

Exploring Product Line Opportunities

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Abstract

Many companies struggle to benefit from similarities between products they sell. The challenge is to find these commonalities that can be shared between products, while the product value for different customers is not (too much) compromised.

We will discuss a method understand the playing field both in marketing and technology, and we discuss a process to quickly explore this playing field by workshops and fast iteration over views and considerations.

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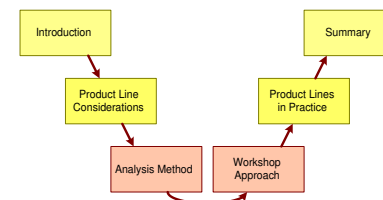
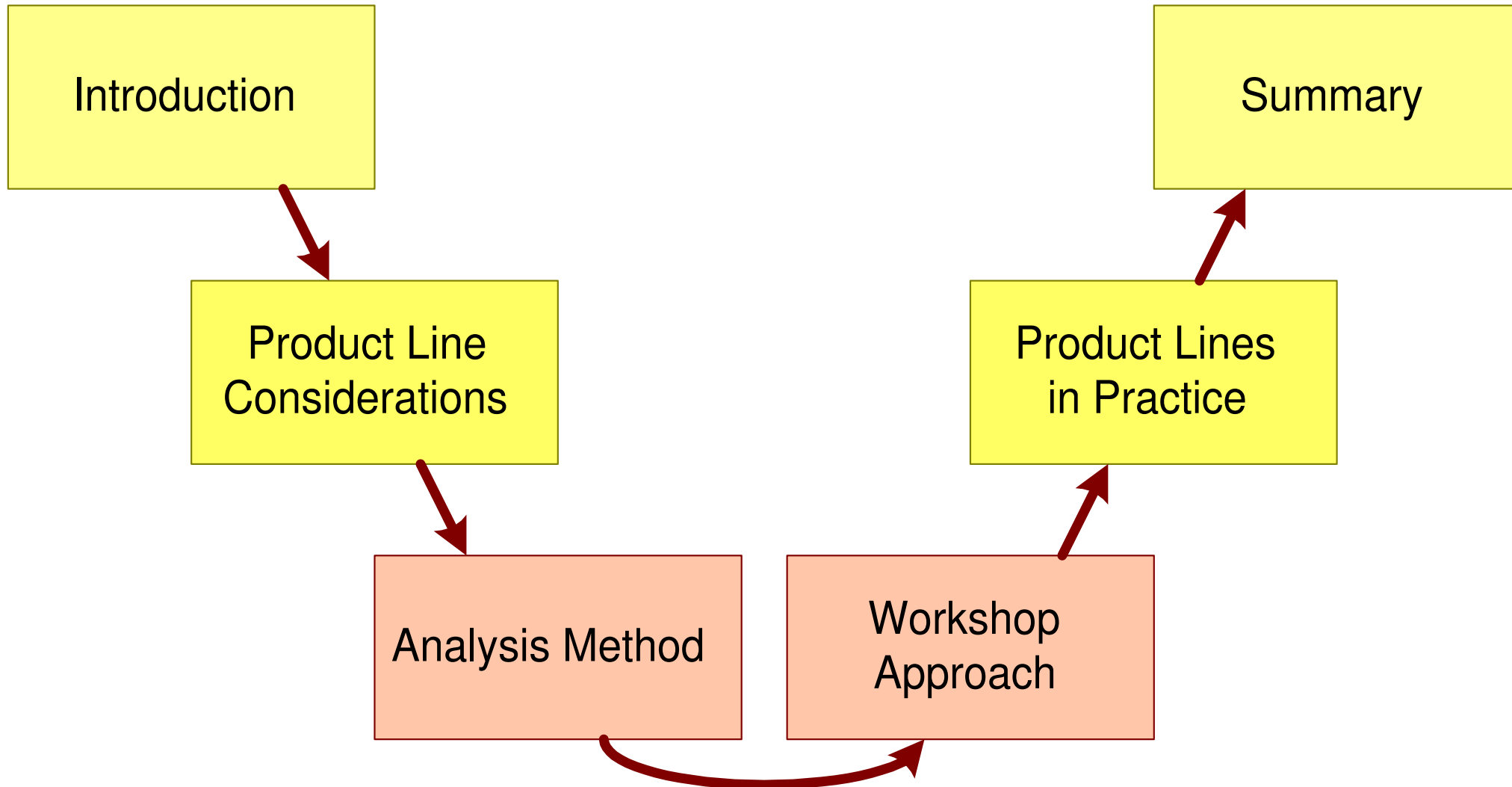
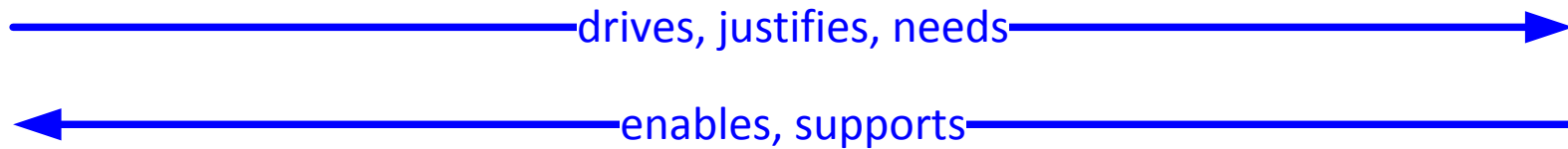


