Module System Architecture Context

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Abstract

The system architecture process is positioned in a wider context: First in the business context, then in the Product Creation Process context.

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USN ESI

Process Decomposition of a Business

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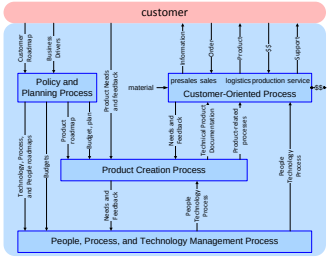
Abstract

This article positions the system architecture process in a wider business scope. This positioning is intended to help understanding the processes in which the system architect (or team of system architects) is involved.
It focuses on an organization that creates and builds systems consisting of hardware and software. Although other product areas such as solution providers, services, courseware, et cetera also need system architects, the process structure will deviate from the structure as presented here.



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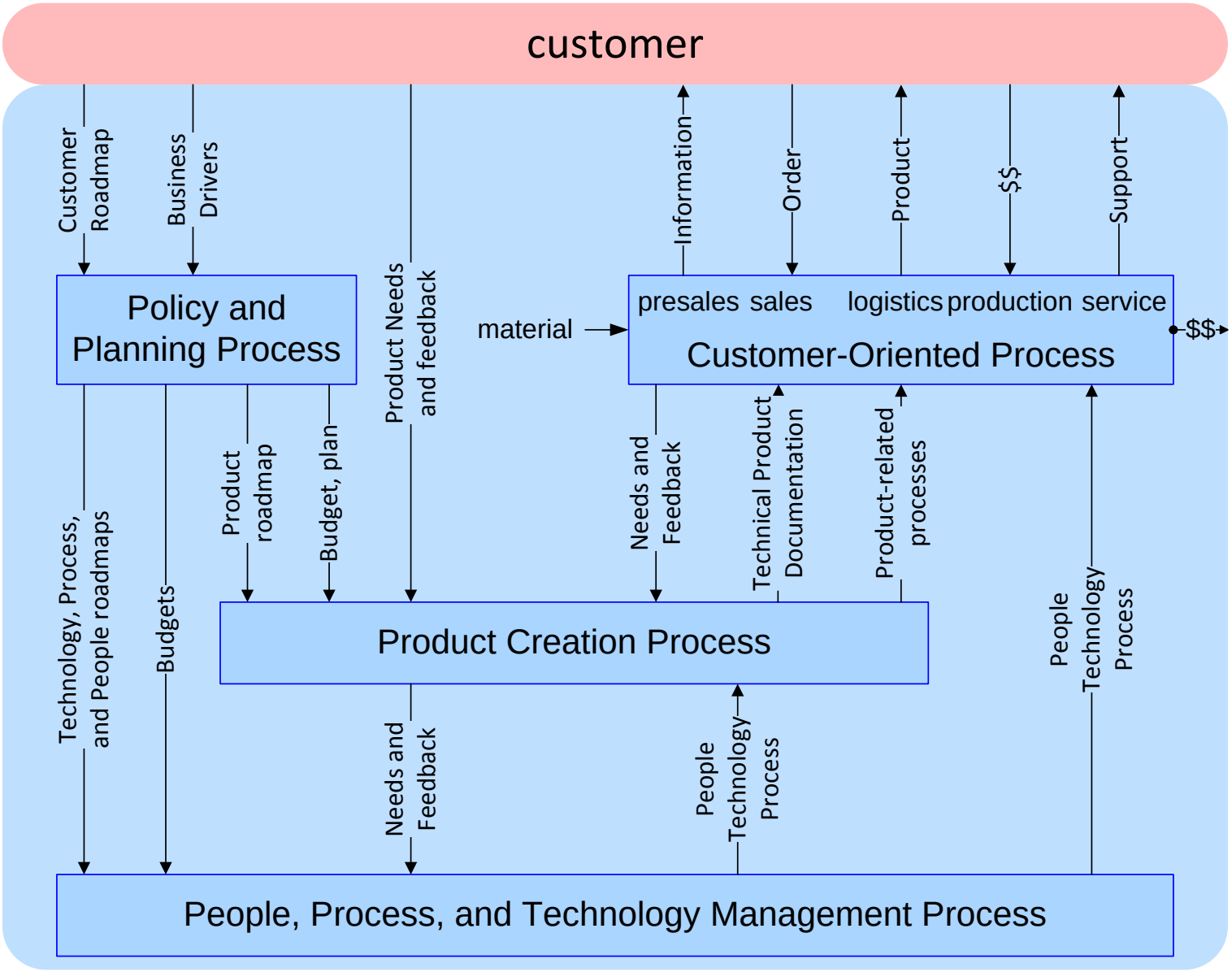
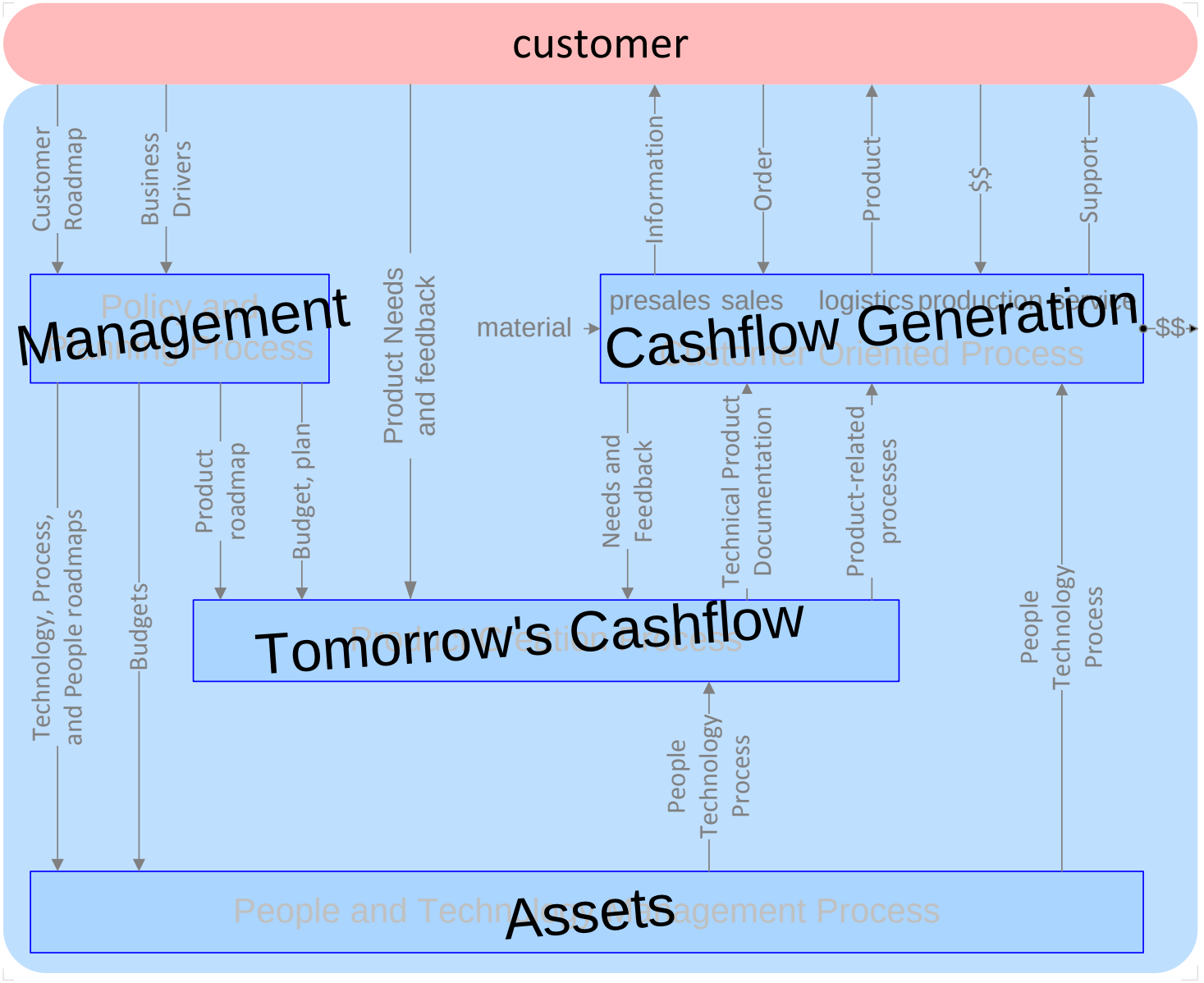
Simplified Decomposition of the Business



