

Architecture and Design Fundamentals

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Abstract

Defining and illustrating architectures. Architectures go beyond system structure (parts, interfaces, functions, allocation). Architectures connect design to the context, by capturing customer value proposition, and the business proposition.

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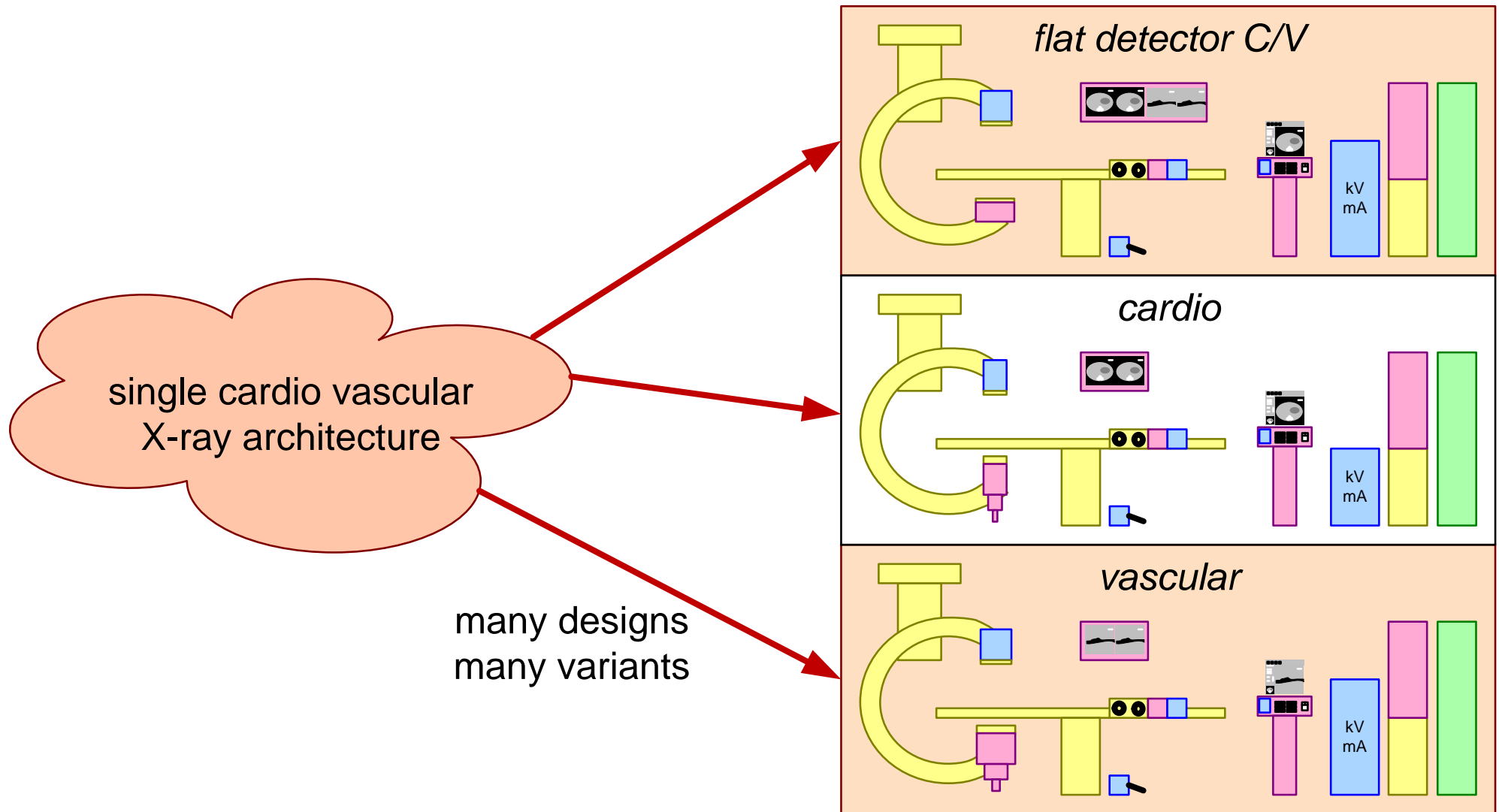