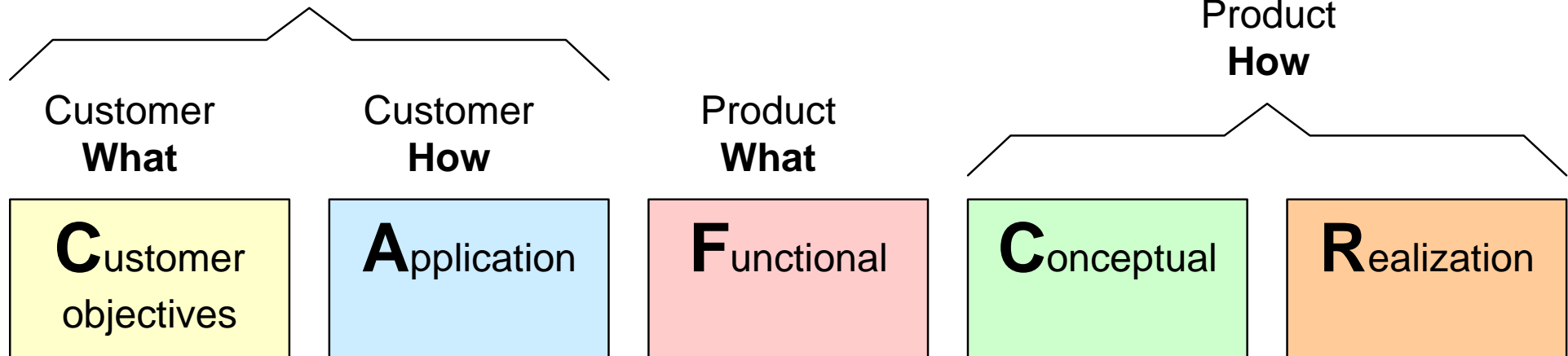
Figure Of Contents™



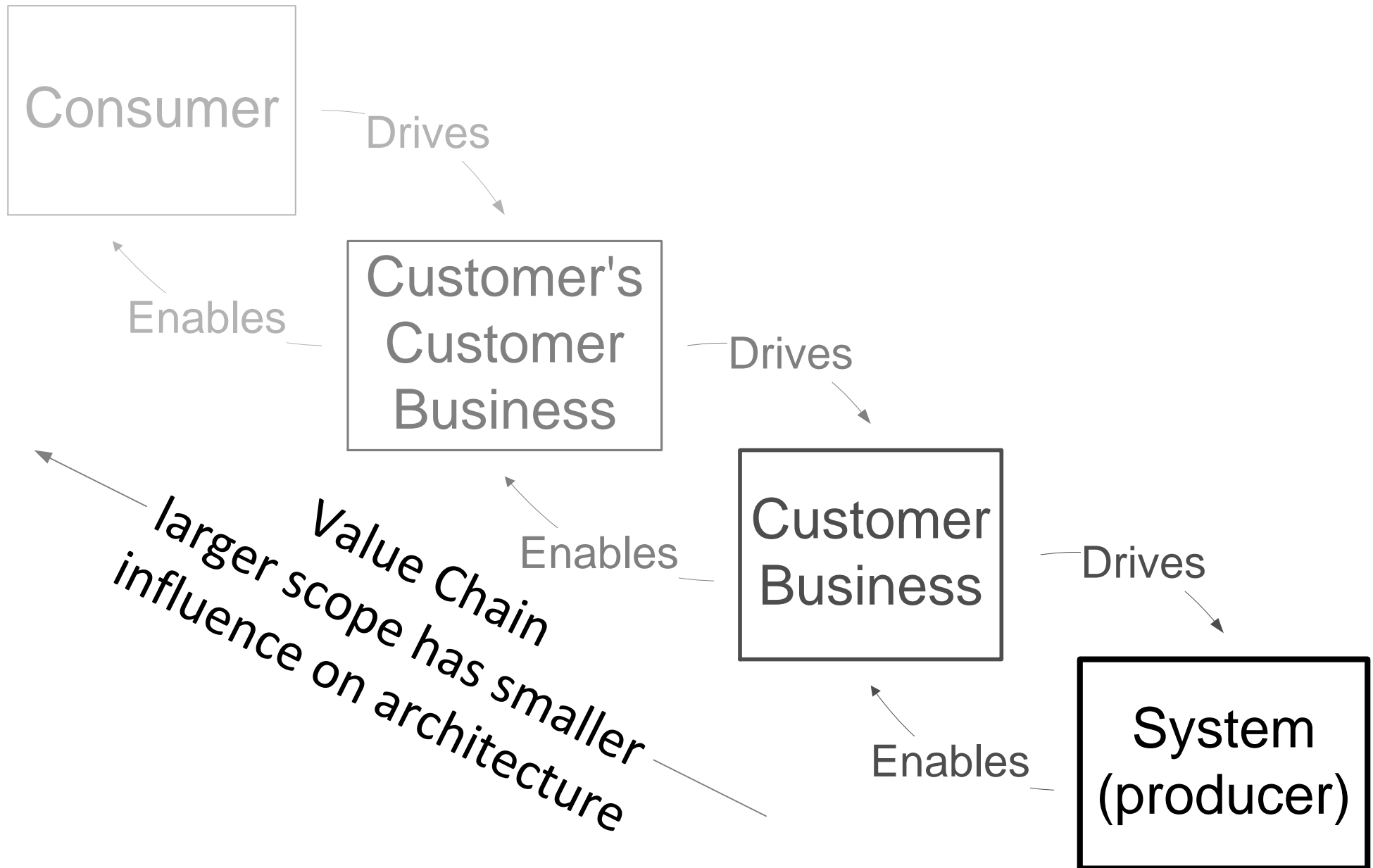
The “CAFCR” model



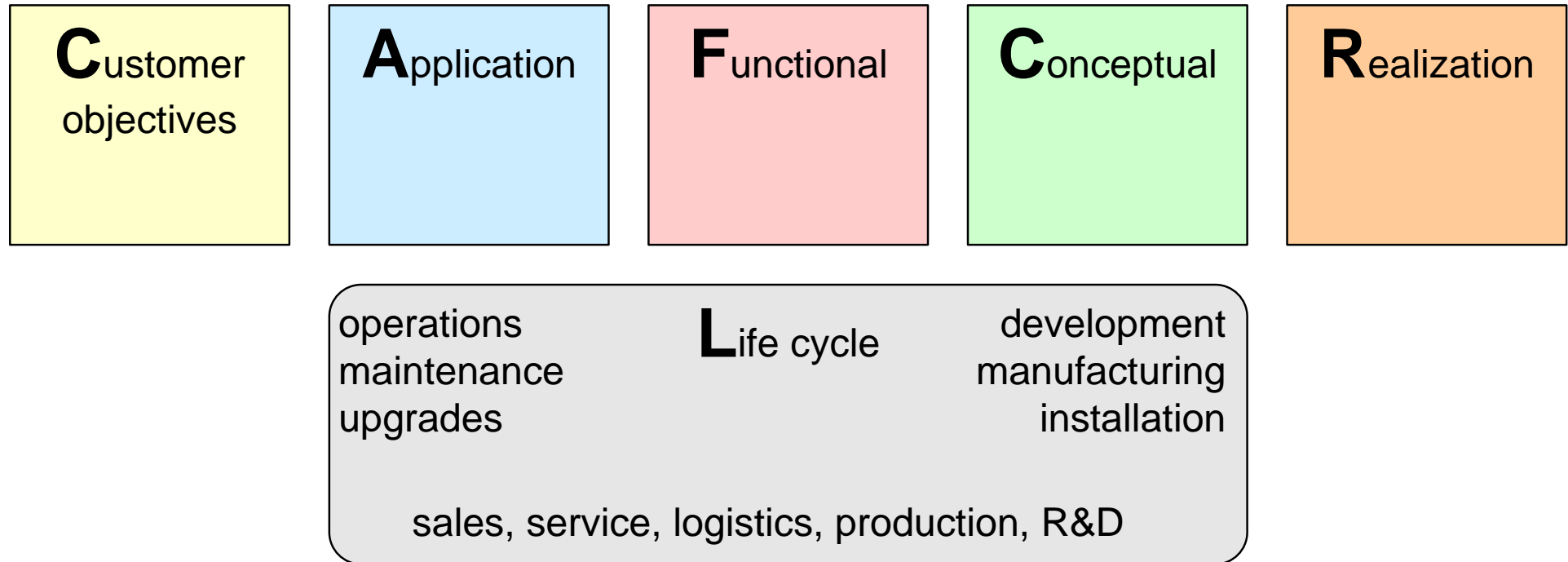
What does Customer need
in Product and **Why?**