Financial Characterization of Decomposition



Multiple Instances per Process

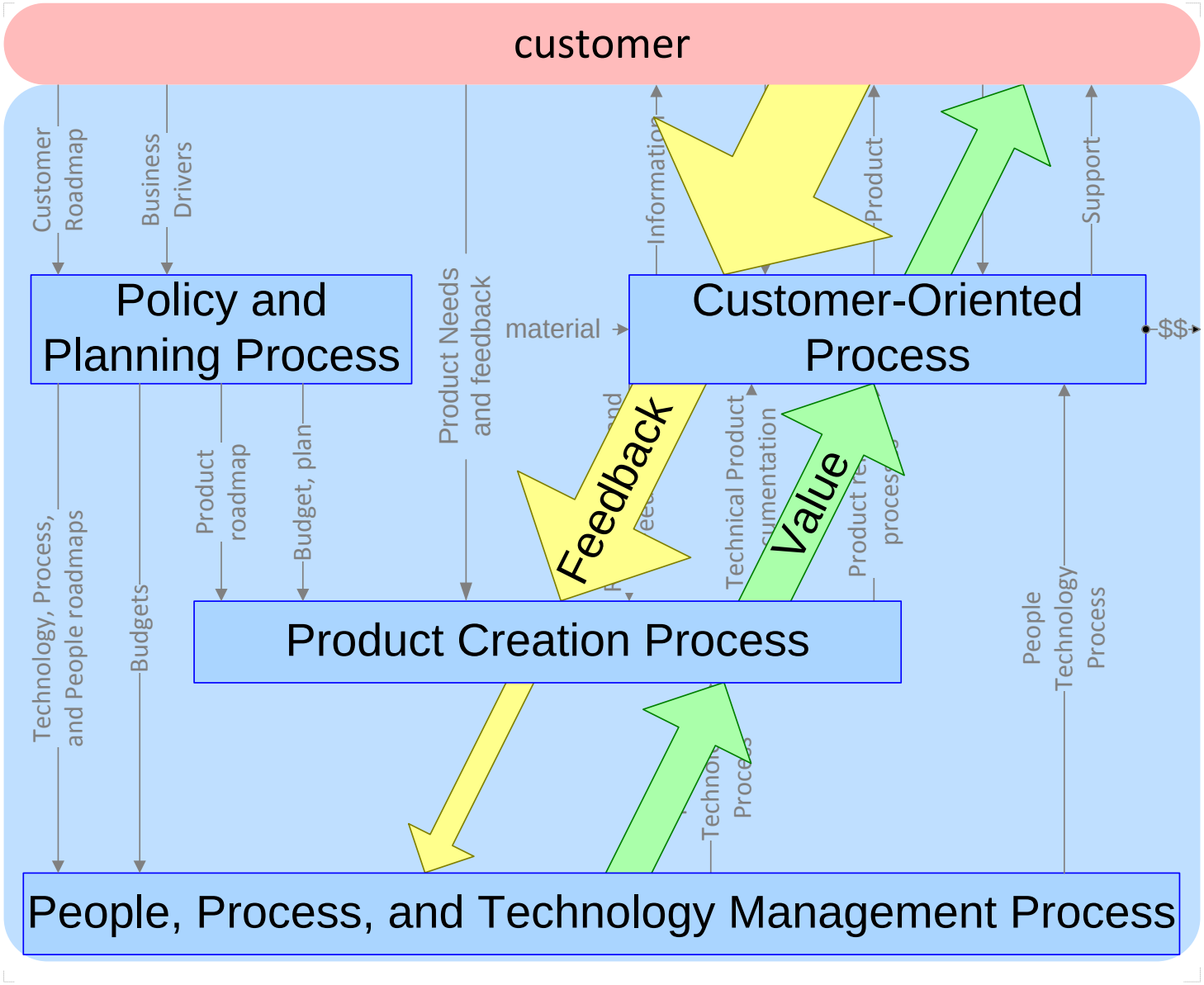
Customer Oriented Process: Depends on geography, customer base, and supply chain.

Product Creation Process: One per entity to be developed, where such an entity can be a product family, a product, or a subsystem.

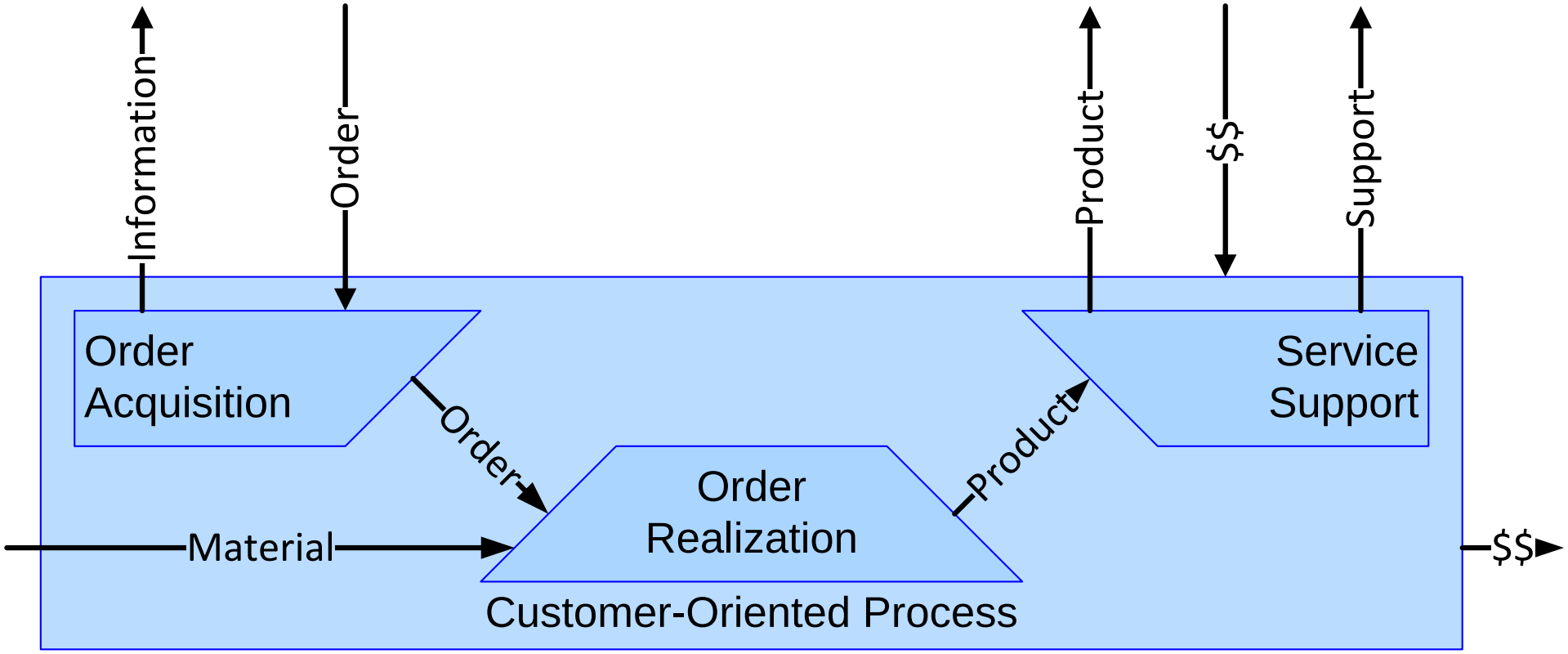
People and Technology Management Process: One per “competence”, where a competence is a cohesive set of technologies and methods.

Policy and Planning Process: One per business. This is the pro-active integrating process.

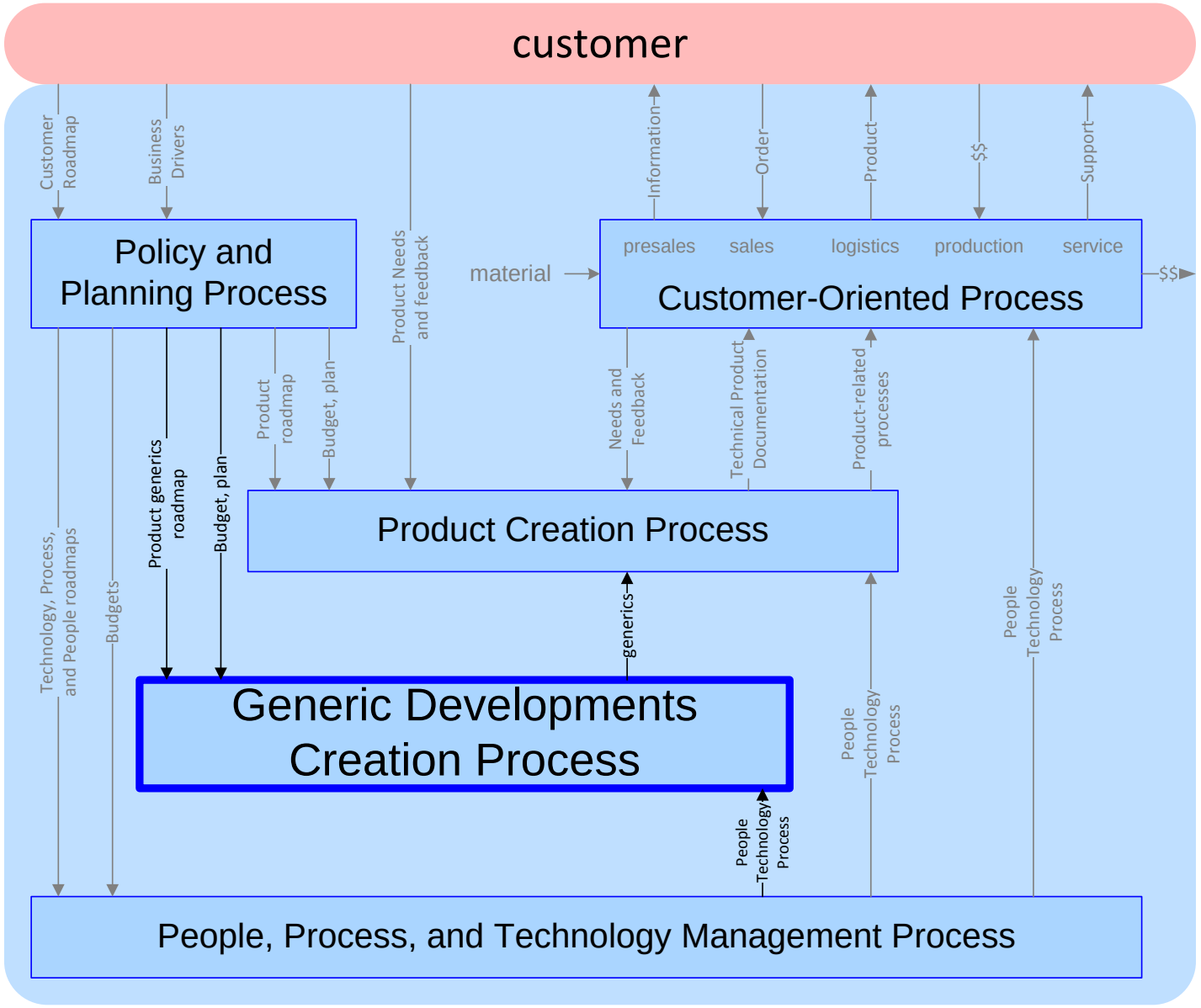
The Value Chain and the Opposite Feedback Flow



Decomposition of the Customer Oriented Process



Extended with Generic Developments



The Product Creation Process

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Abstract

The Product Creation Process is described in its context. A phased model for Product Creation is shown. Many organizations use a phased model as blueprint for the way of working. The operational organization of the product creation process is discussed, especially the role of the operational leader.

