

Architecture and Design Fundamentals

by *Gerrit Muller* University College of South East Norway

e-mail: `gaudisite@gmail.com`

`www.gaudisite.nl`

Abstract

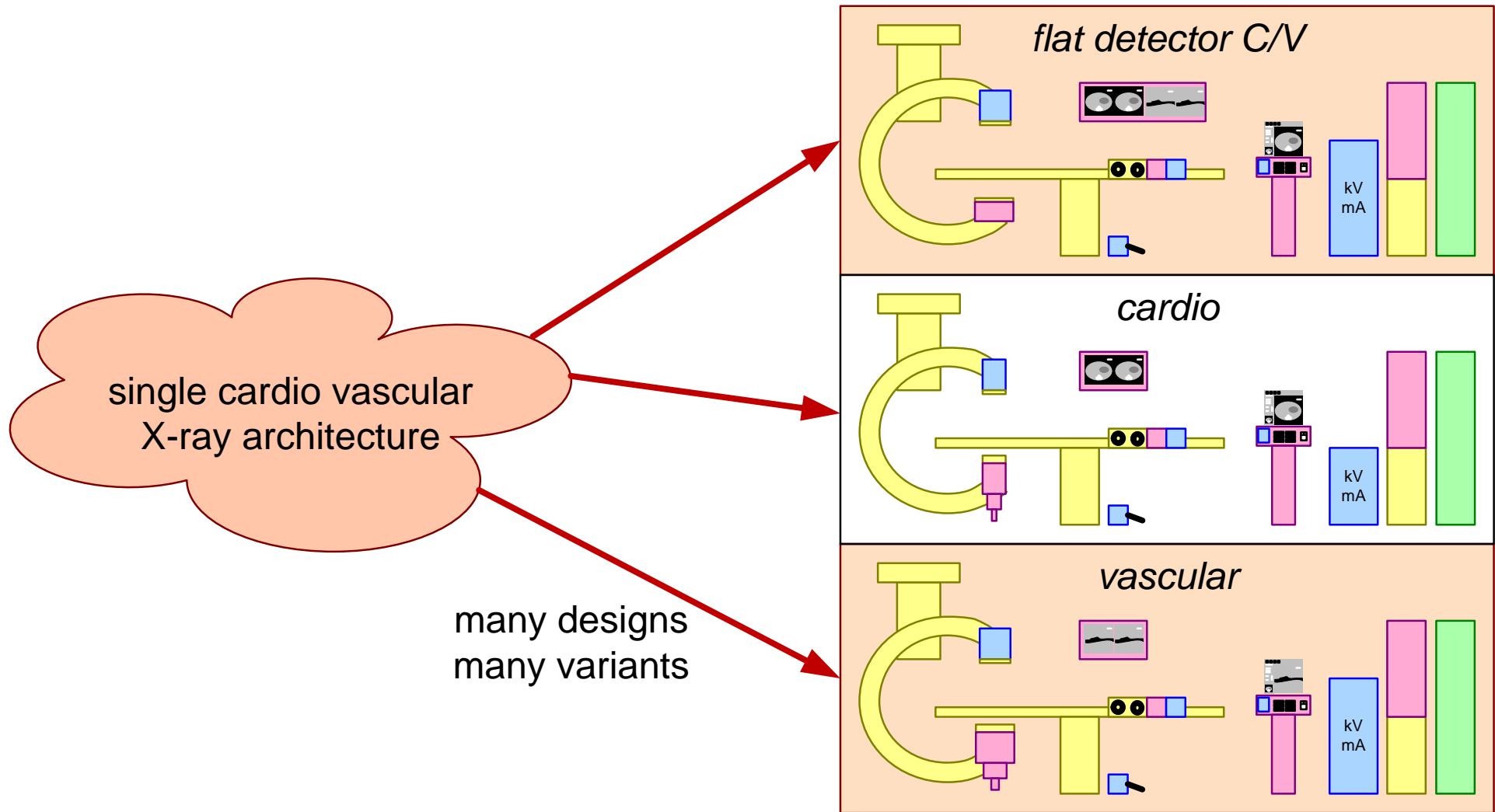
Defining and illustrating architectures. Architectures go beyond system structure (parts, interfaces, functions, allocation). Architectures connect design to the context, by capturing customer value proposition, and the business proposition.