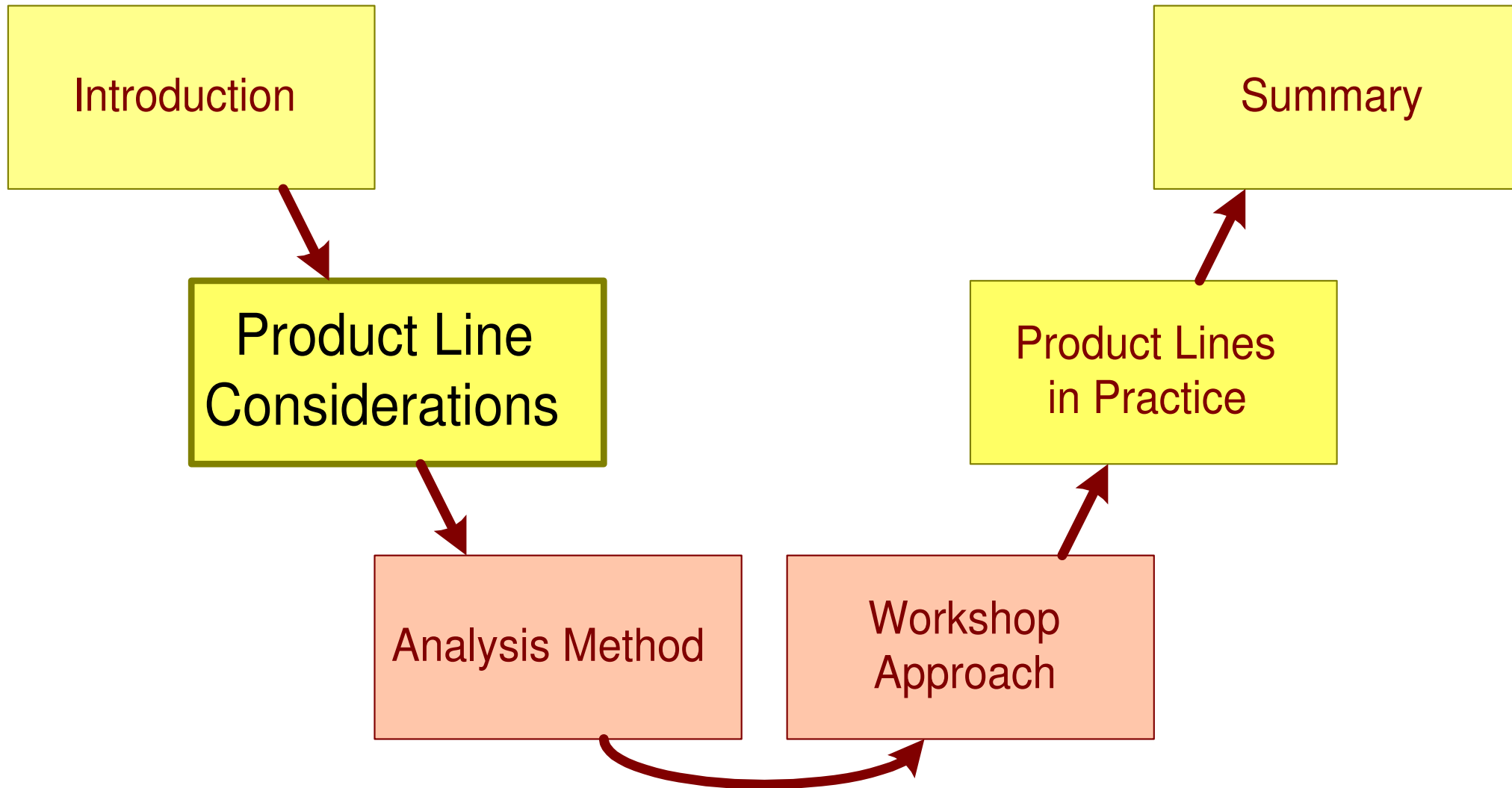
CAFCR can be applied recursively



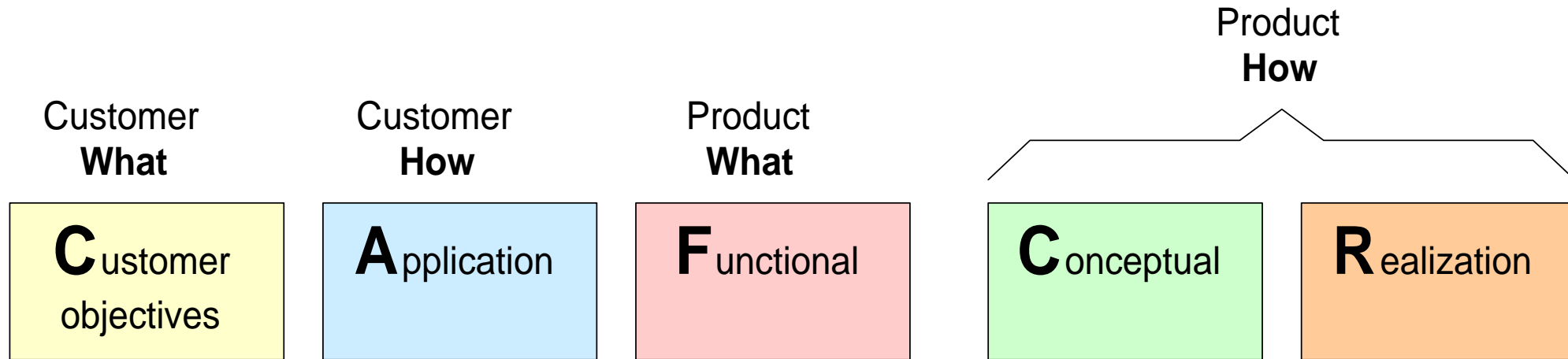
CAFCR+ model; Life Cycle View



Product Line Considerations



Multiple Markets



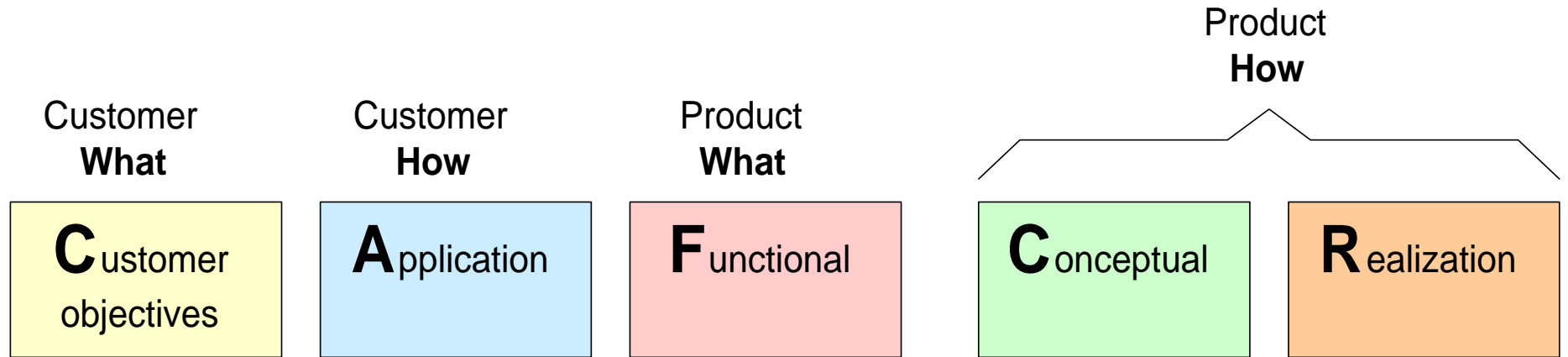
Multiple markets:
different customers
different applications
different products

electron microscopes:
material sciences
life sciences
manufacturing, e.g. semiconductors

Shared platform:
shared concepts
shared technology

electron microscopes:
e-beam sources, optics
vacuum
acquisition control

Complementing Systems for Same Market



Single market:
different stakeholders
different applications
interoperable products

health care, e.g. cardiology:
analysis
diagnosis
treatment
administration

Shared components:
shared concepts
shared technology

health care, e.g. cardiology:
patient support
patient information
image information
storage & communication
user interface

Scope Analysis

market segmentation

Customer
What

Customer
How

Product
What

Customer
objectives

Application

Functional

market taxonomy
customer classification
stakeholder classification
inventarization applications
inventarization
functions
features
performance

synergy analysis

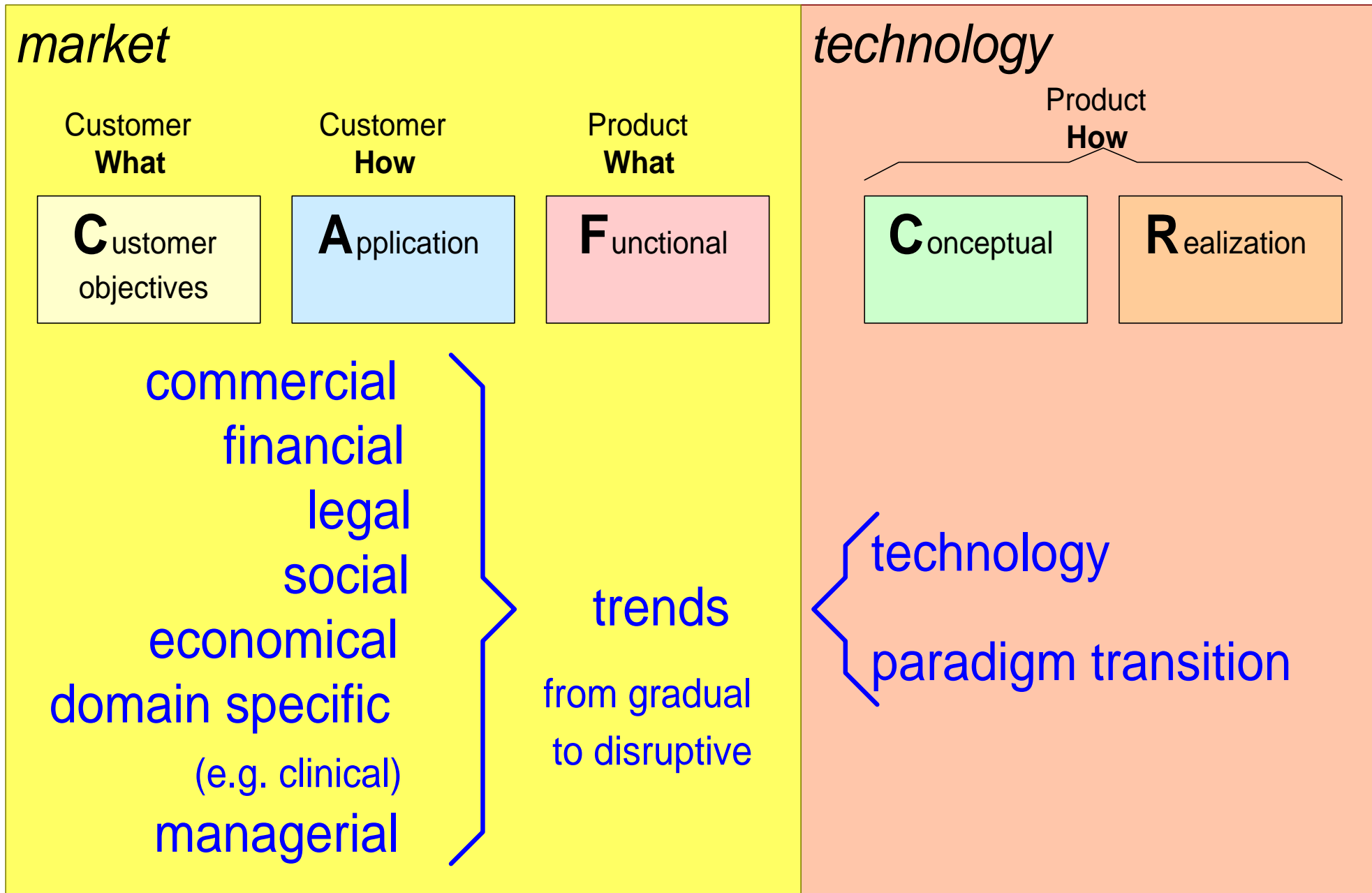
Product
How

Conceptual

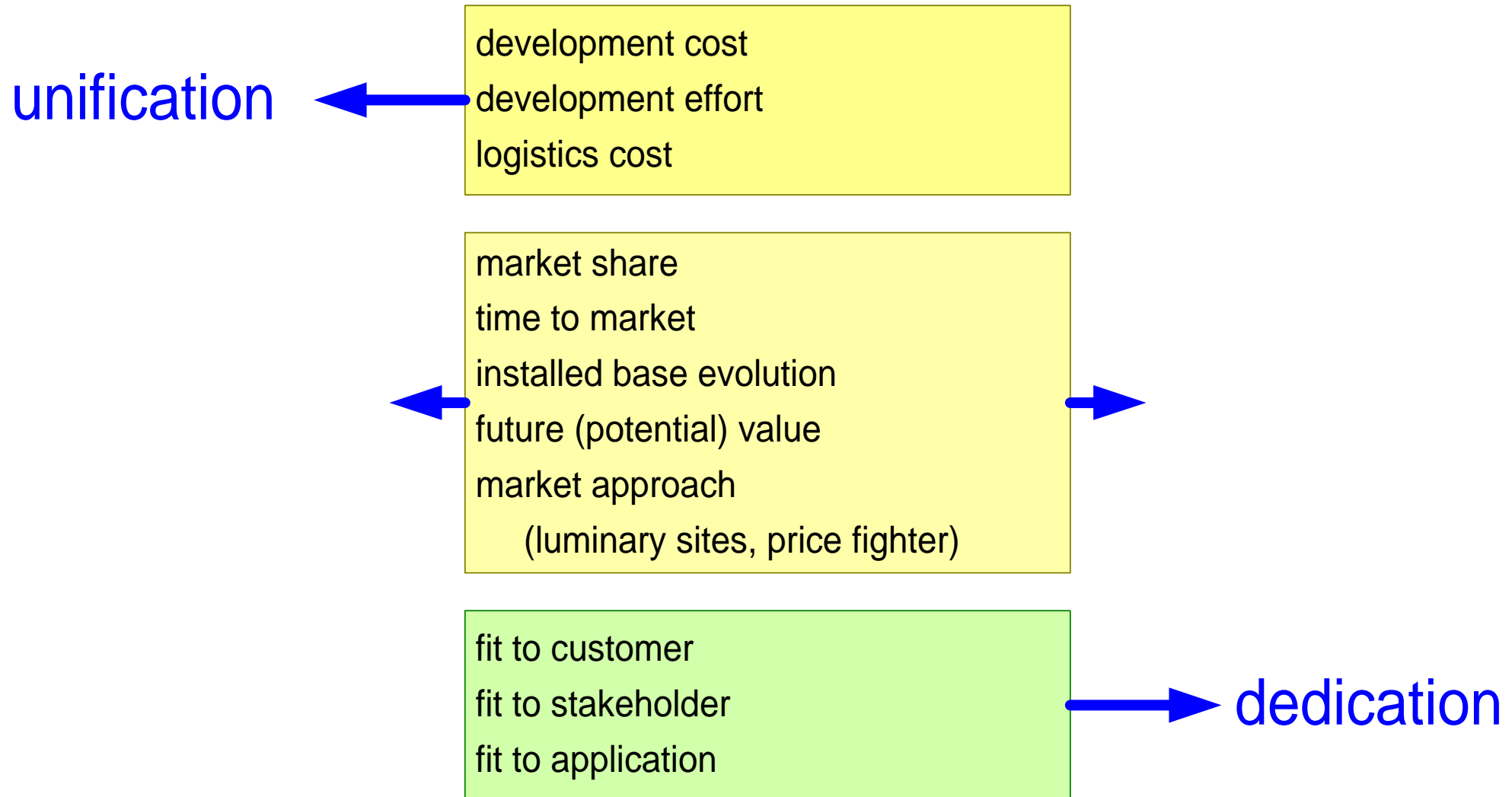
Realization

shared functionality
analyse characteristics
analyse differentiators
functionality
characteristics