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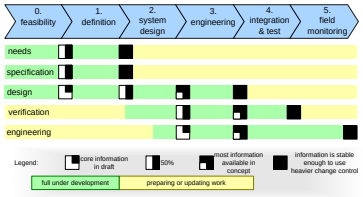
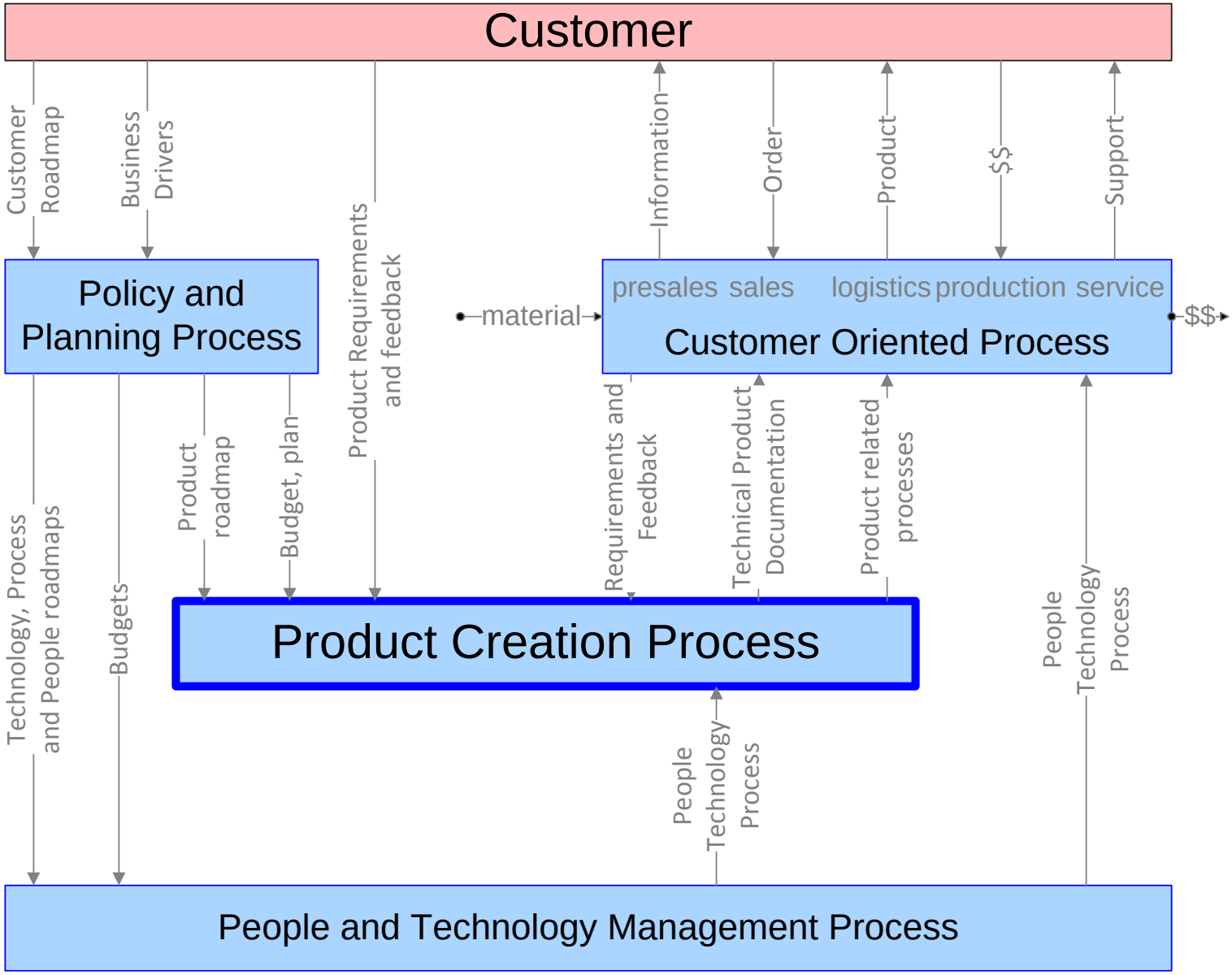
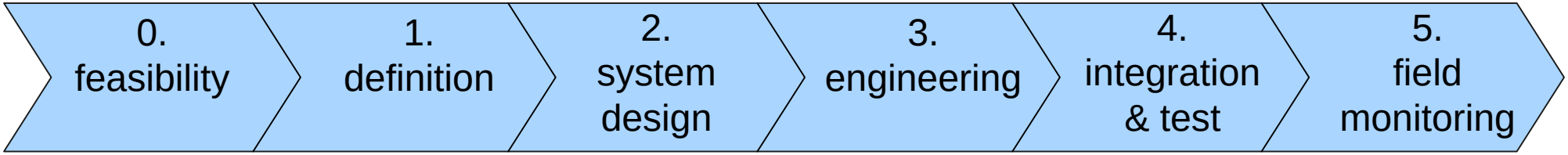