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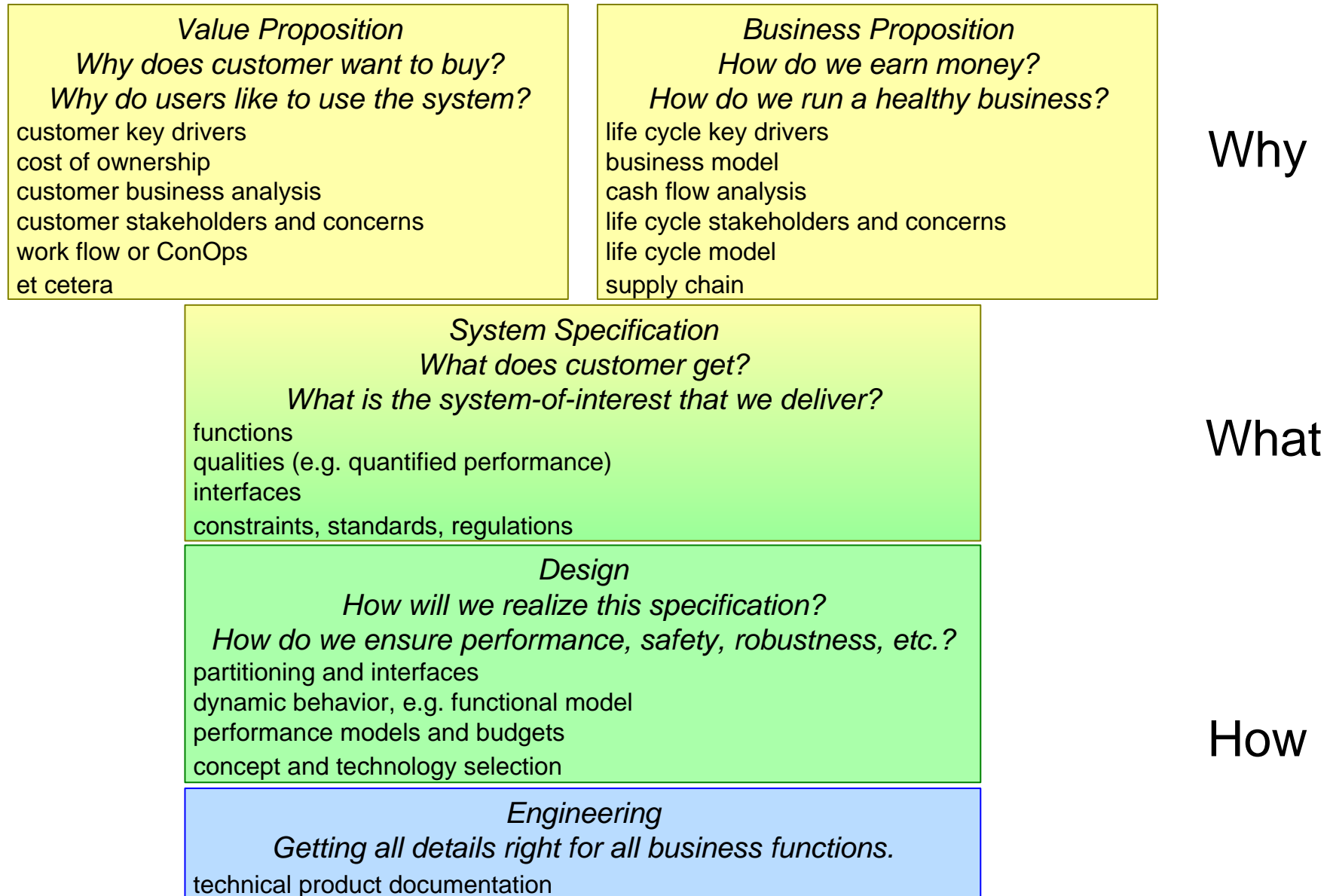
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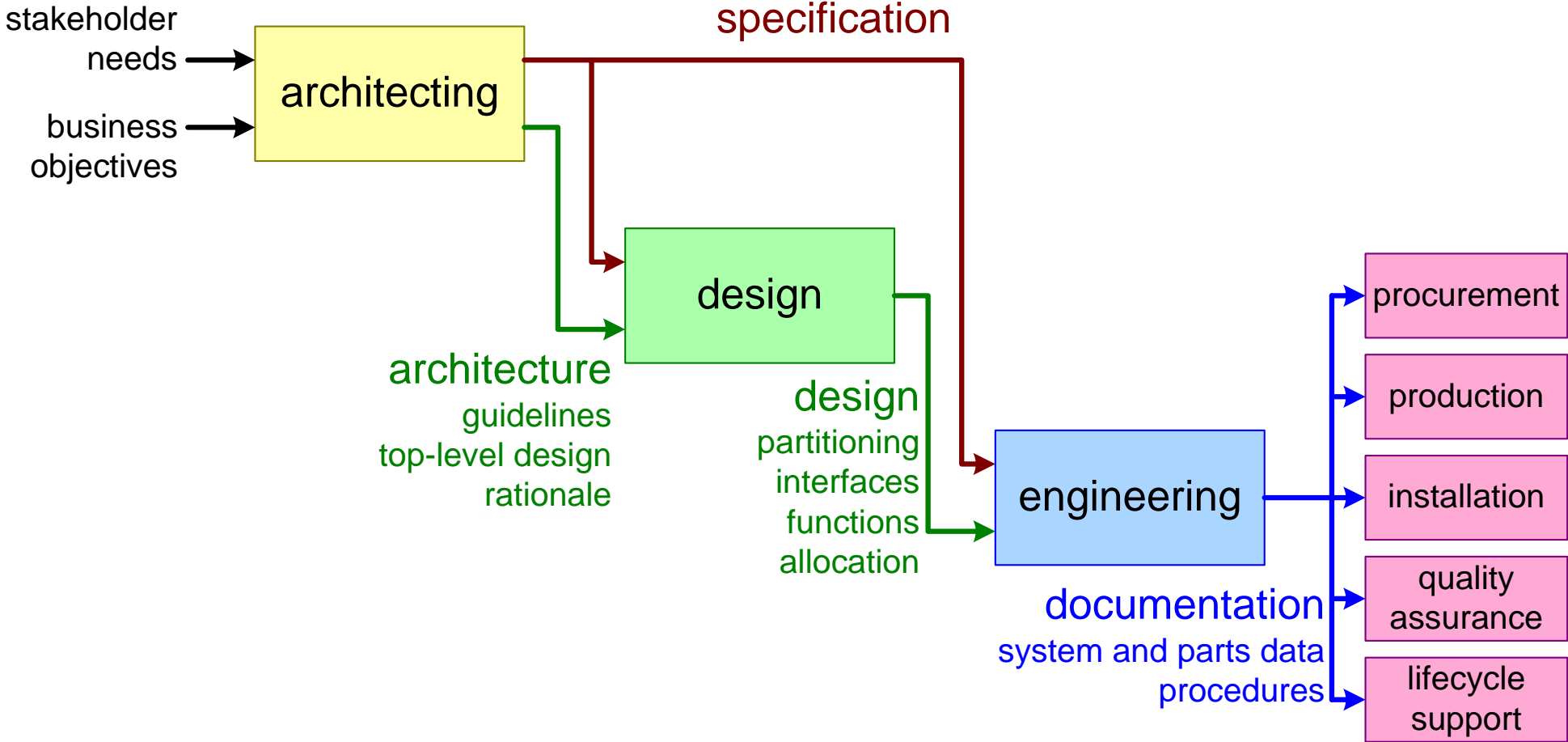
One Architecture Facilitates many Solutions