Roadmapping: Impact of Future



Criteria and Forces for Synergy



Possible Levels of Sharing

intangible assets

vision, objectives

specifications, interfaces

designs, concepts

processes

tangible assets

realized components

integrated (sub)systems

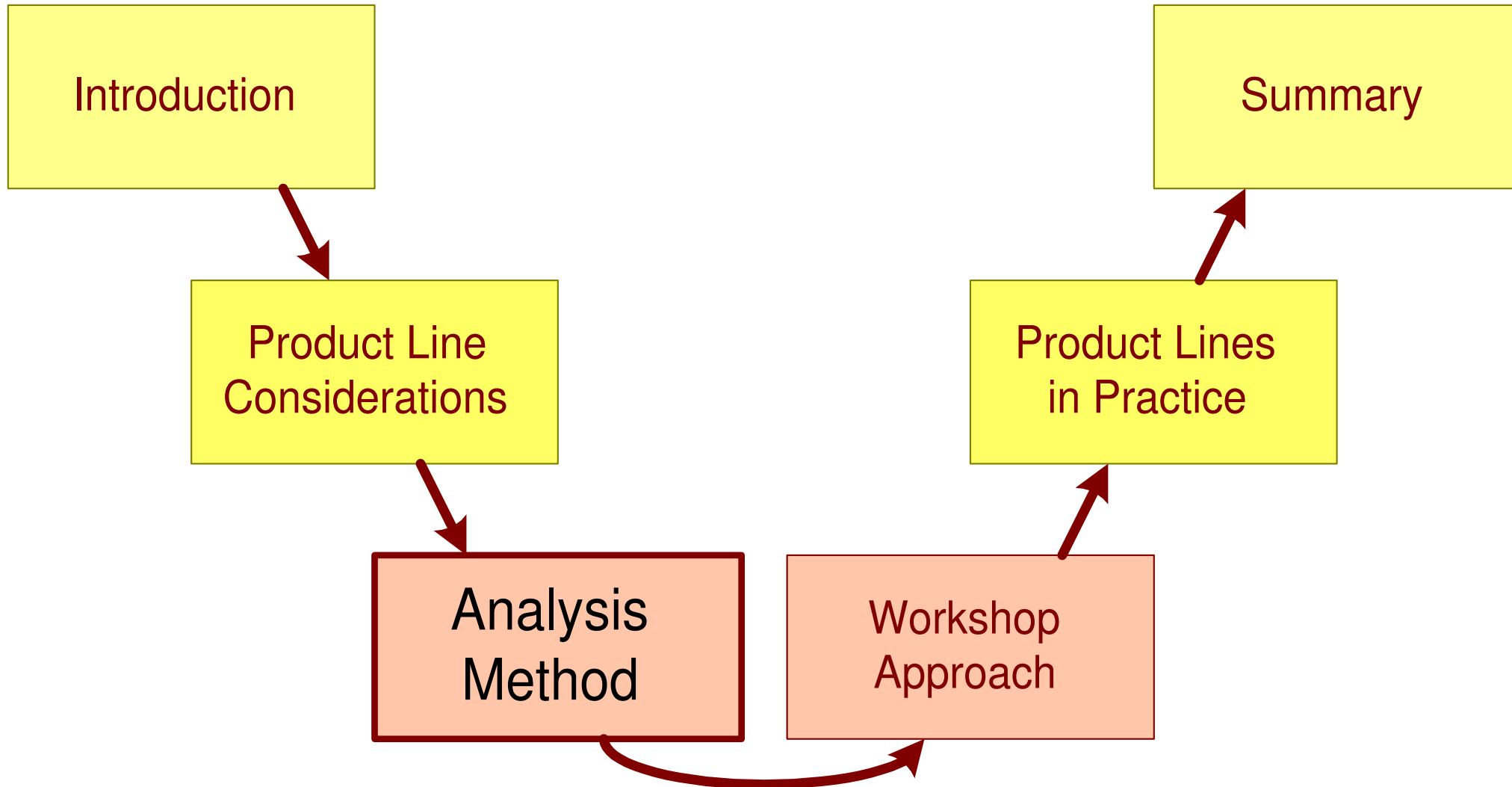
test suites

tools

infrastructure

Not everything that can be shared should be shared!

Analysis Method



Approach to Platform Business Analysis

explore markets, customers, products and technologies

share market and customer insights

identify product features and technology components

make maps:

market segments - customer key drivers

customer key drivers - features

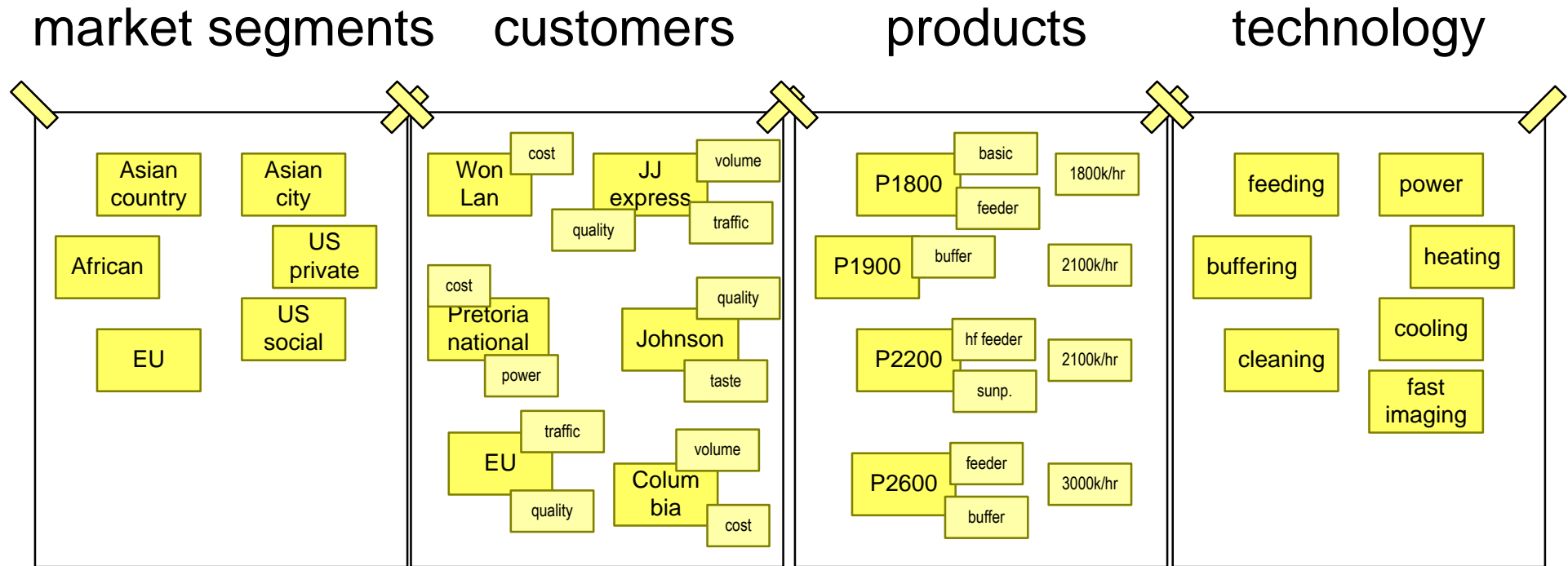
features - products

products - components

discuss value, synergy, and (potential) conflicts

create long-term and short-term plan

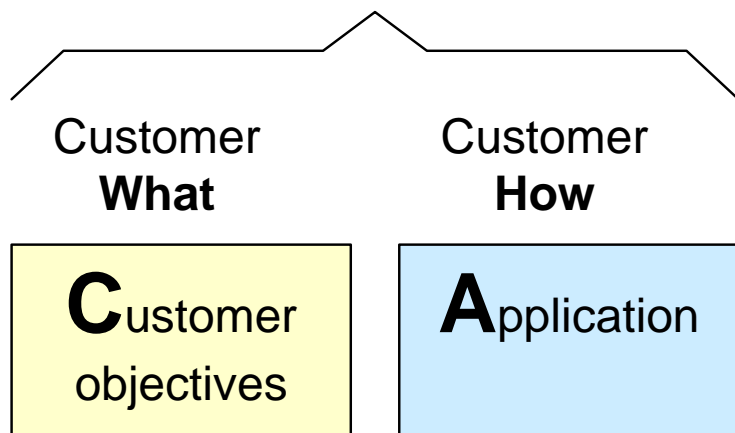
Explore Markets, Customers, Products and Technologies