The Product Creation Process in Business Context



Phasing of the PCP at Business Level



sales

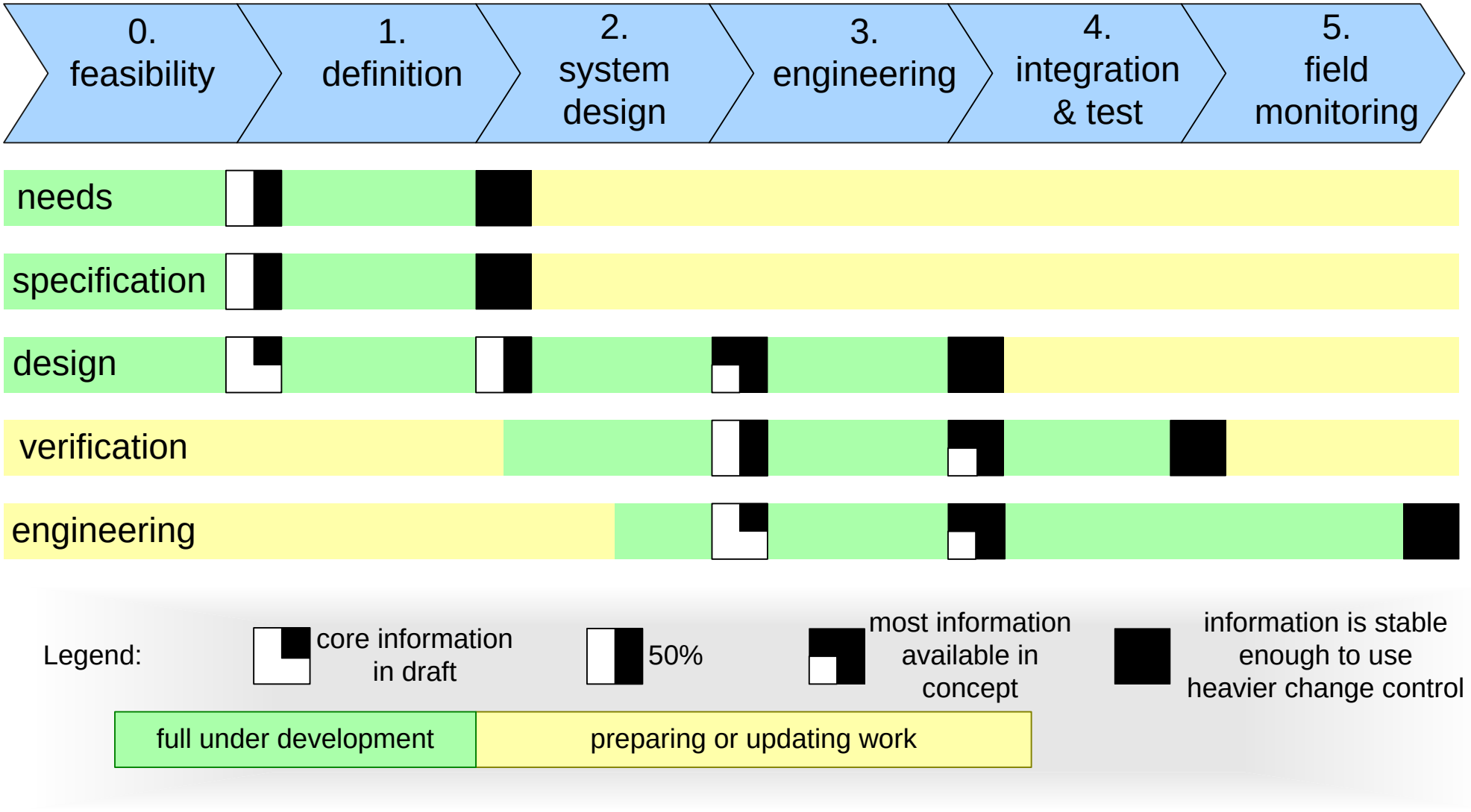
logistics

production

service

development & engineering: marketing, project management, design

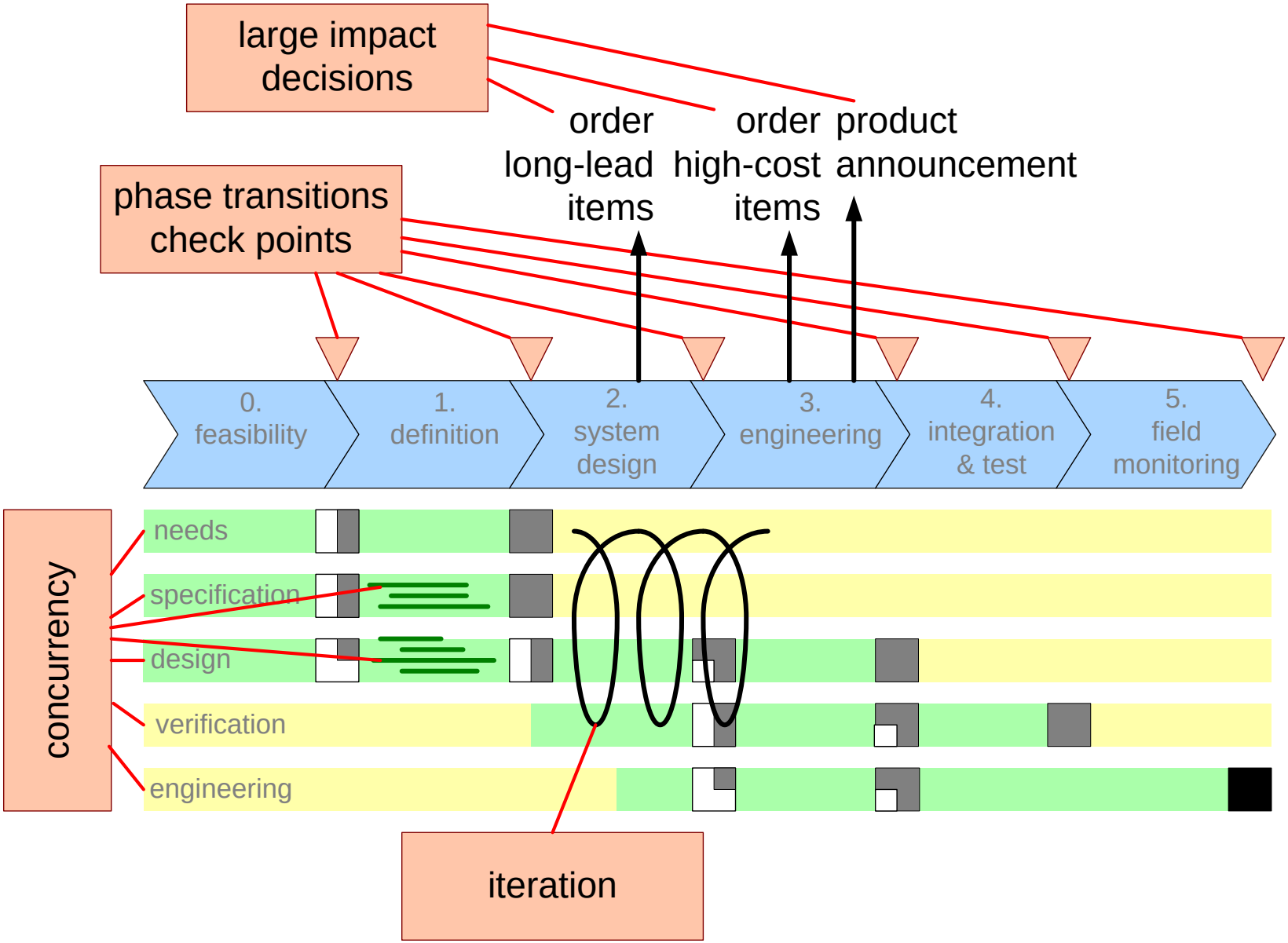
Phasing the Design Control Process



Advantages and Disadvantages of a Phased Process

benefits	*disadvantages*
blueprint: how to work	following blueprint blindly
reuse of experience	too bureaucratic
employees know *what* and *when*	transitions treated black and white
reference for management	

Characteristics of a Phase Model



Decisions and Phase Transitions

Define a minimal set of *large-impact* decisions.

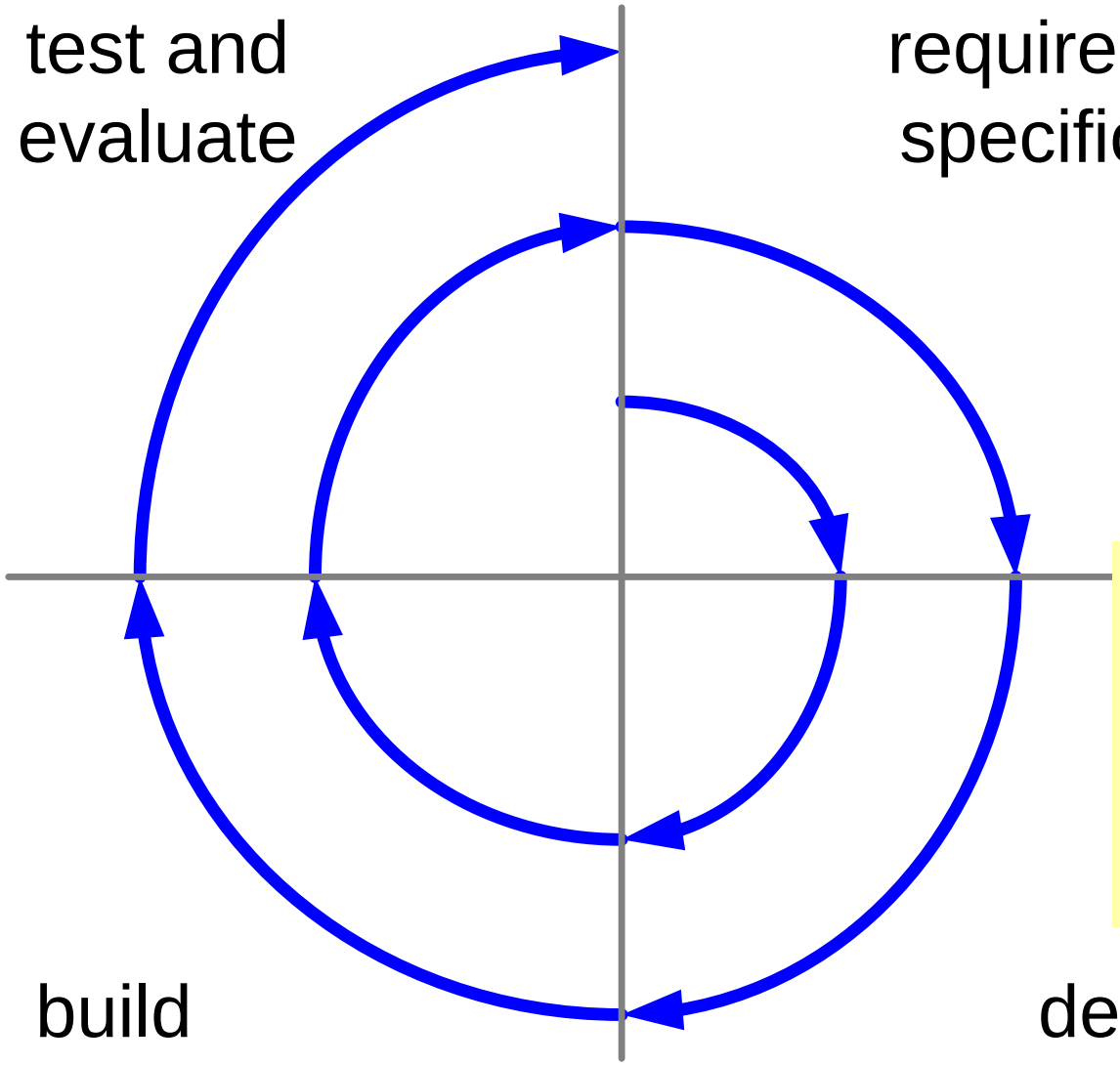
Define the mandatory and supporting information required for the decision.

Schedule a decision after the appropriate phase transition.

Decide explicitly.

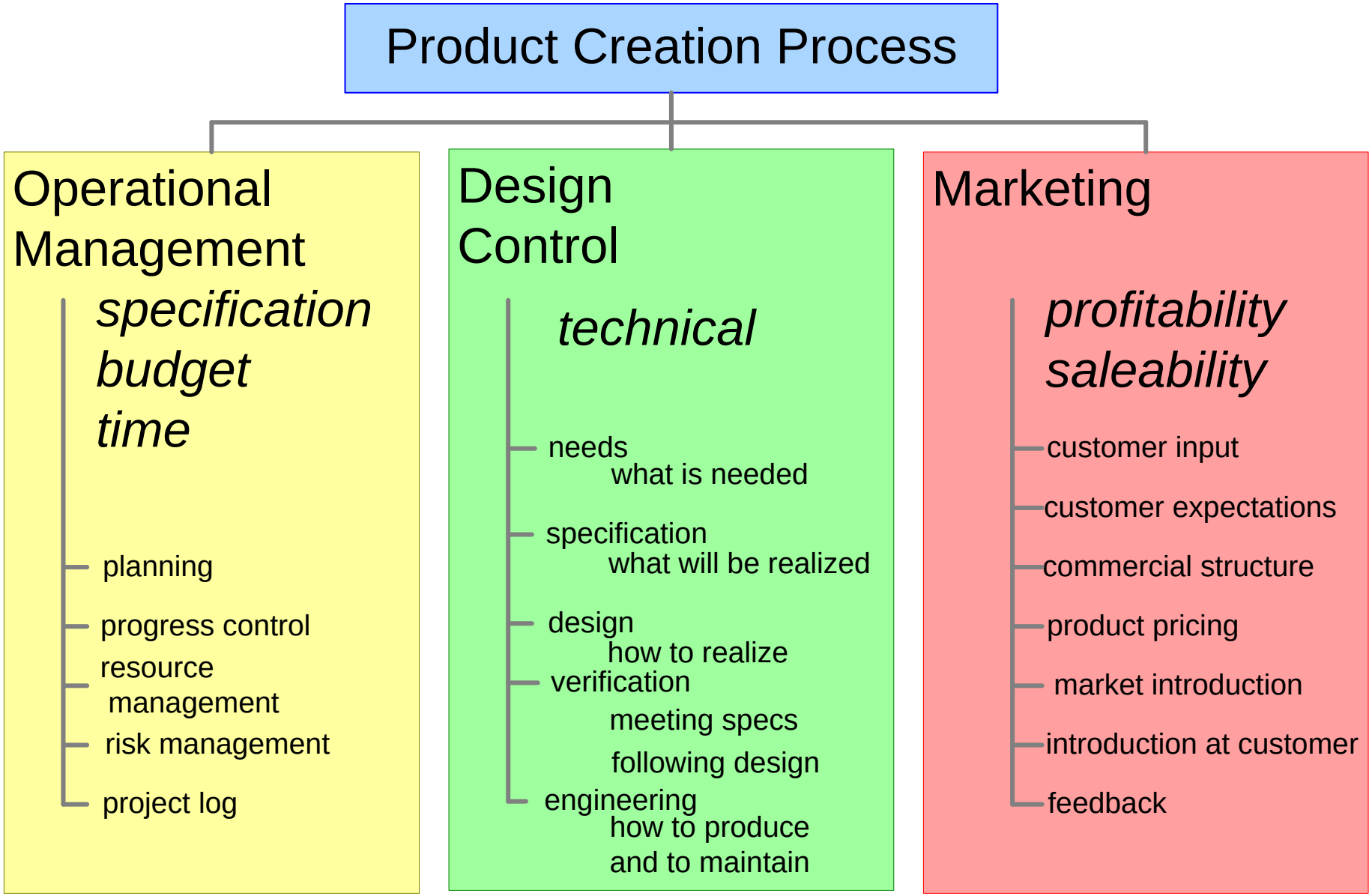
Communicate the decision clearly and widely.