Distribution

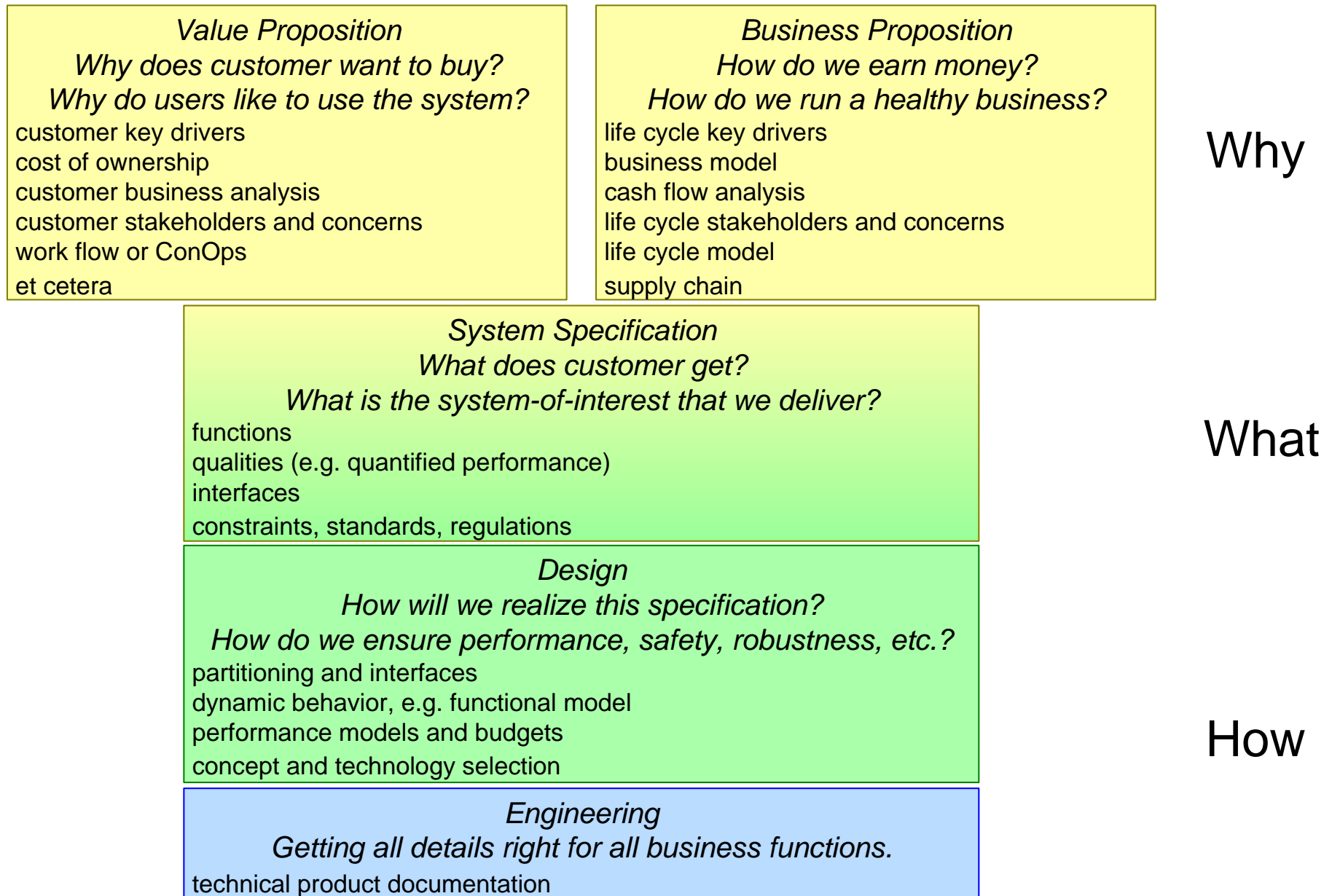
This article or presentation is written as part of the Gaudí project. The Gaudí project philosophy is to improve by obtaining frequent feedback. Frequent feedback is pursued by an open creation process. This document is published as intermediate or nearly mature version to get feedback. Further distribution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