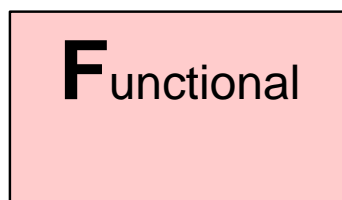
brain storm and discuss time-boxed

Study one Customer and Product

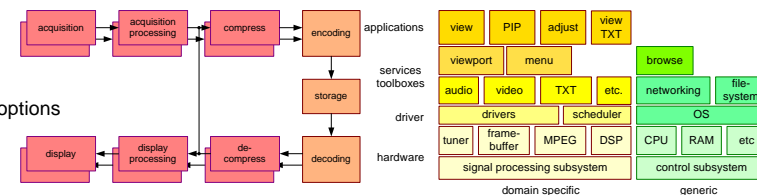
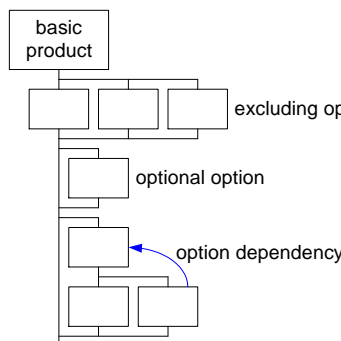
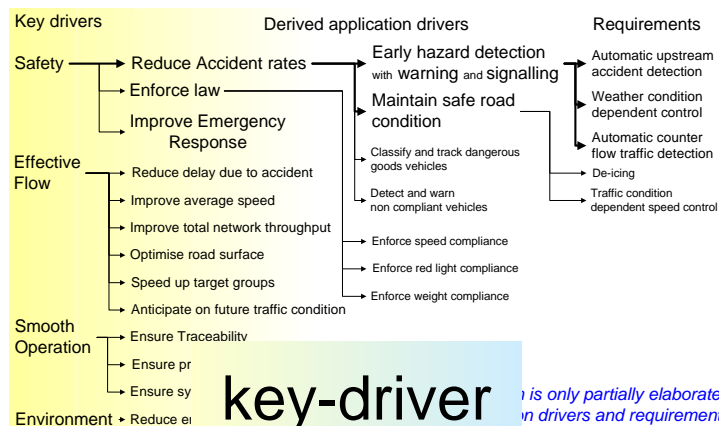
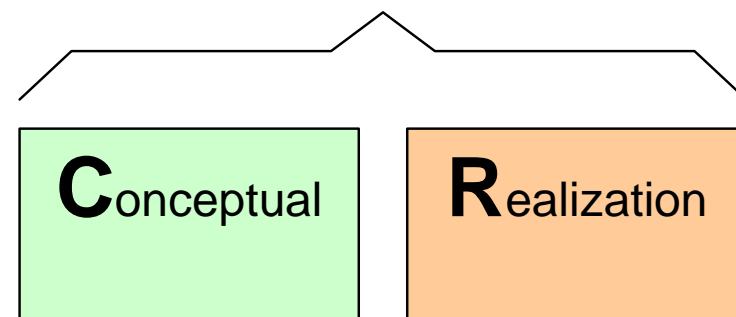
What does Customer need in Product and **Why?**