Evolutionary PCP model

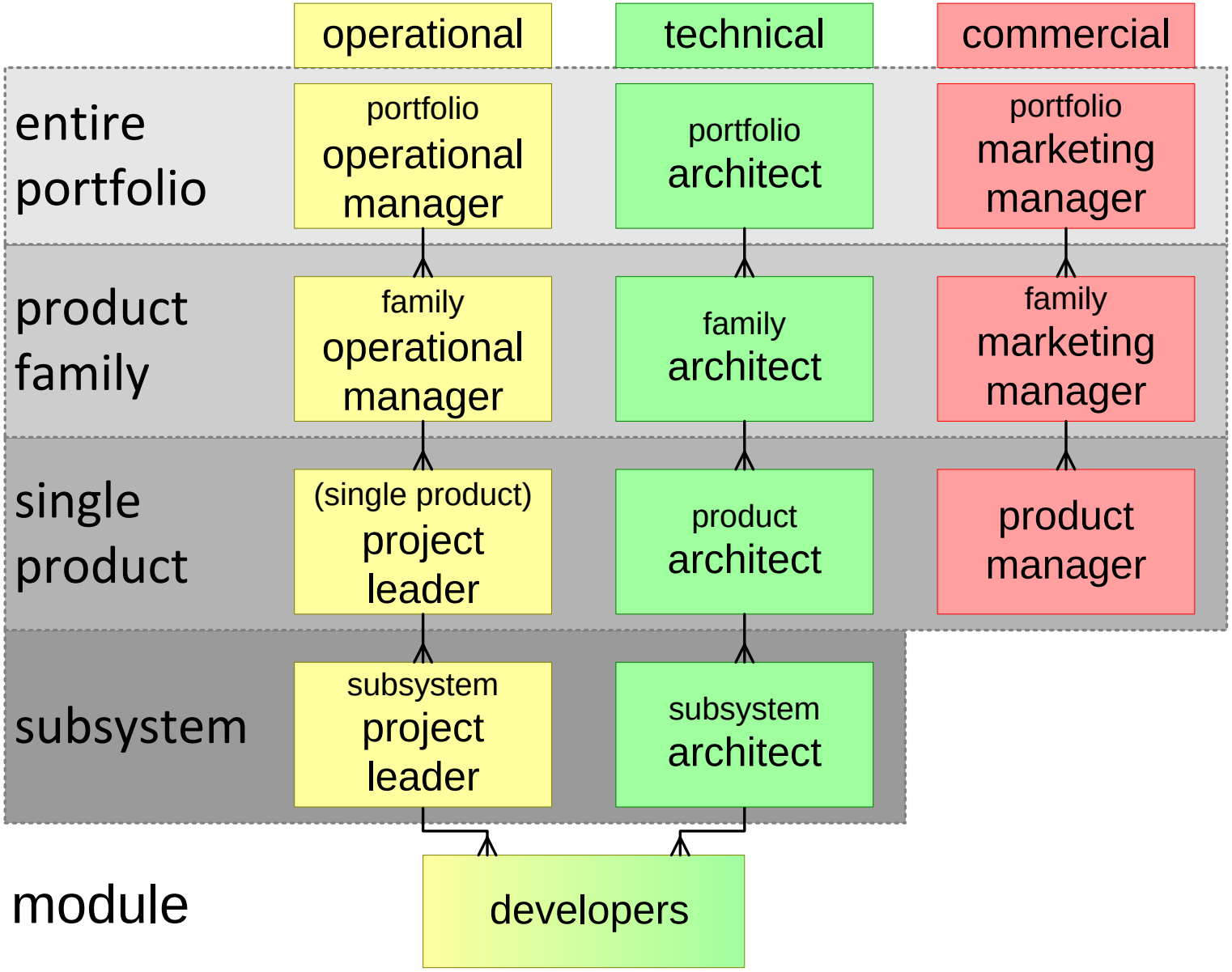


2% of budget (EVO)
2 weeks (XP)
up to 2 months
per cyclus

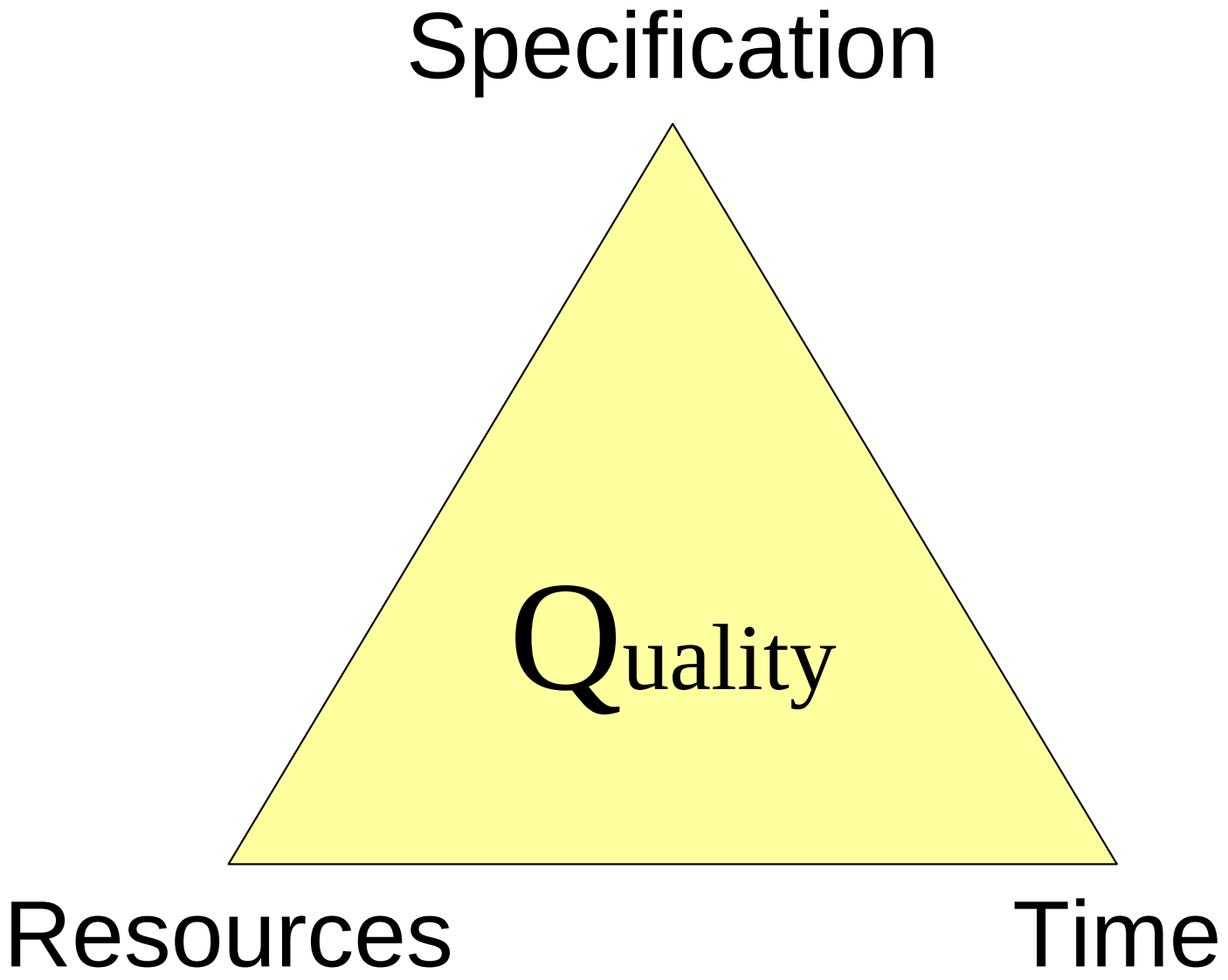
Decomposition of the Product Creation Process



