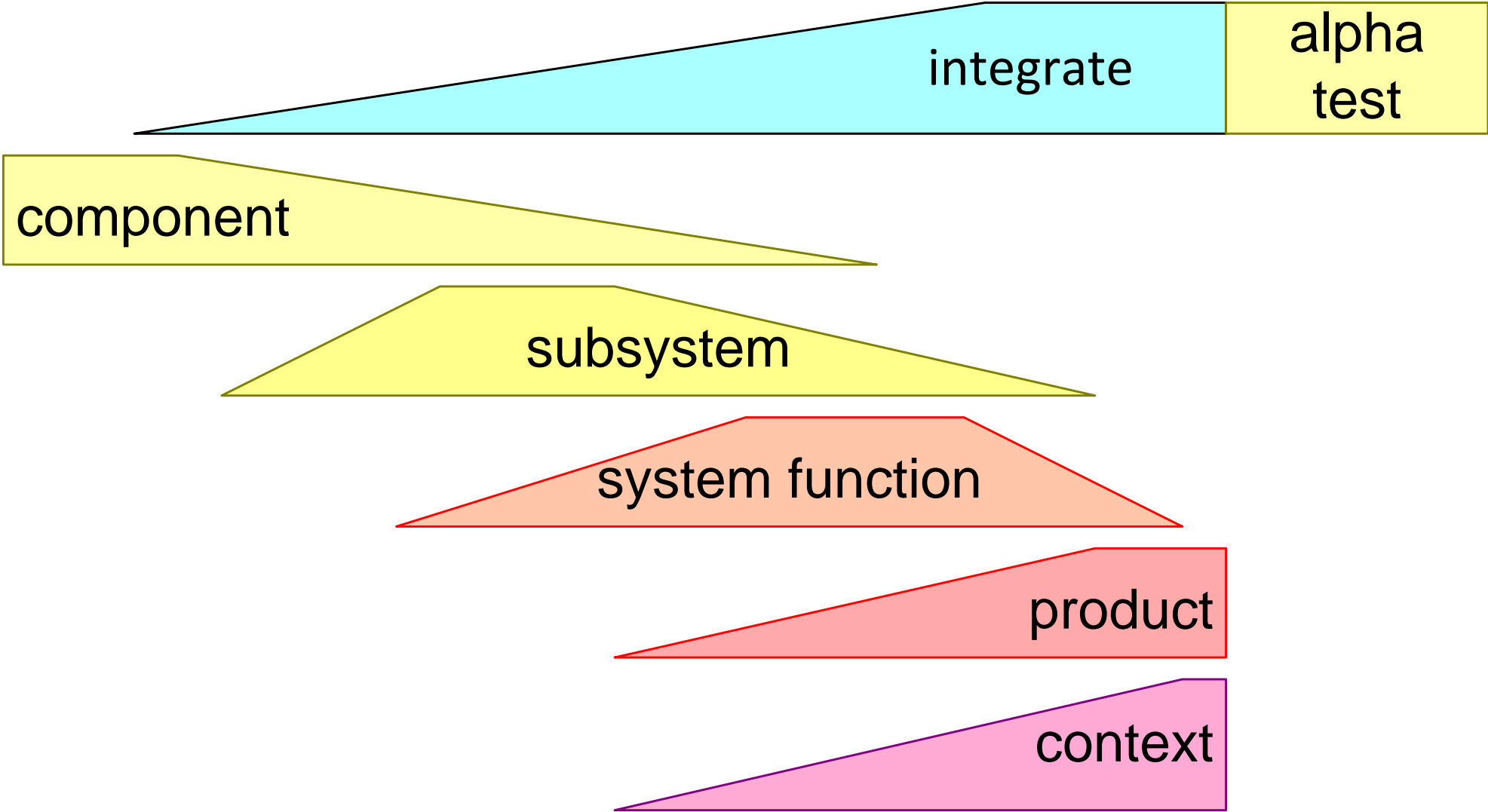
# Typical Concurrent Product Creation Process