Product What



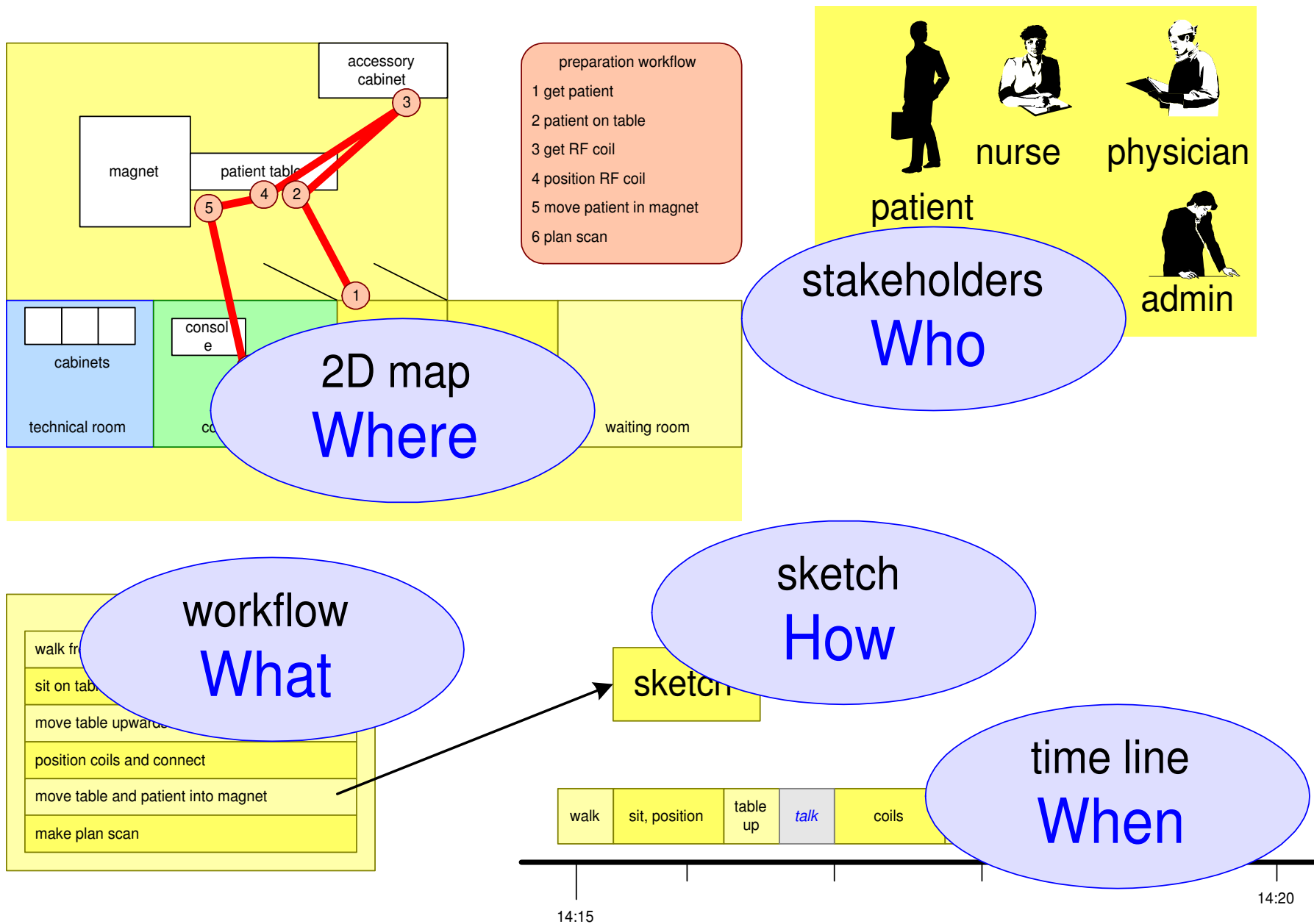
Product How



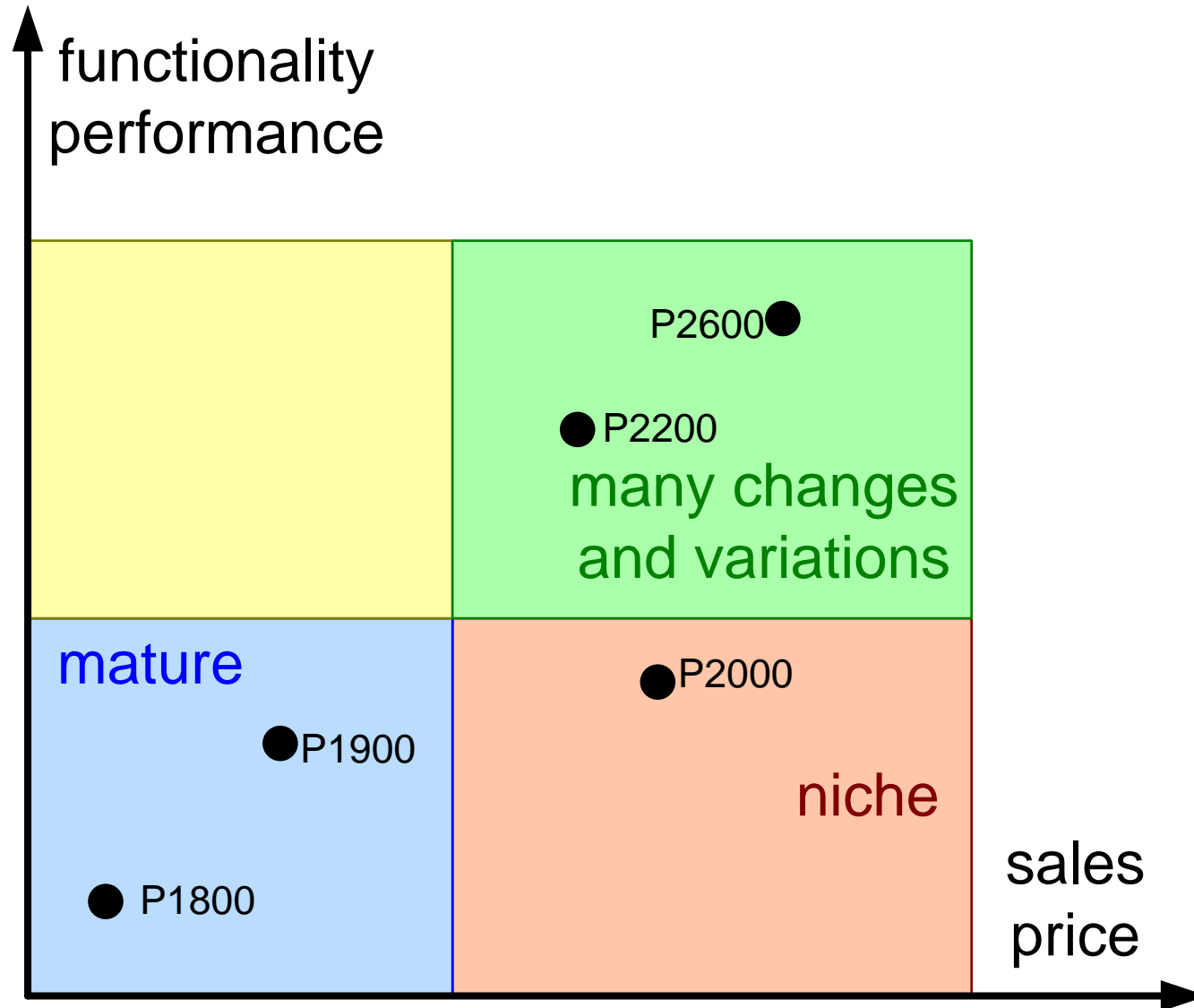
functional model

physical model

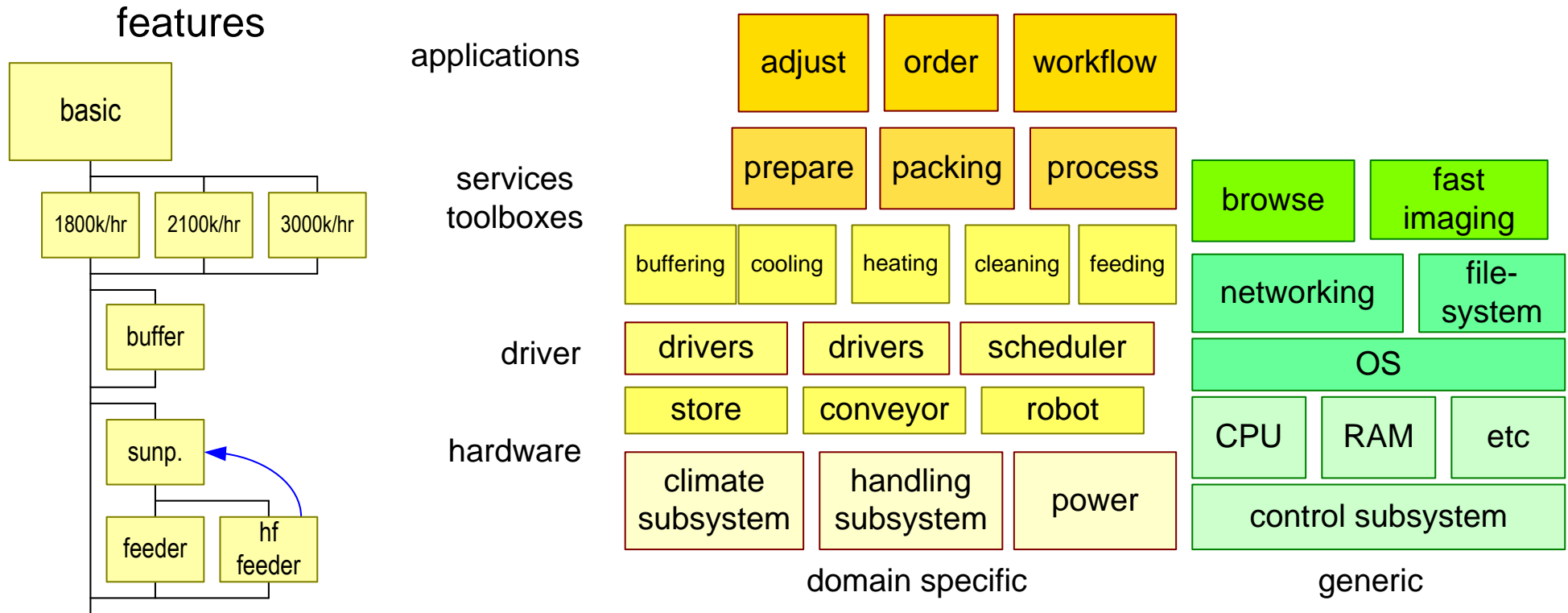
Work Flow Analysis for Different Customers/Applications



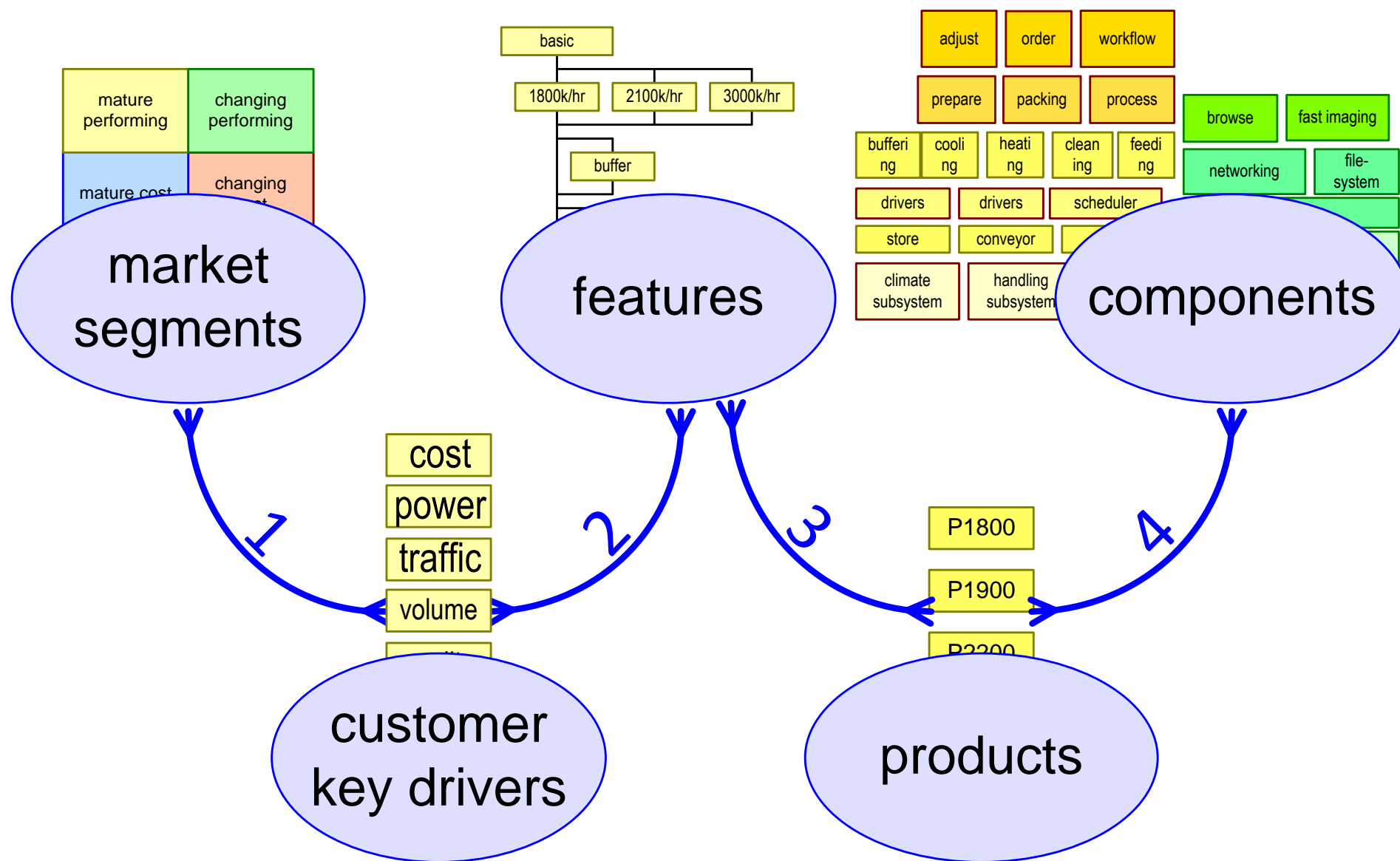
Make Map of Customers and Market Segments



Identify Product Features and Technology Components



Mapping From Markets to Components



Example Criteria for Determining Value

- Value for the customer
- (dis)satisfaction level for the customer
- Selling value (How much is the customer willing to pay?)
- Level of differentiation w.r.t. the competition
- Impact on the market share
- Impact on the profit margin

Use relative scale, e.g. 1..5 1=low value, 5 -high value

Ask several knowledgeable people to score

Discussion provides insight (don't fall in spreadsheet trap)