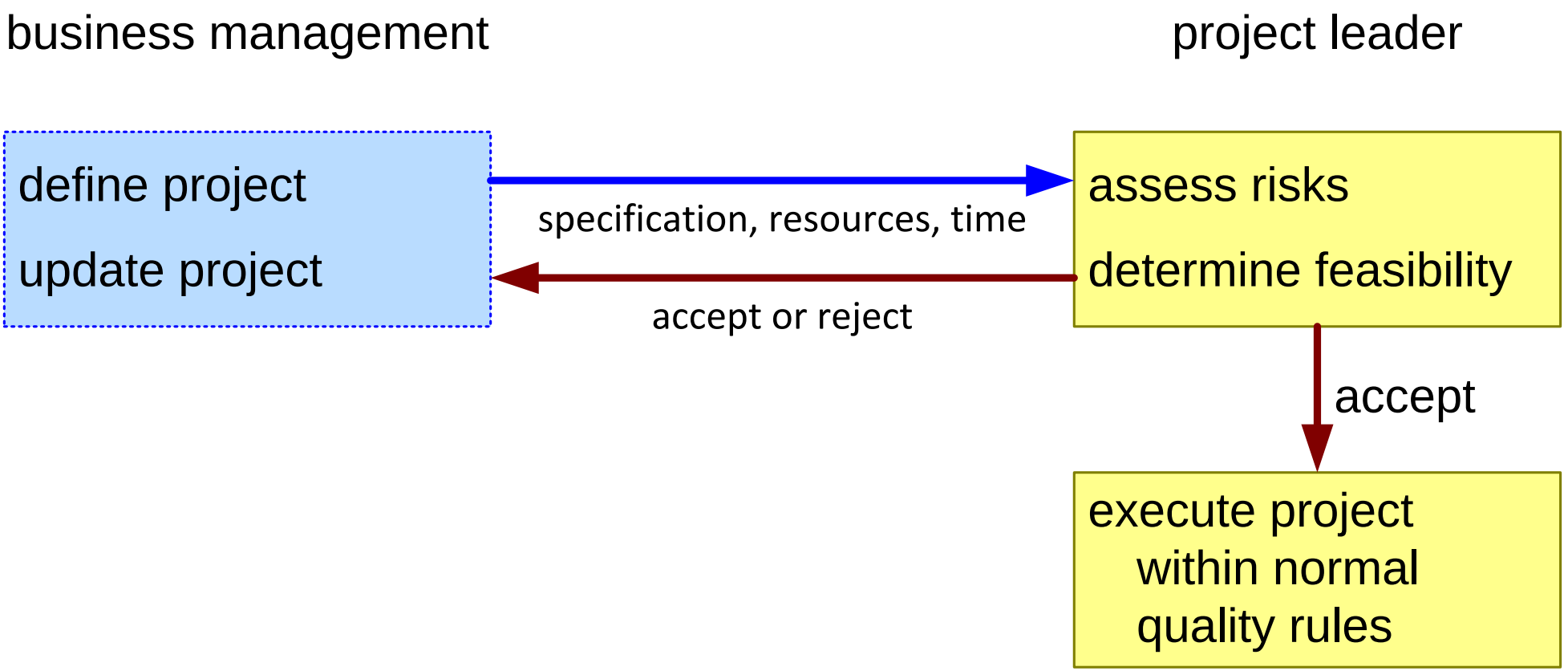
Operational Organization of the PCP



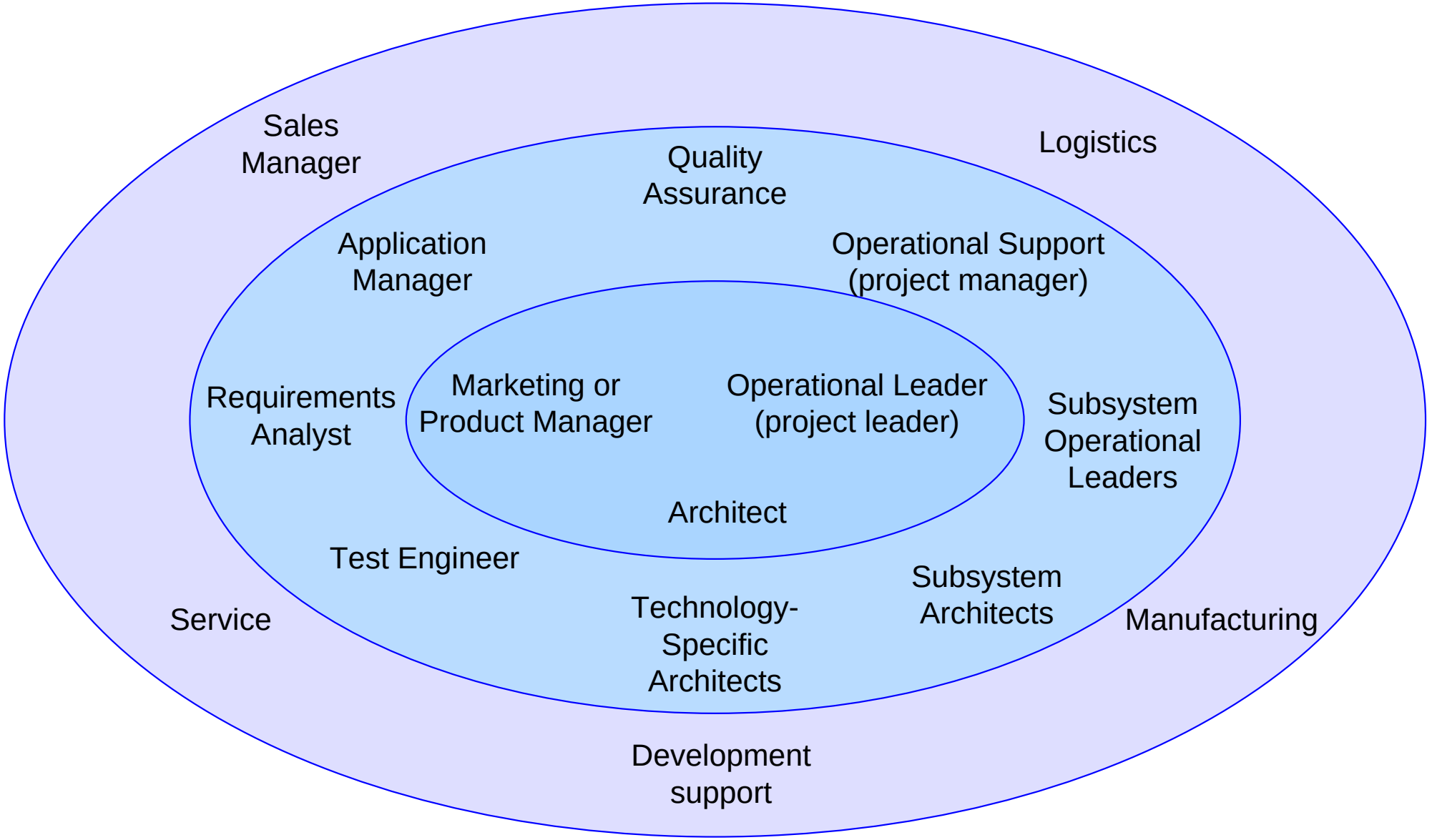
Prime Responsibilities of the Operational Leader



The Rules of the Operational Game



Operational Teams



The System Architecture Process

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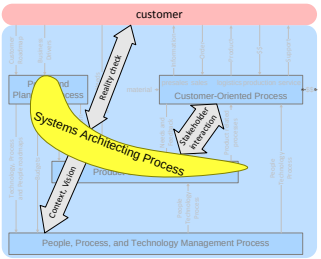
Abstract

The System Architecture Process is positioned in the business context. This process bridges the gap between the Policy and Planning Process and the Product Creation Process.
The purpose of the System Architecture Process is to provide the Integral Technical overview and consistency, and to maintain the integrity over time. Subjective characteristics as elegance and simplicity are key elements of a good architecture.
The scope of the system architecture process is illustrated by showing 5 views used in a reference architecture, ranging from Customer Business to Realization.