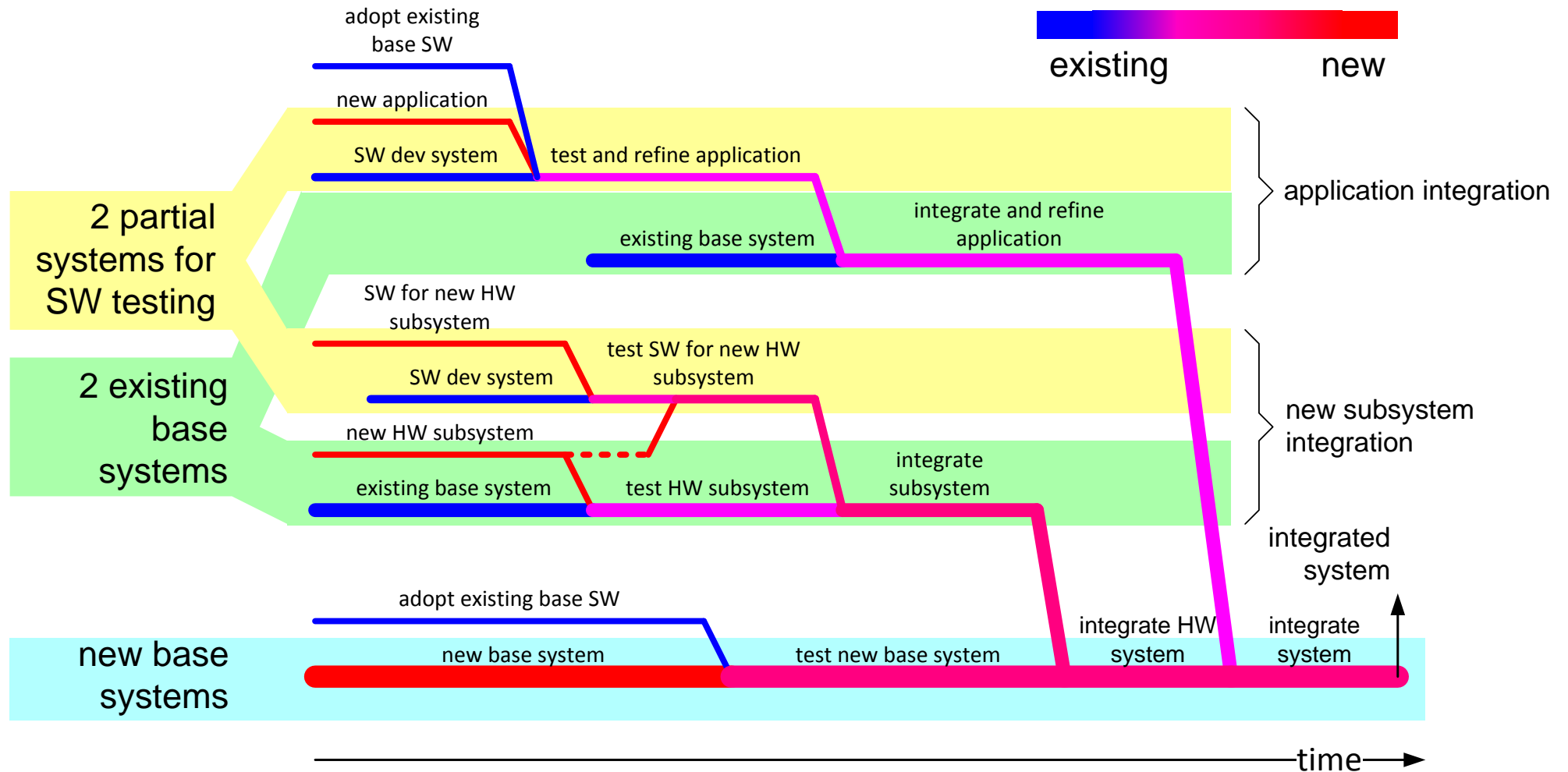
# Zooming in on Integration and Tests