June 5, 2018
status: planned
version: 0

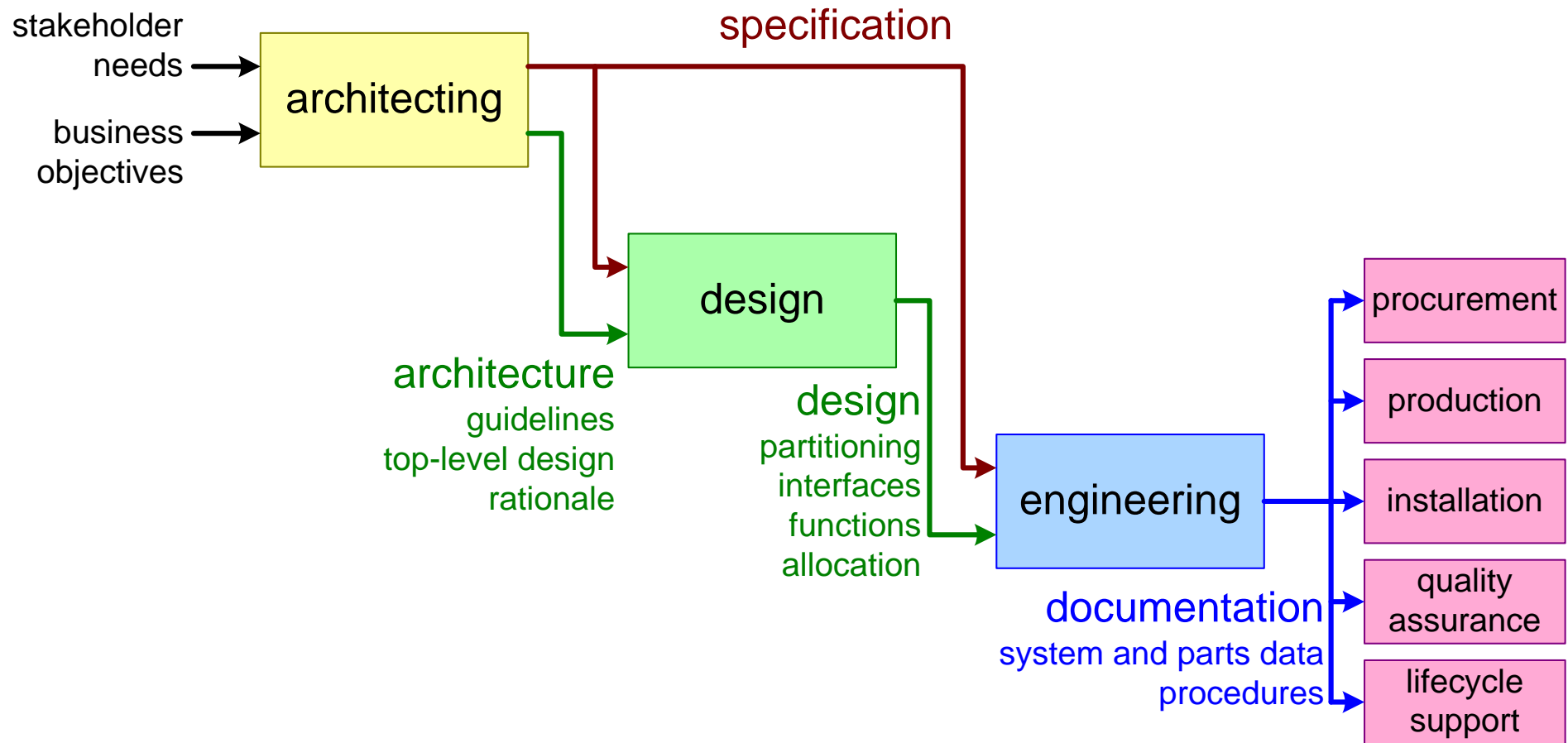
One Architecture Facilitates many Solutions