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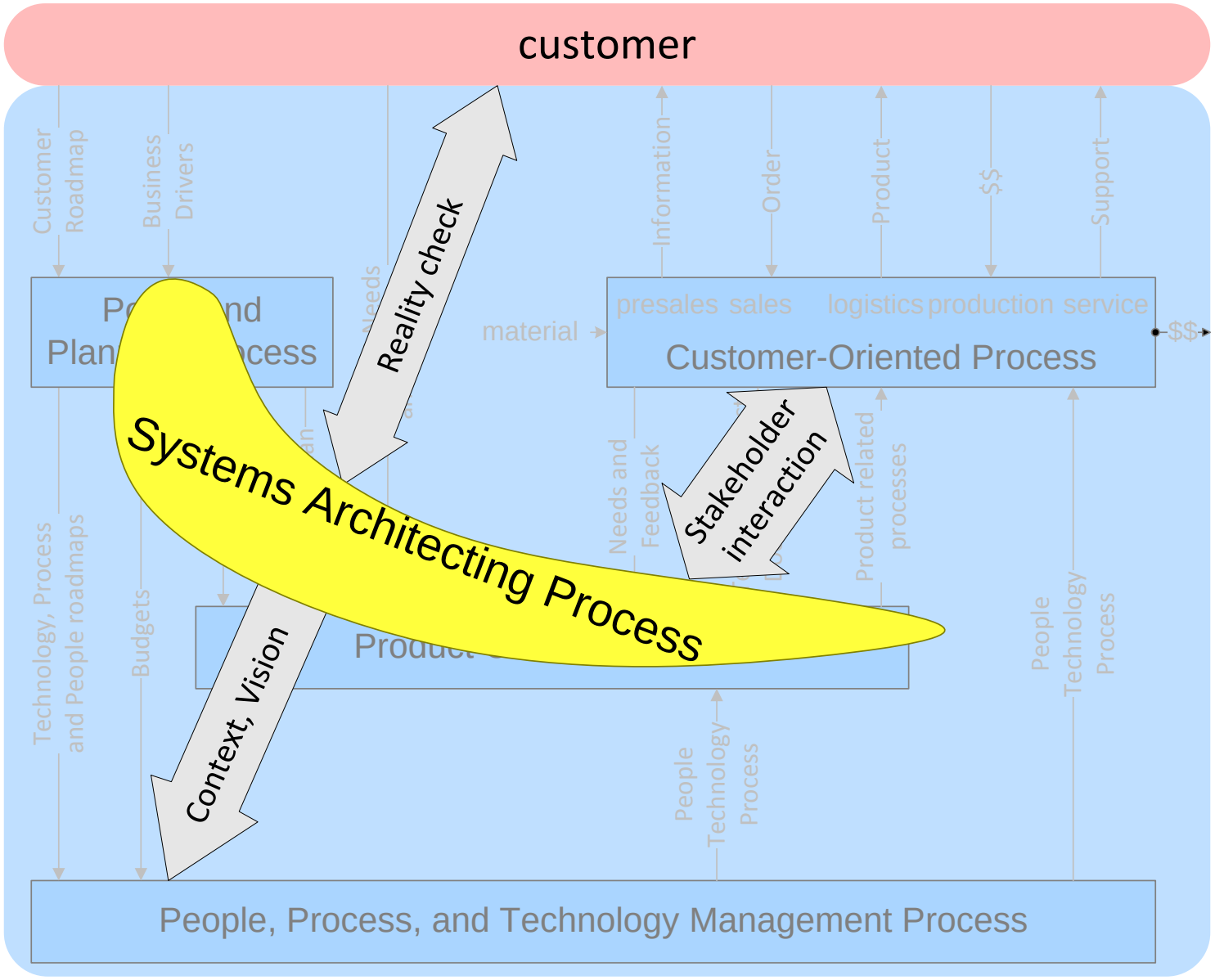
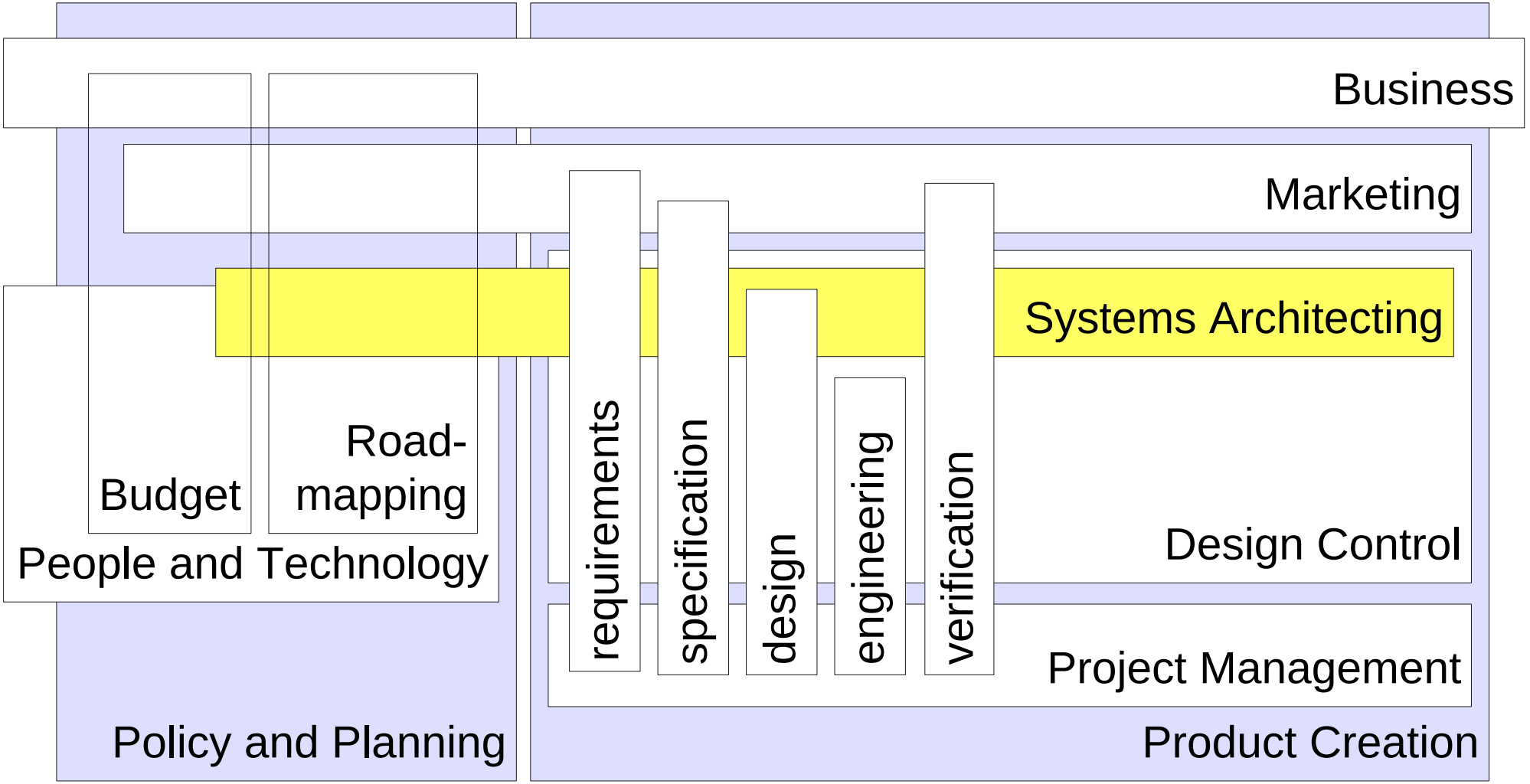
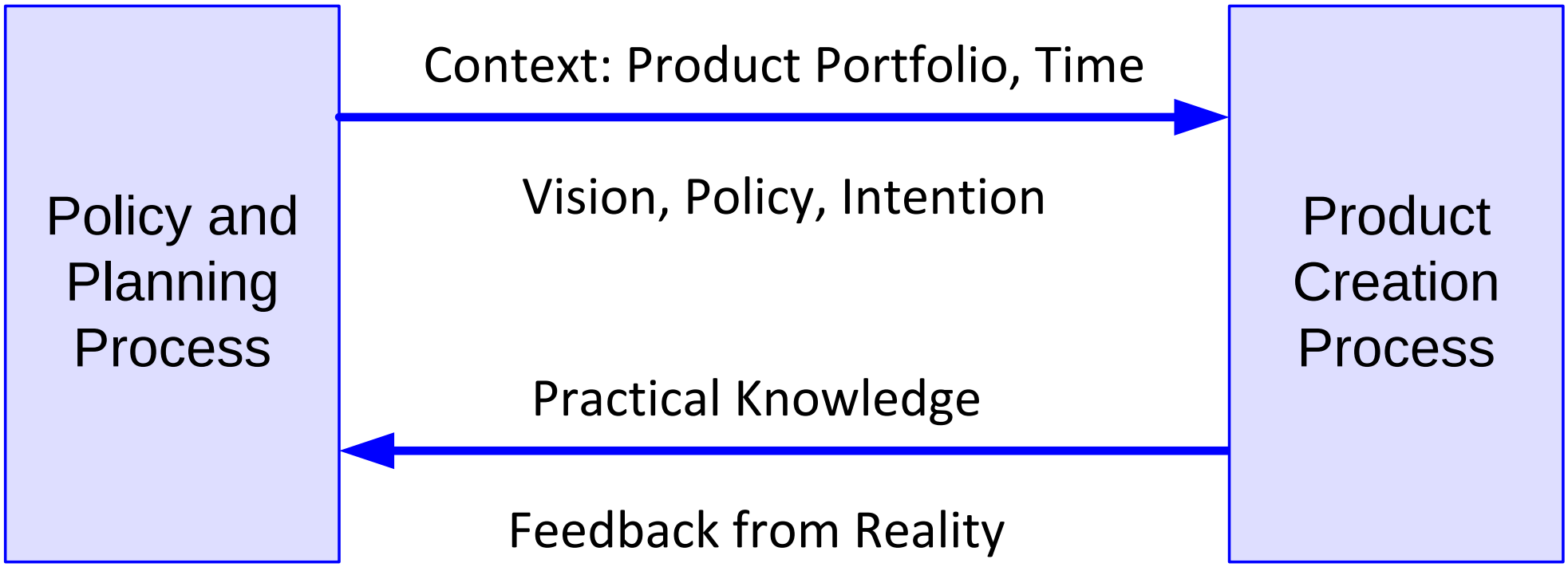
System Architecting Process in Business Context



Map of System Architecting Process and Neighborhood



System Architecting Relation between PPP and PCP



System Architecting Key Issues

key words

balance

consistency

integrity

simplicity

elegance

stakeholder satisfaction

balancing acts

External ↔ internal requirements

Short term needs ↔ long term interests

Efforts ↔ risks from requirements to verification

Mutual influence of detailed designs

Value ↔ costs

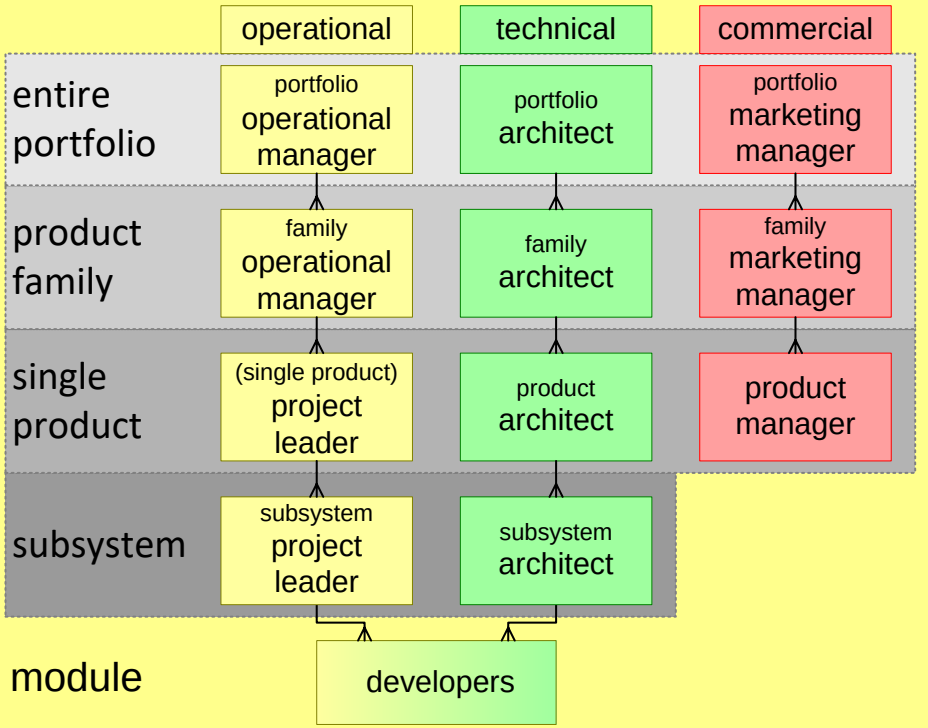
example trade-offs

Exercise Product Creation Process

Make a map with names of individuals in the **operational organization** of one project and its context

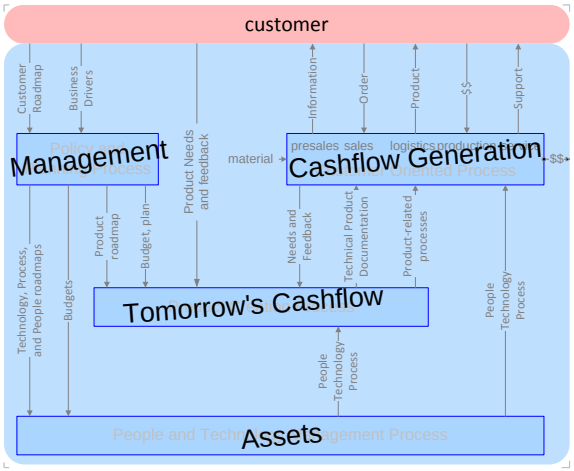
Identify the **relationships** of the **project core team**:

- **geographical**
- **organizational**
- **psychological**



Process Decomposition of a Business

Importance in Financial terms



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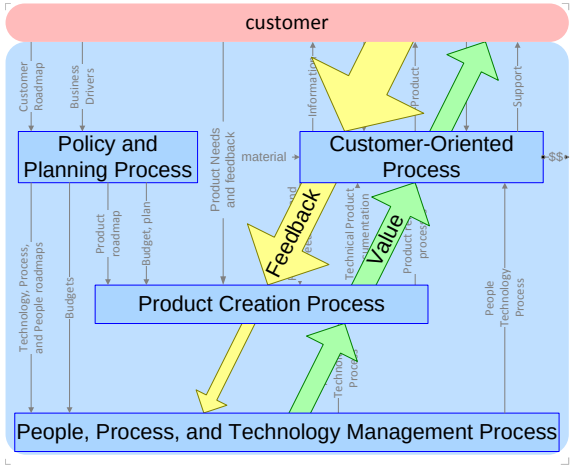
Value Chain and Feedback Flow