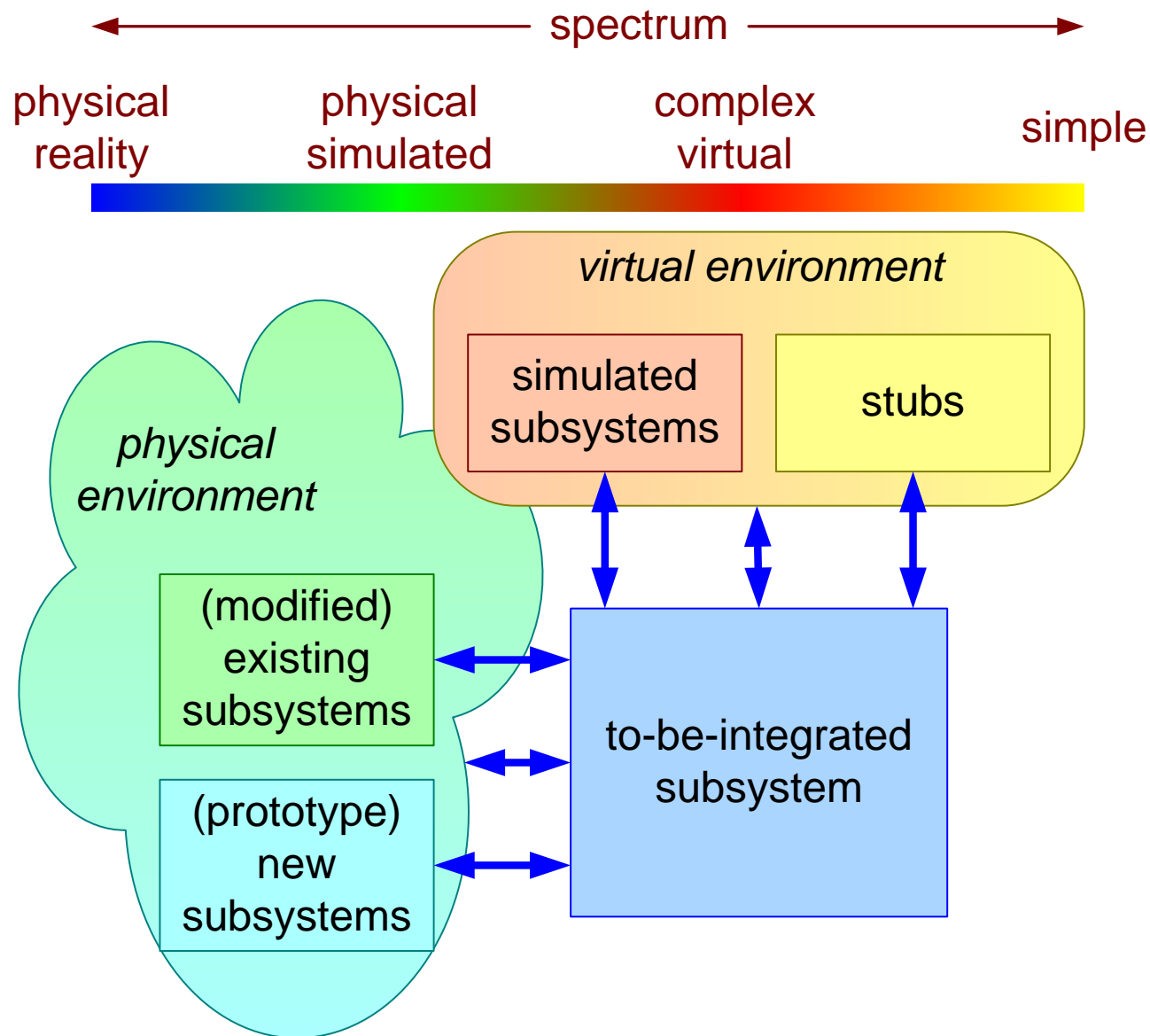
# Integration Takes Place in a Bottom-up Fashion