Architecture Description



Functional Model for System Creation



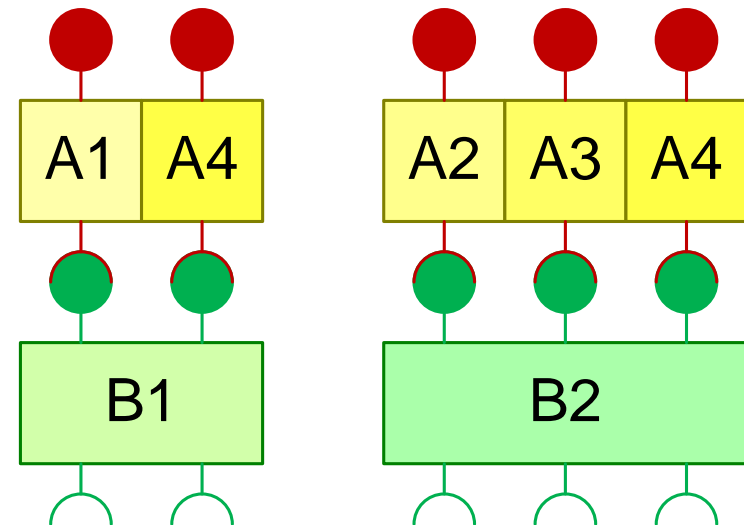
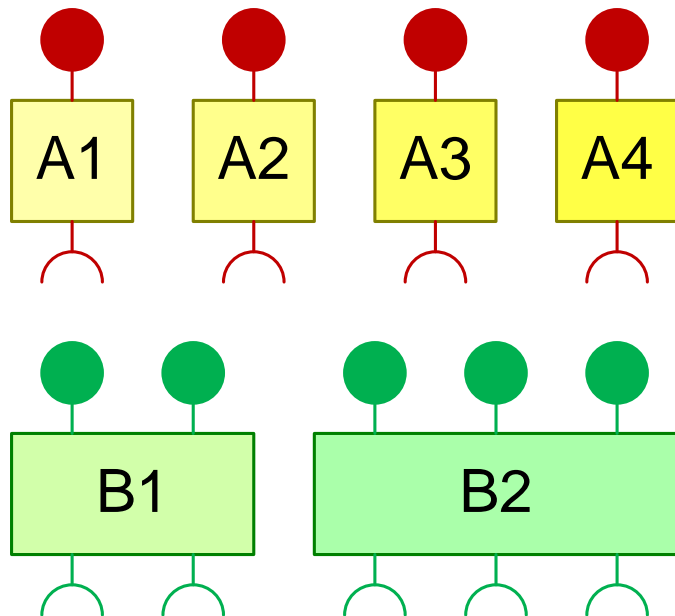
Structure = Parts + Interfaces + Configuration

ultimate goal:

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

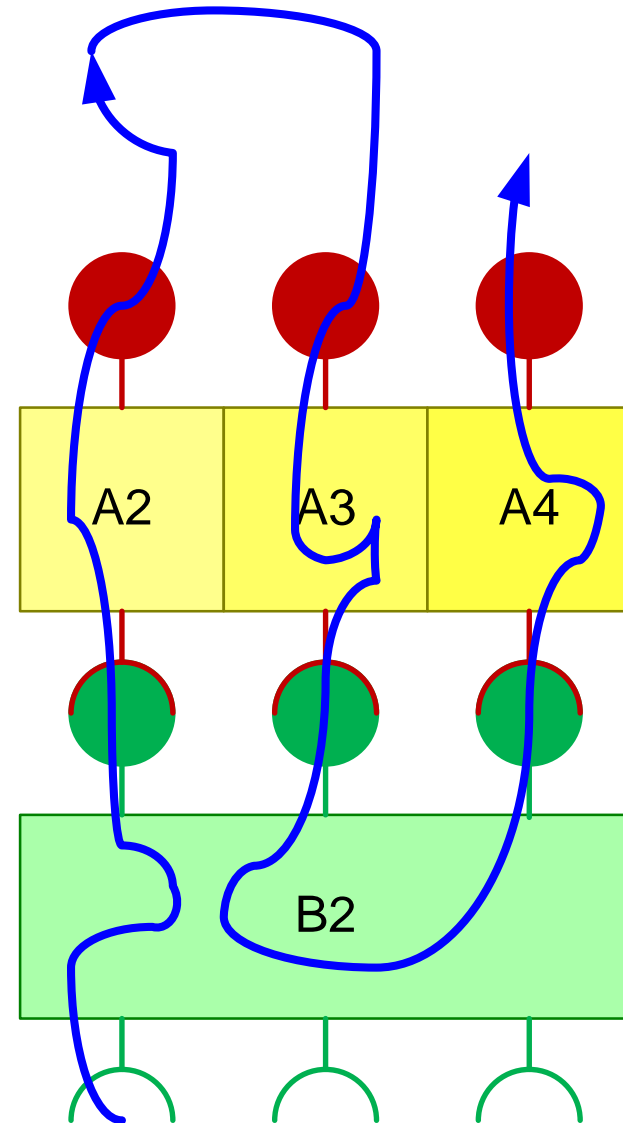
to facilitate:

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

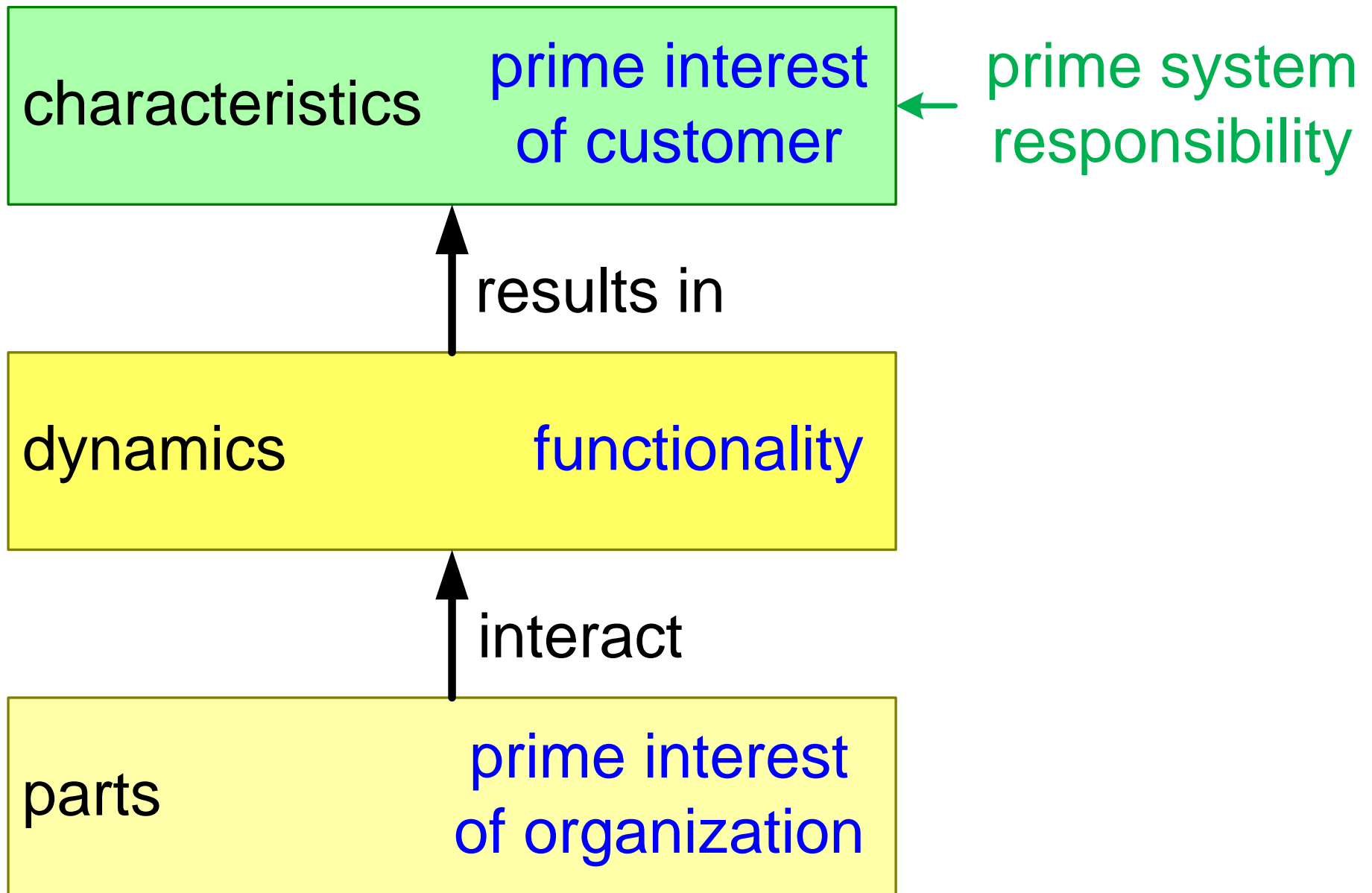


Designing Desired Qualities and Behavior

- 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



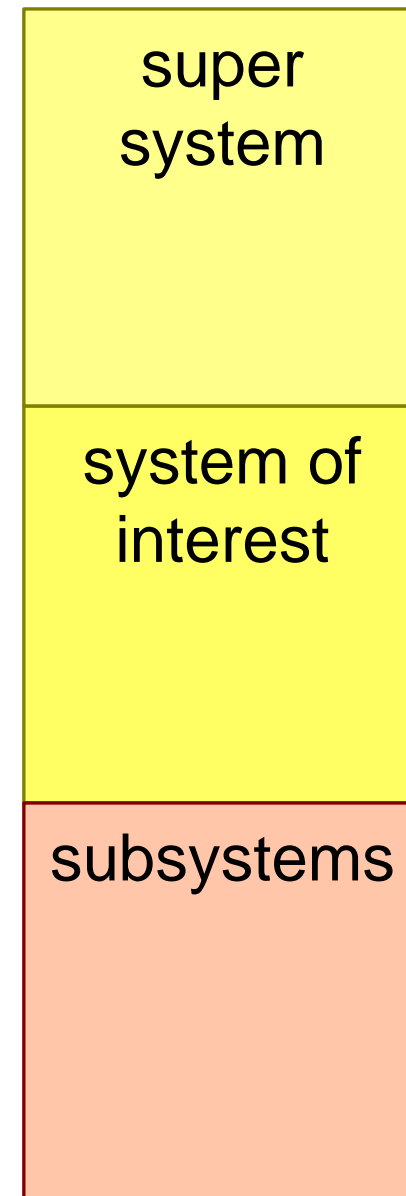