Architecture Description



Functional Model for System Creation



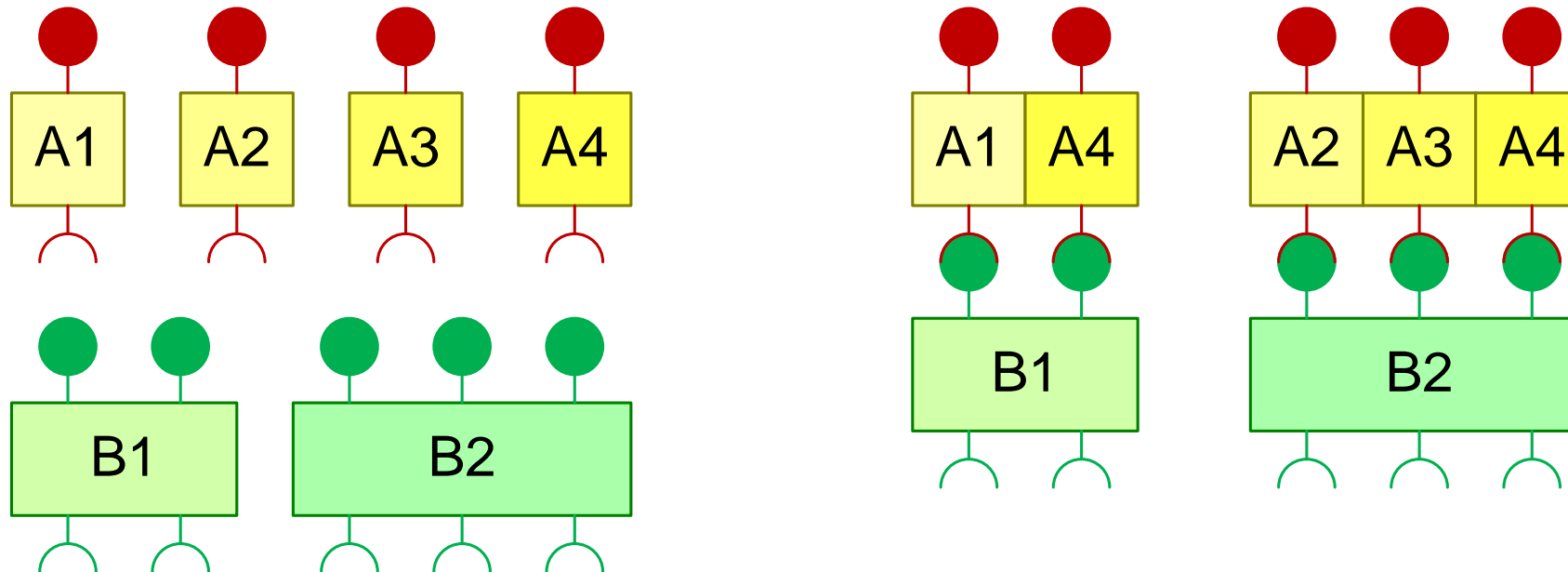
Structure = Parts + Interfaces + Configuration

ultimate goal:

- modular component catalogue
- well-defined interfaces
- independent testable

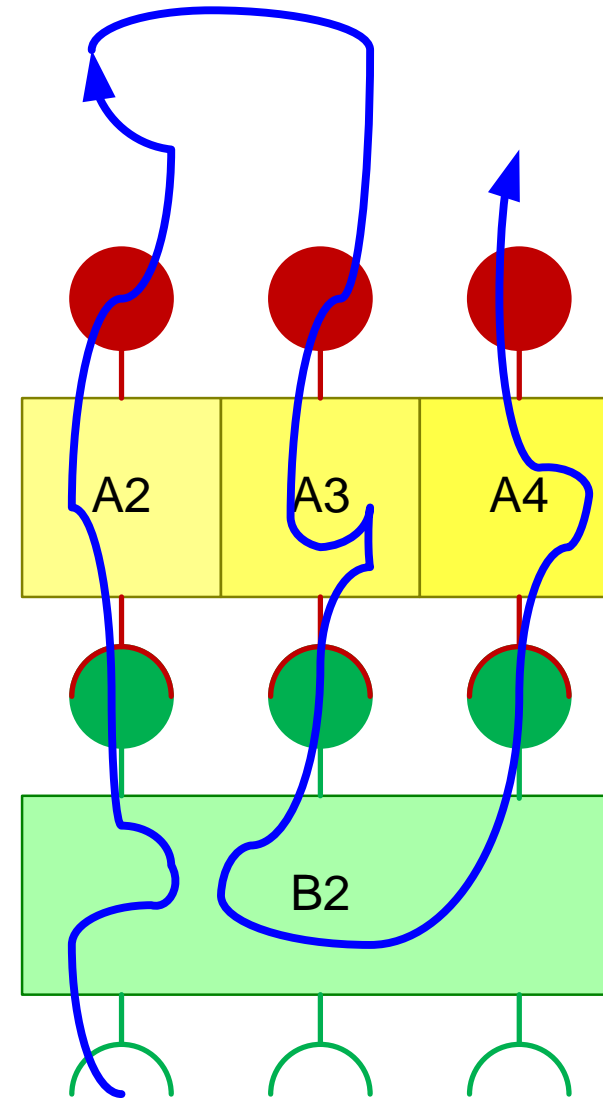
to facilitate:

- fast creation of solutions
- concurrent engineering
- logistics and production
- variations and changes