# Transition from Previous System to New System



# Alternatives to Integrate a Subsystem Early in the Project

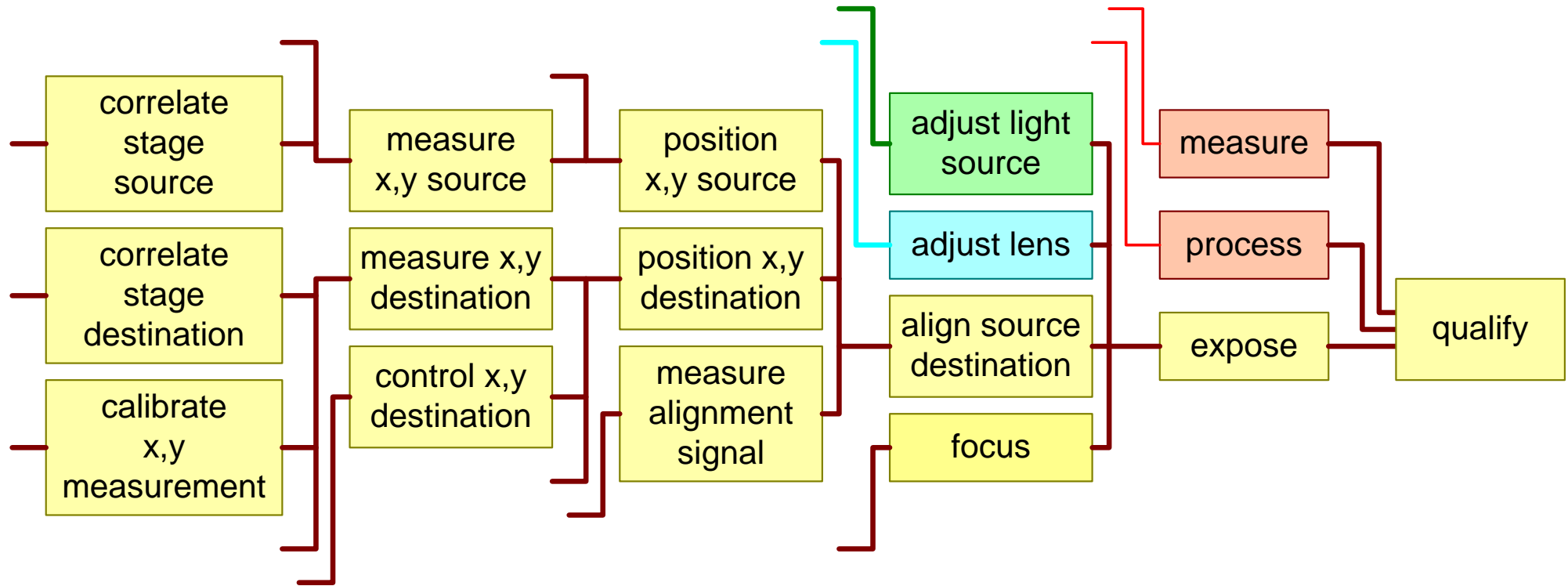


# Stepwise Integration Approach

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1	Determine most critical system performance parameters.
2	Identify subsystems and functions involved in these parameters.
3	Work towards integration configurations along these chains of subsystems and functions.
4	Show system performance parameter as early as possible; start with showing "typical" system performance.
5	Show "worst-case" and "boundary" system performance.
6	Rework manual integration tests in steps into automated regression tests.
7	Monitor regression results with human-driven analysis.
8	Integrate the chains: show system performance of different parameters simultaneously on the same system.