Our Primary Interest

developing
organization

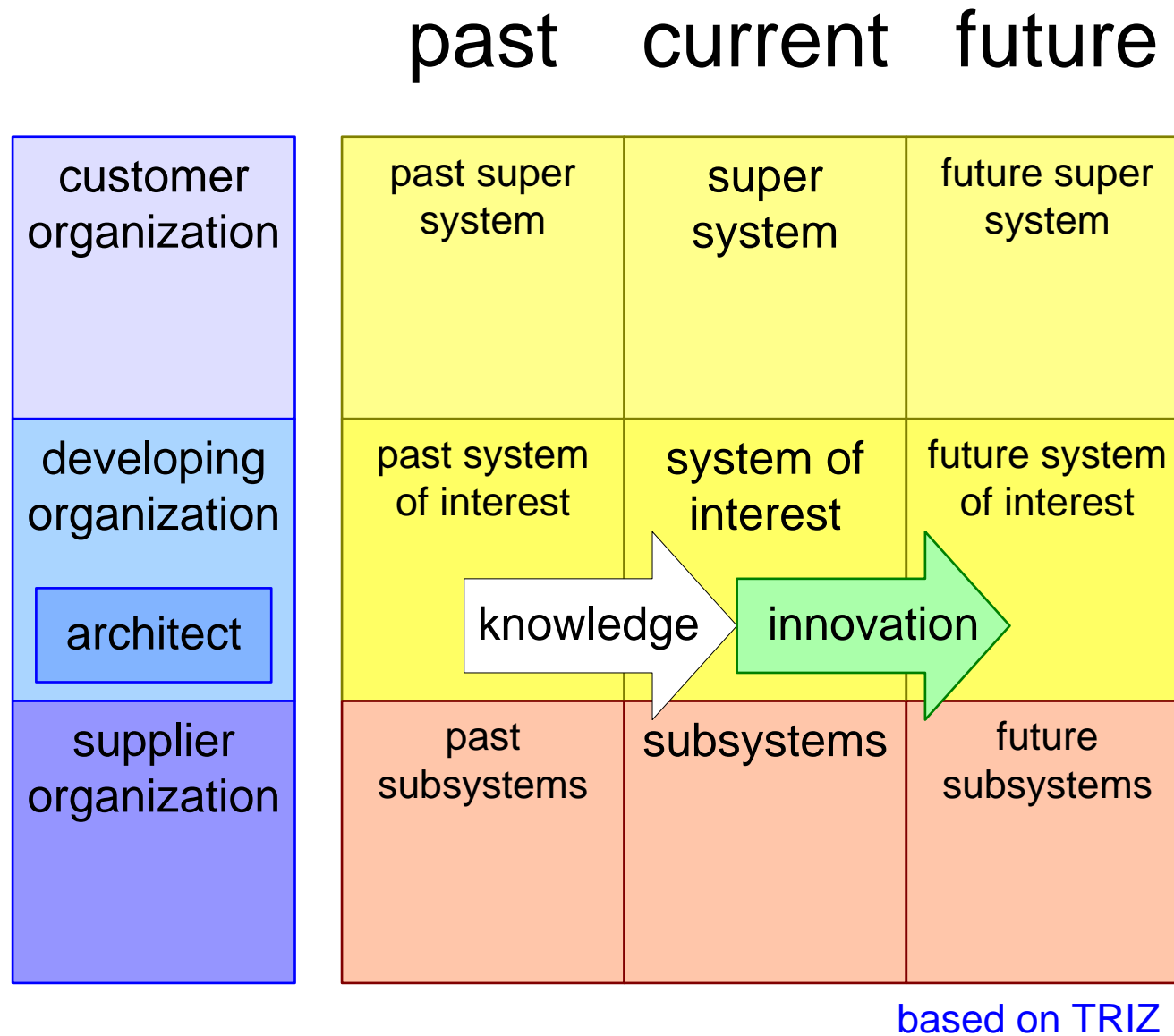
architect

system of
interest

Context, Zoom-out and Zoom-in



Adding the Time Dimension



Architect, Architecture, Architecting