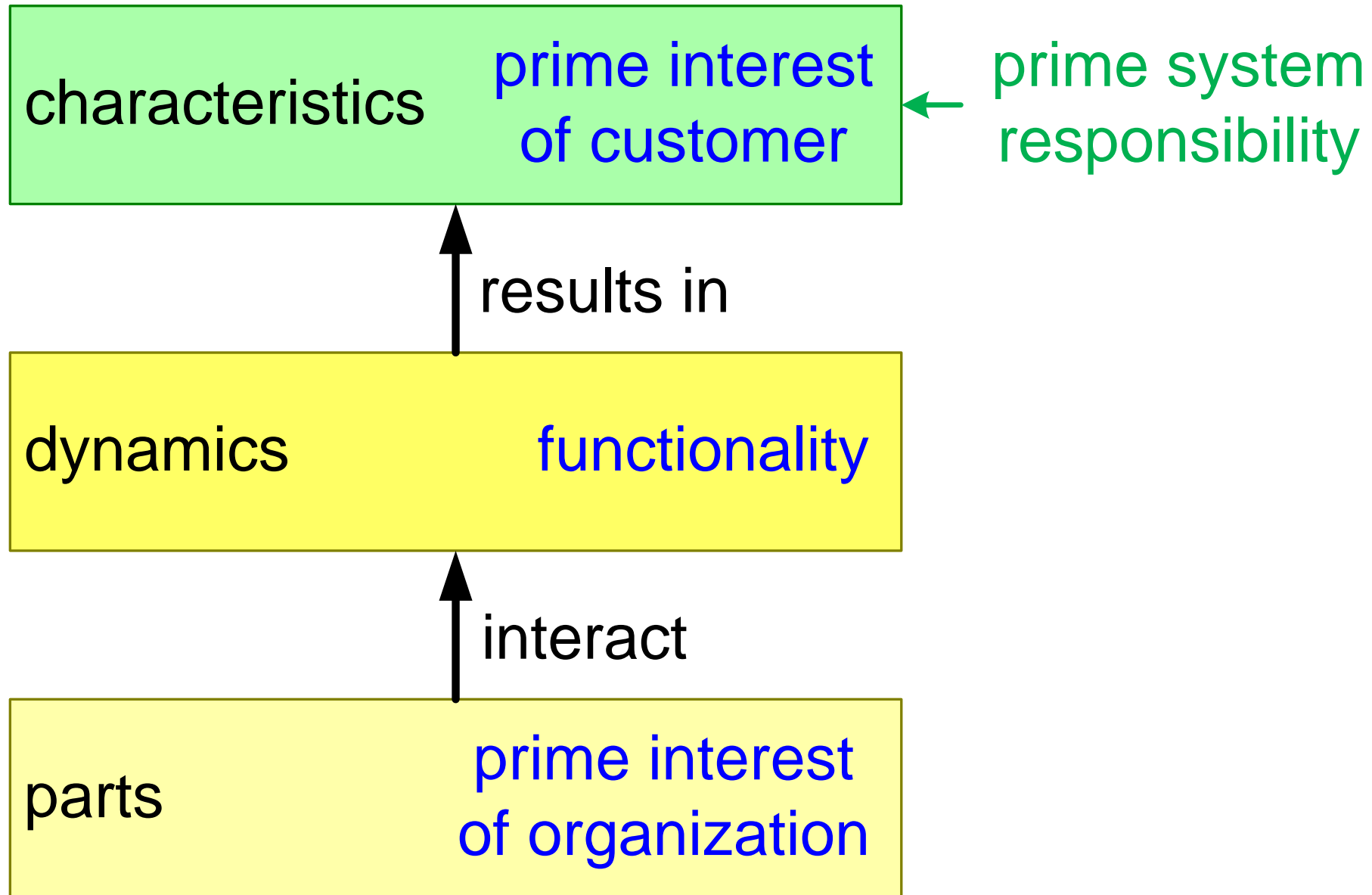


Designing Desired Qualities and Behavior

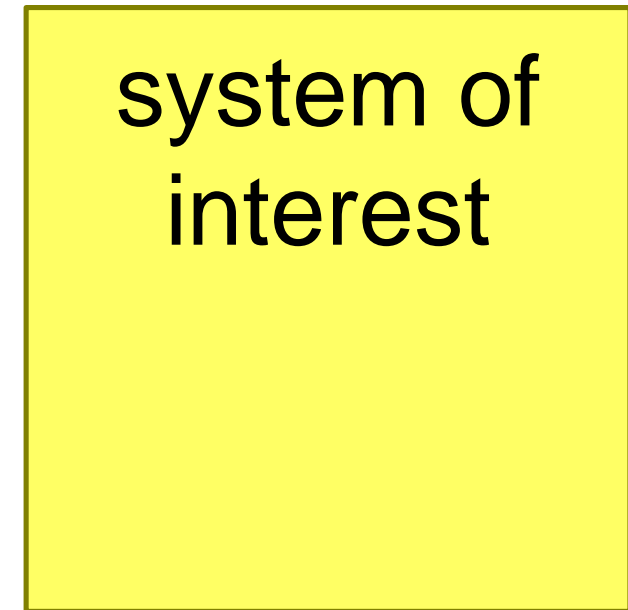
- How do parts interact to create desired dynamic behavior?
 - allocate functions