# Order of Functions Required for the IQ of a Waferstepper



# Roles and Responsibilities During the Integration Process

*project leader*

organization  
resources  
schedule  
budget

*systems architect/  
engineer/integrator*  
system requirements  
design inputs  
test specification  
schedule rationale  
troubleshooting  
participate in test

*system tester*

test  
troubleshooting  
report

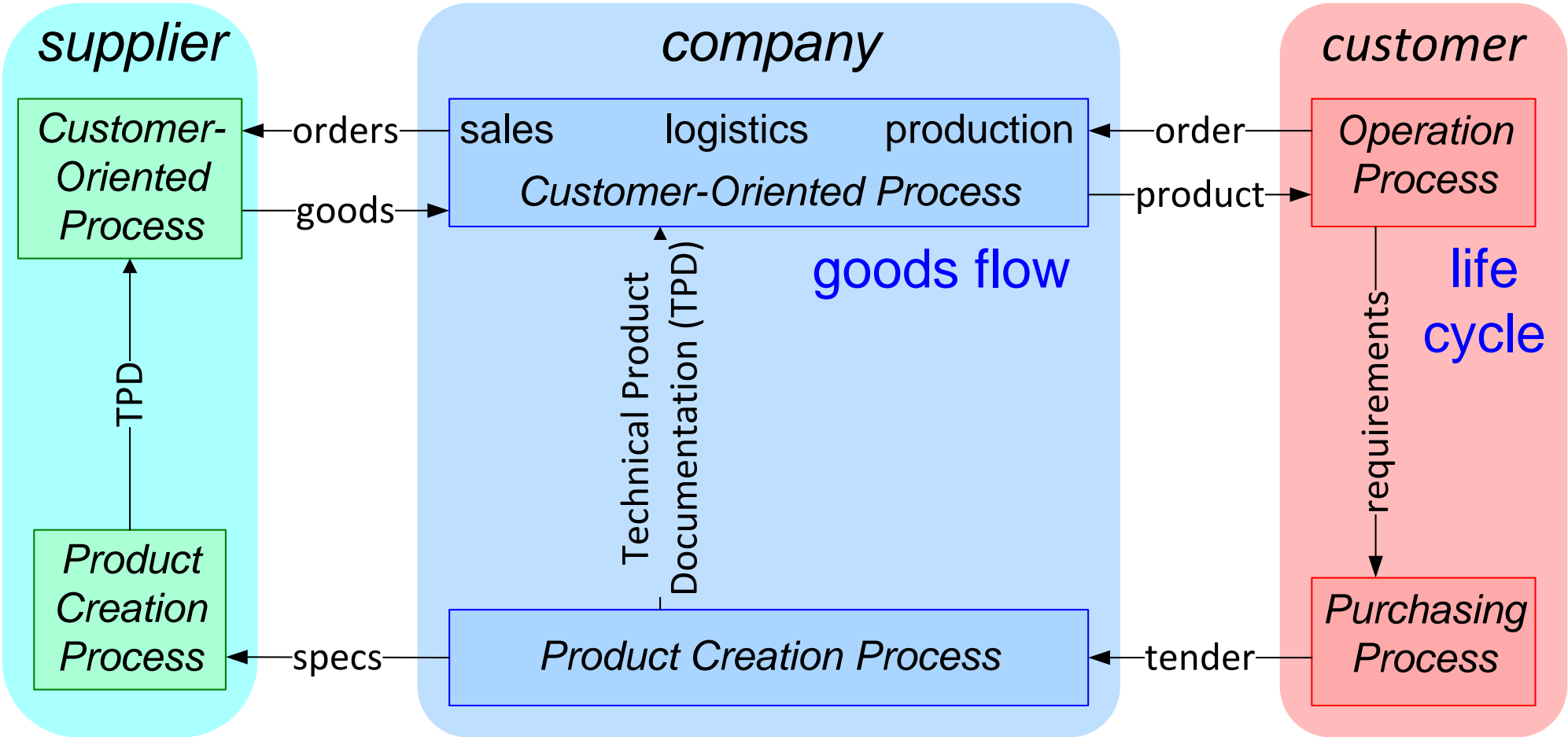
*logistics and  
administrative support*  
configuration  
orders  
administration