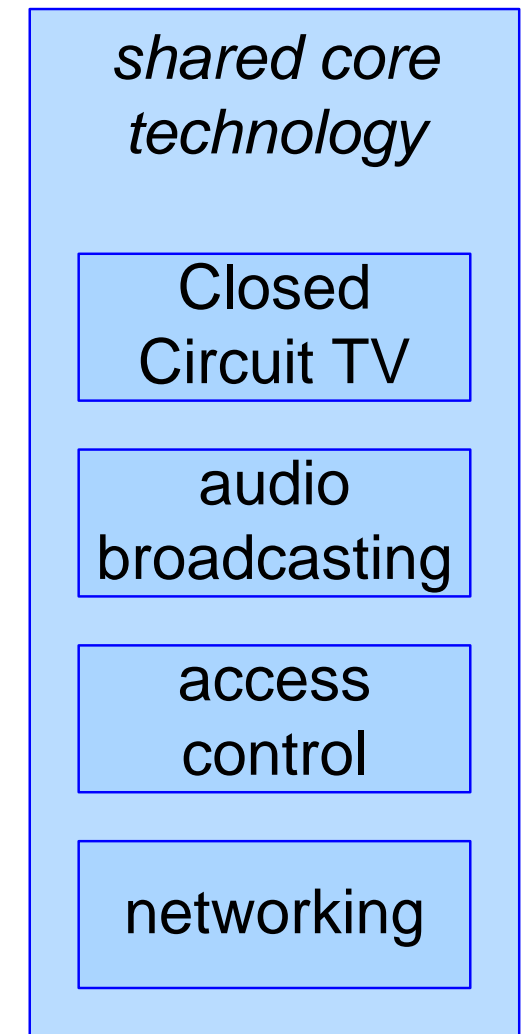
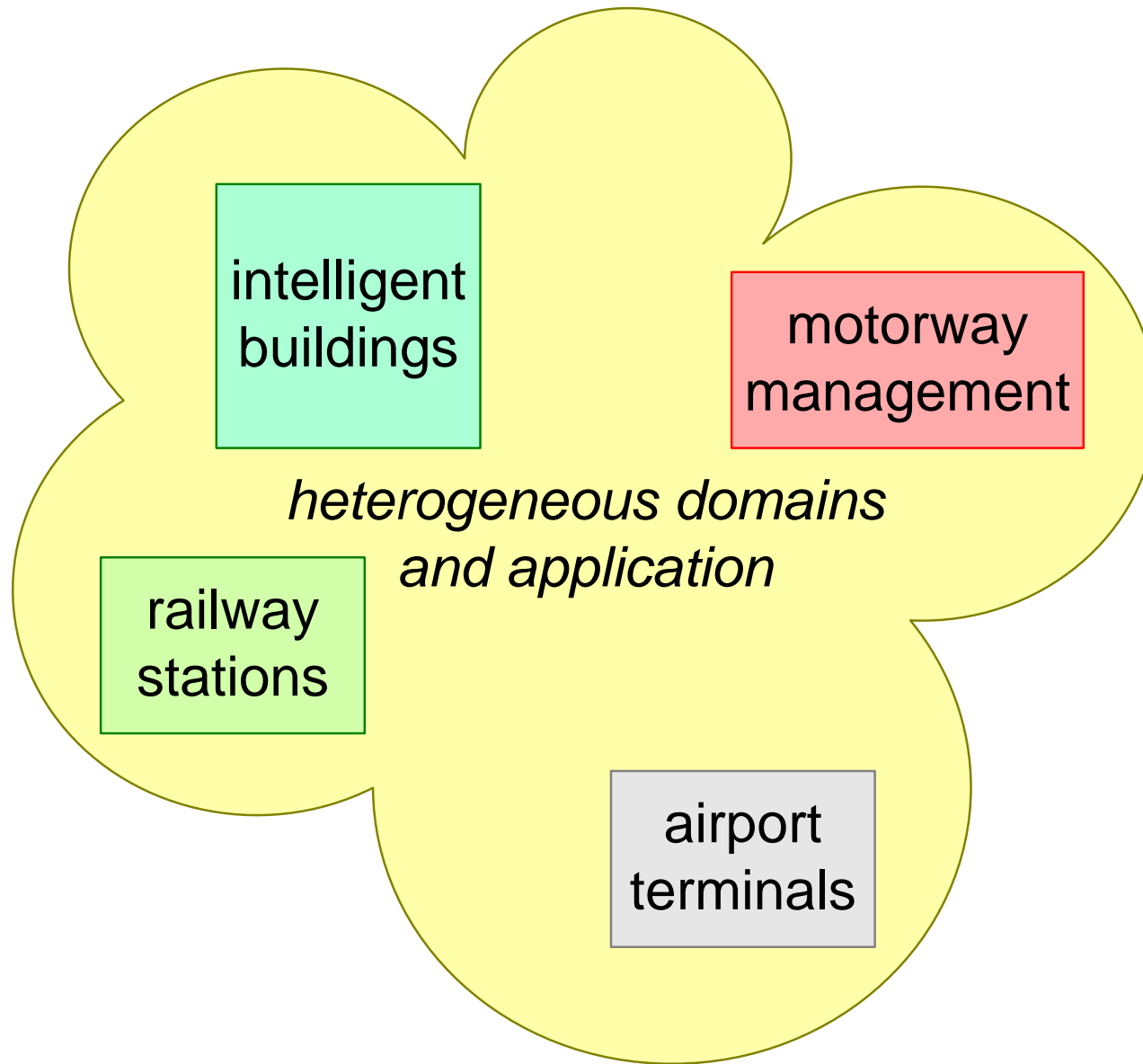
Determine Value of Features

— products →

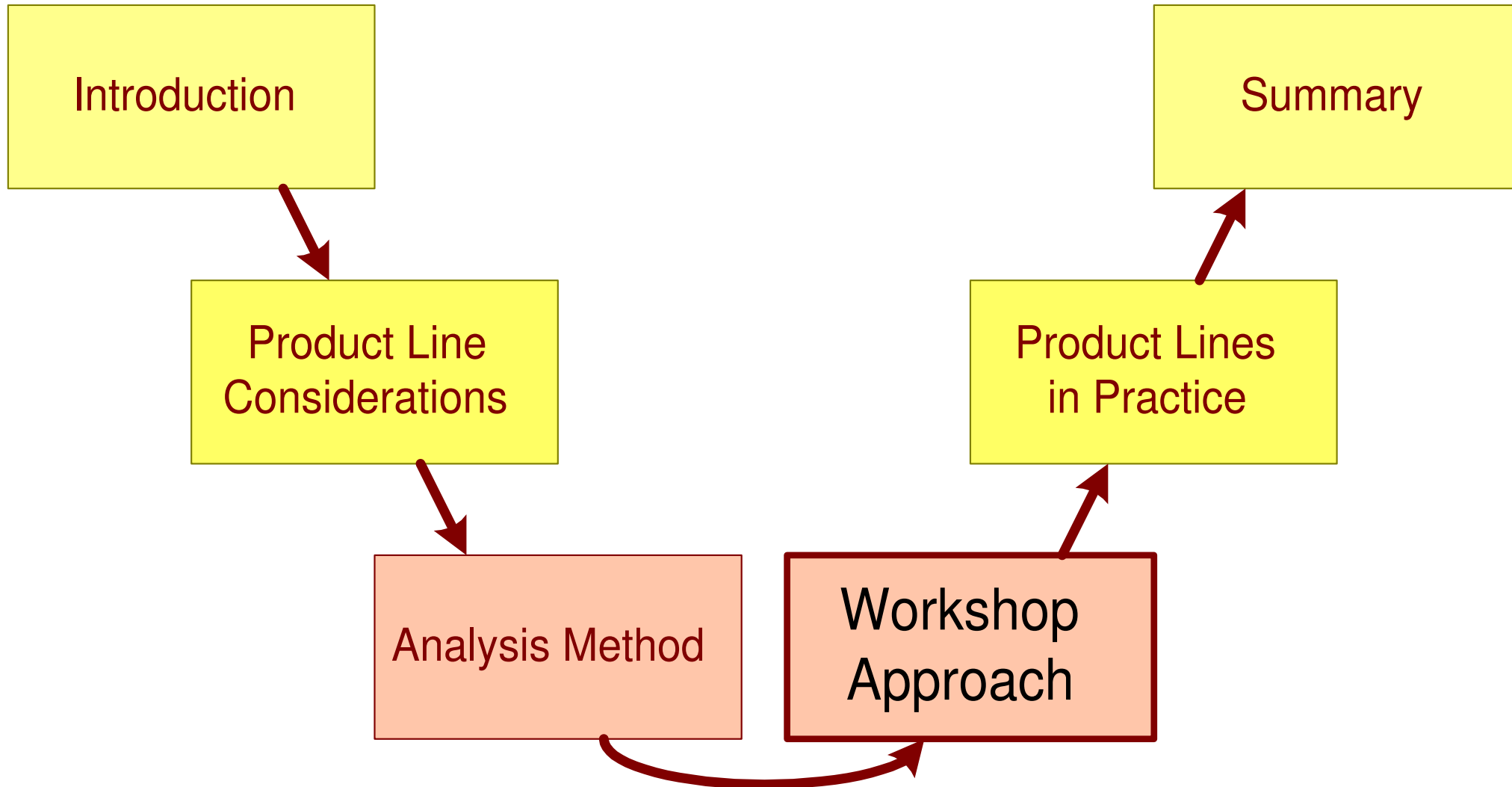
features —
↓

		P1800			P1900			P2200		
		satisfaction customer	sales price	market share	satisfaction customer	sales price	market share	satisfaction customer	sales price	market share
feeder		1	5	4	3	4	4	4	5	5
hf feeder										
buffer		4	3	4	5	3	4	4	3	4
sunpower		2	2	1	2	2	1	2	2	4