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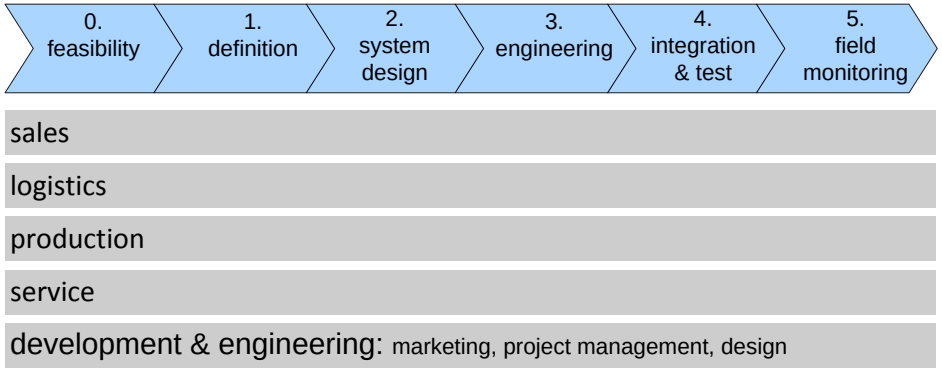
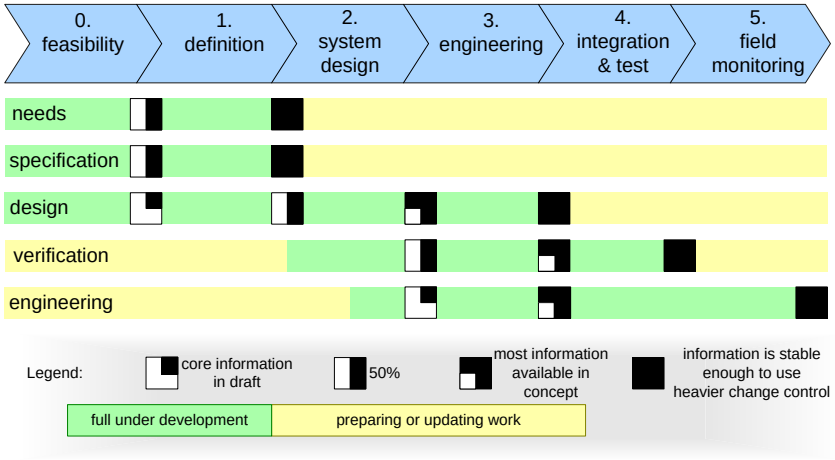
Product Creation Process

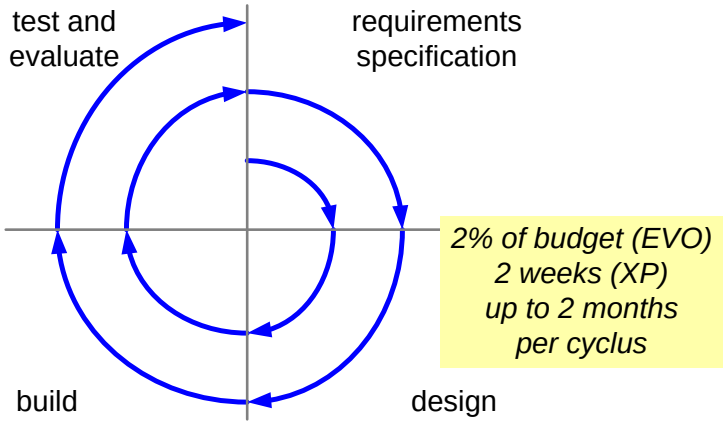
PCP involves **all** disciplines, much more than D&E



Phased Process



Incremental Development



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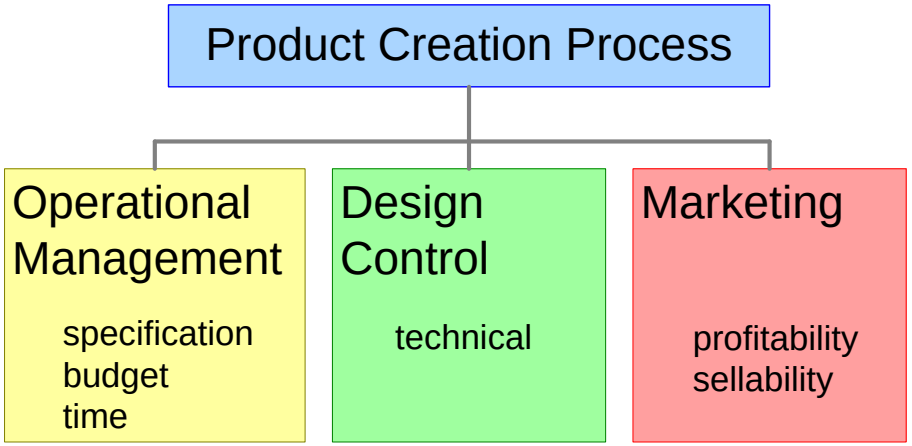
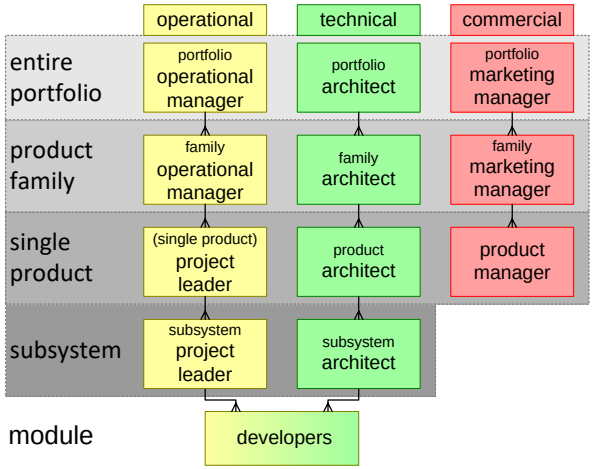
PCP Decomposition and Operational Management

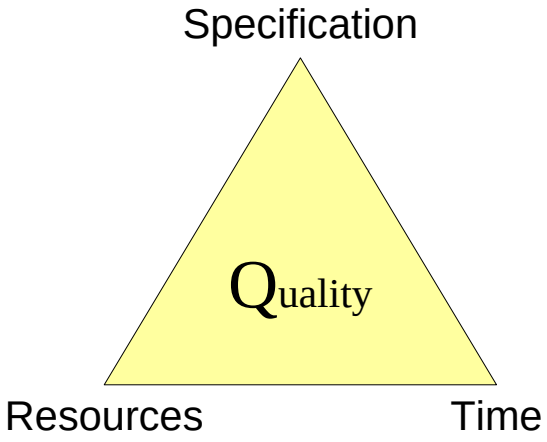
PCP decomposition



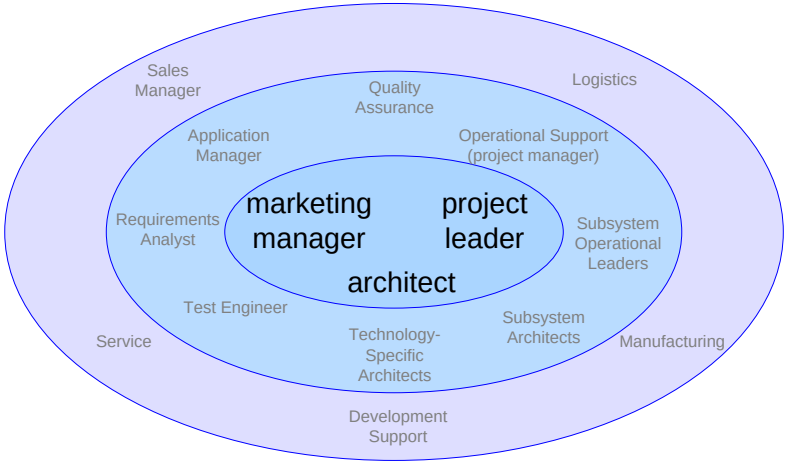
Architecture at all levels; From portfolio to subsystem



Operational Commitment

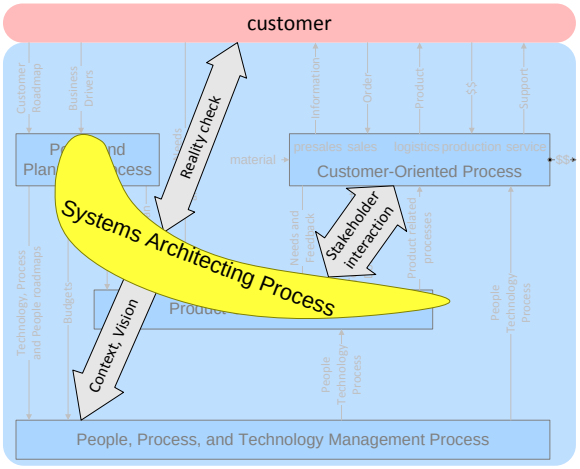


Core: Operational + Technical + Commercial



System Architecture Process

In Business Context



Key Issues

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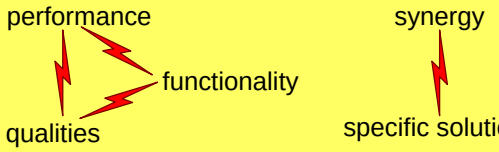
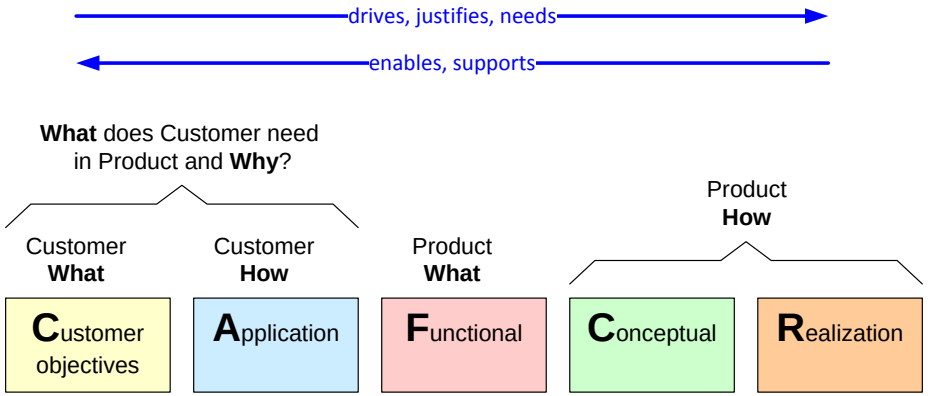


5 Views



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