- How do desired qualities and performance emerge from the interaction?
 - dimension and configure parts and functions



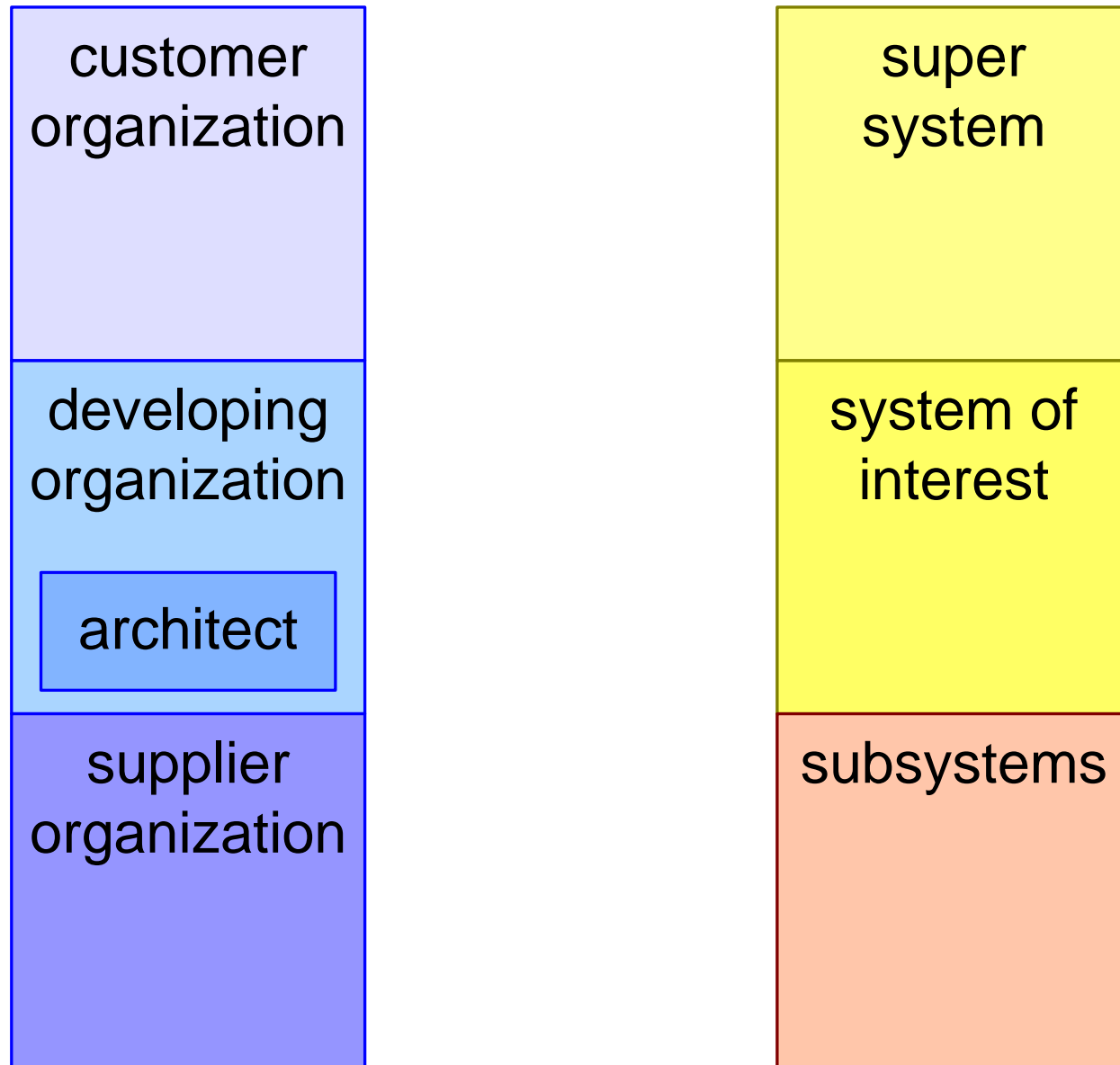
Design = Structure + Dynamics + Quantification