*engineers*  
design  
component test  
troubleshooting  
participate in test

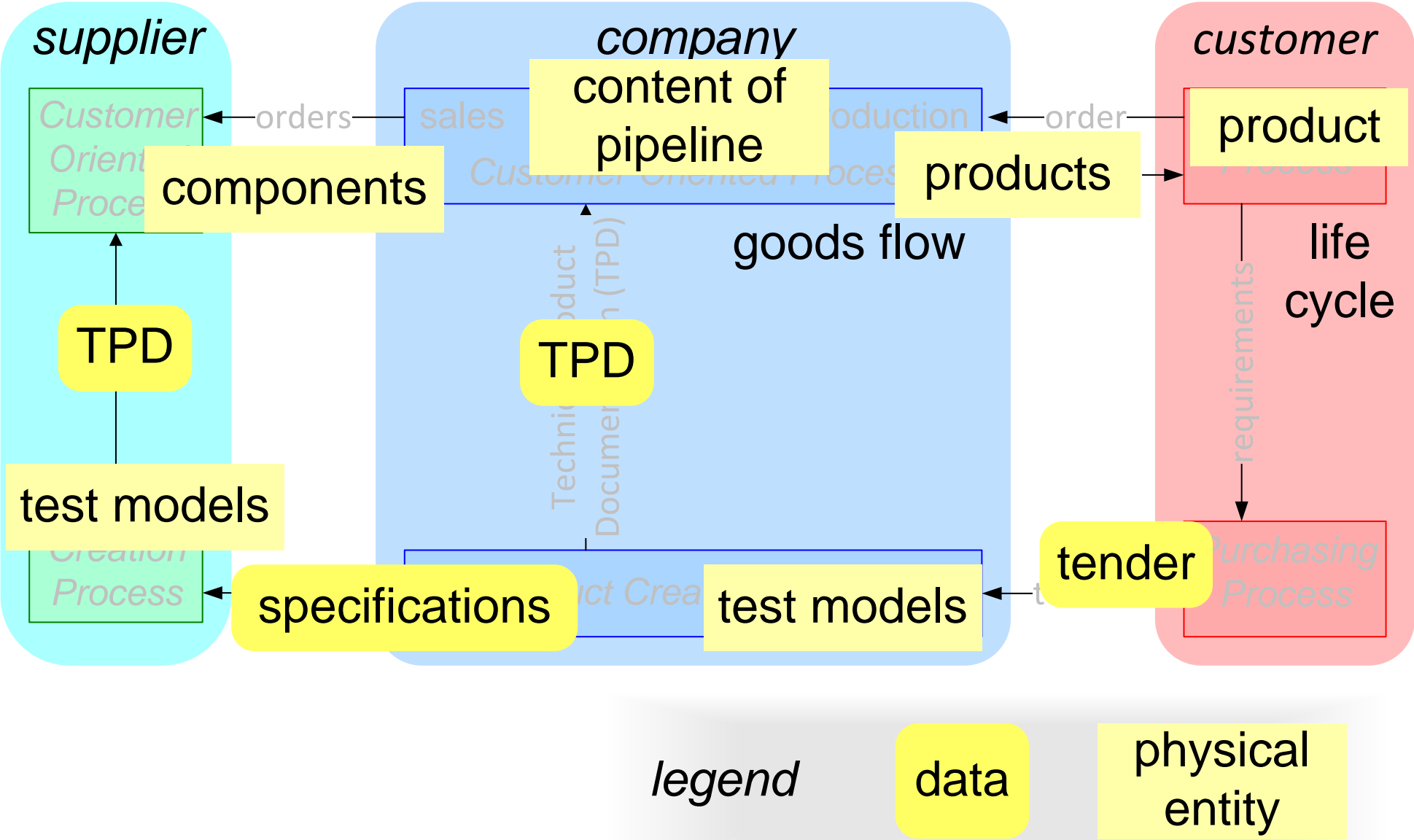
*machine owner*

maintain test model  
support test

# Simplified Process Diagram



# Configuration Management Entities



# Typical Order of Integration Problems

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1. The (sub)system does not build.
2. The (sub)system does not function.
3. Interface errors.
4. The (sub)system is too slow.
5. Problems with the main performance parameter, such as image quality.
6. The (sub)system is not reliable.