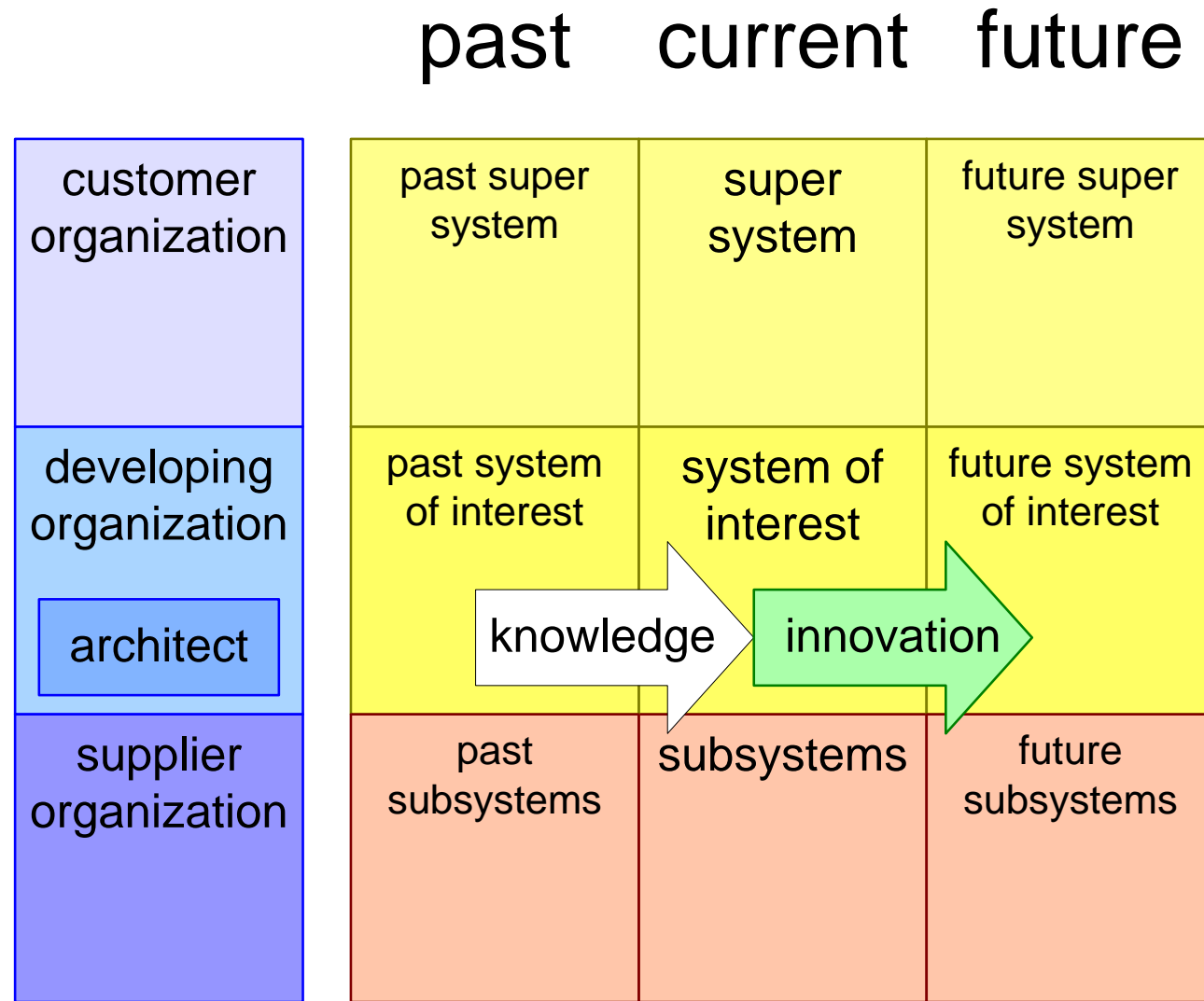
Our Primary Interest



Context, Zoom-out and Zoom-in

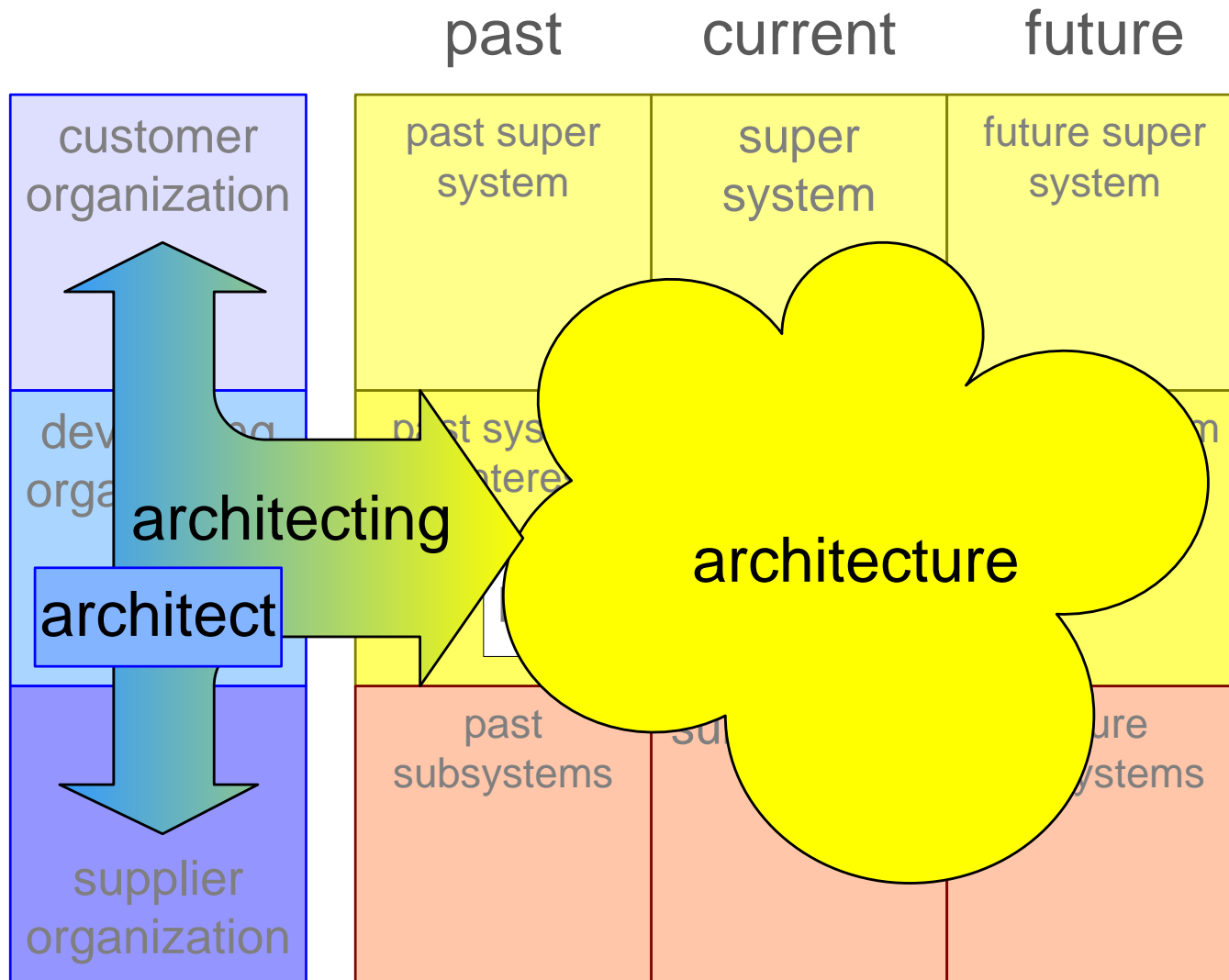


Adding the Time Dimension



based on TRIZ

Architect, Architecture, Architecting



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