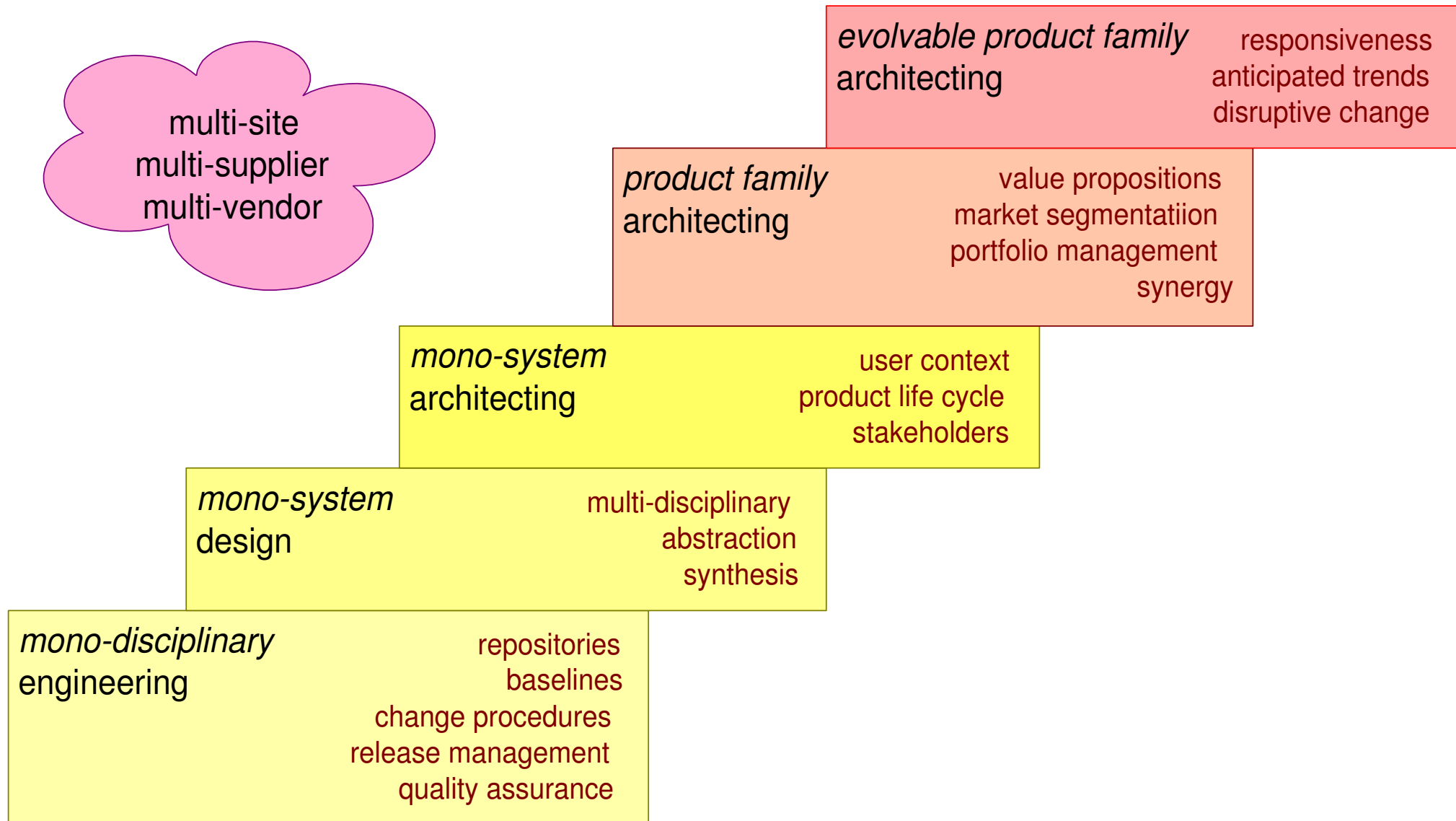
Example Platform Scoping



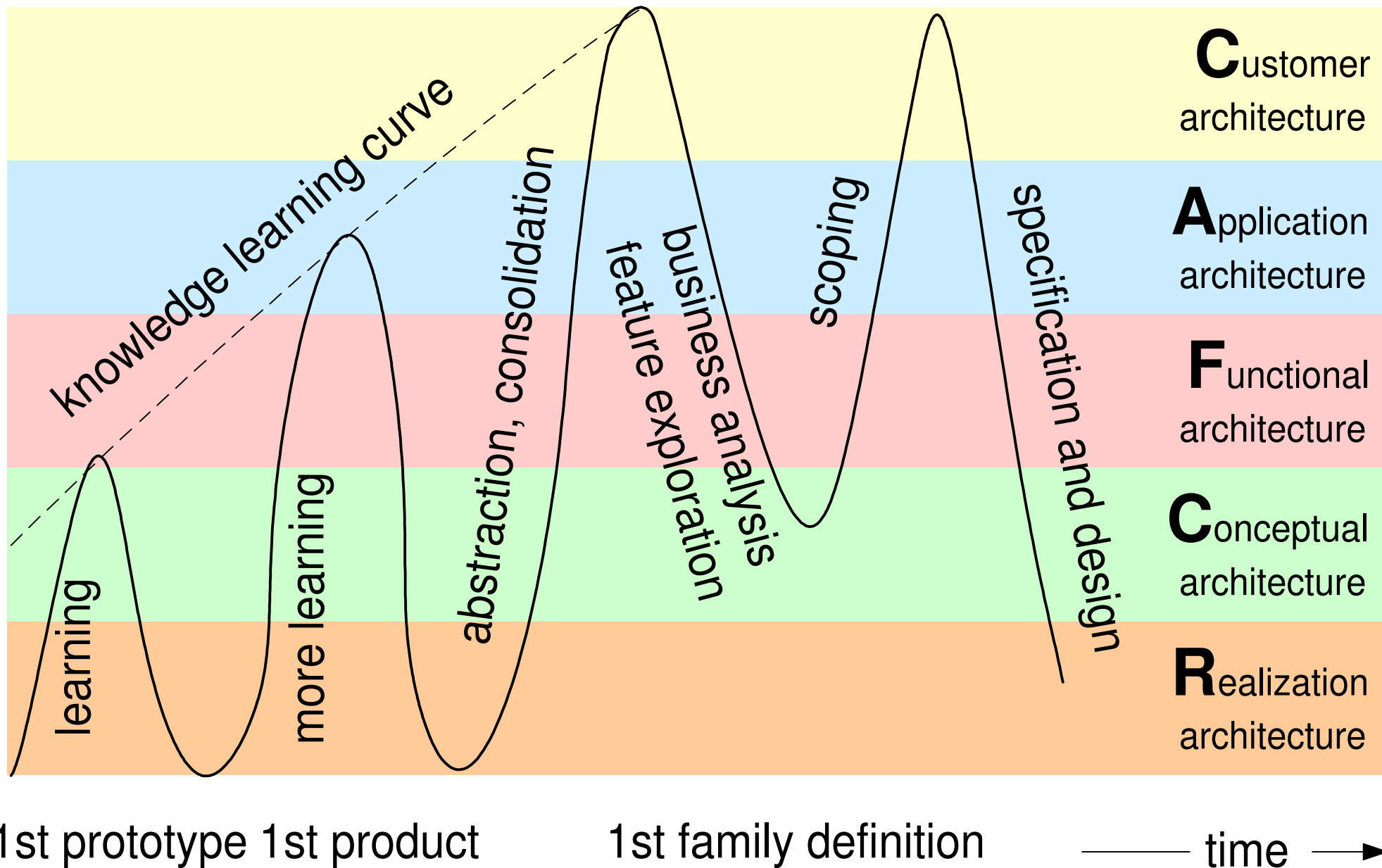
Workshop Approach



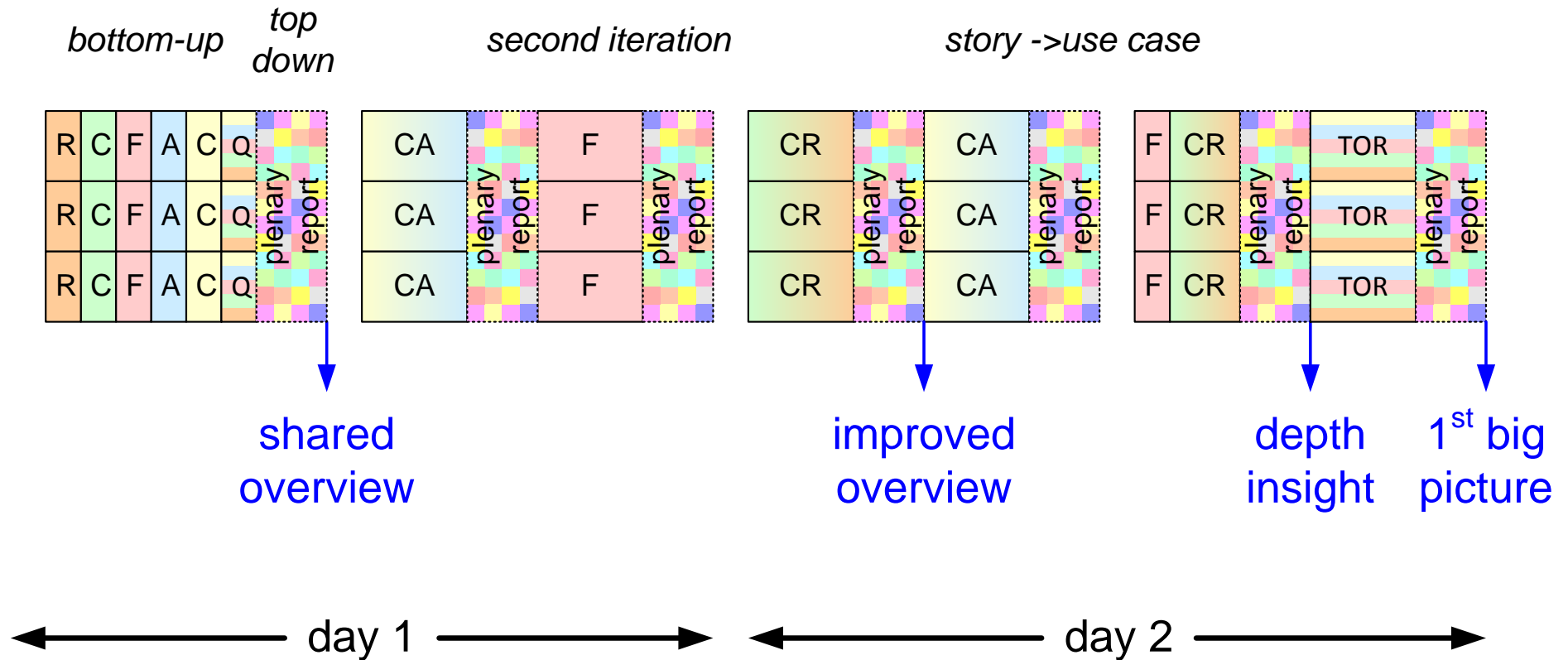
Foundation must be in order



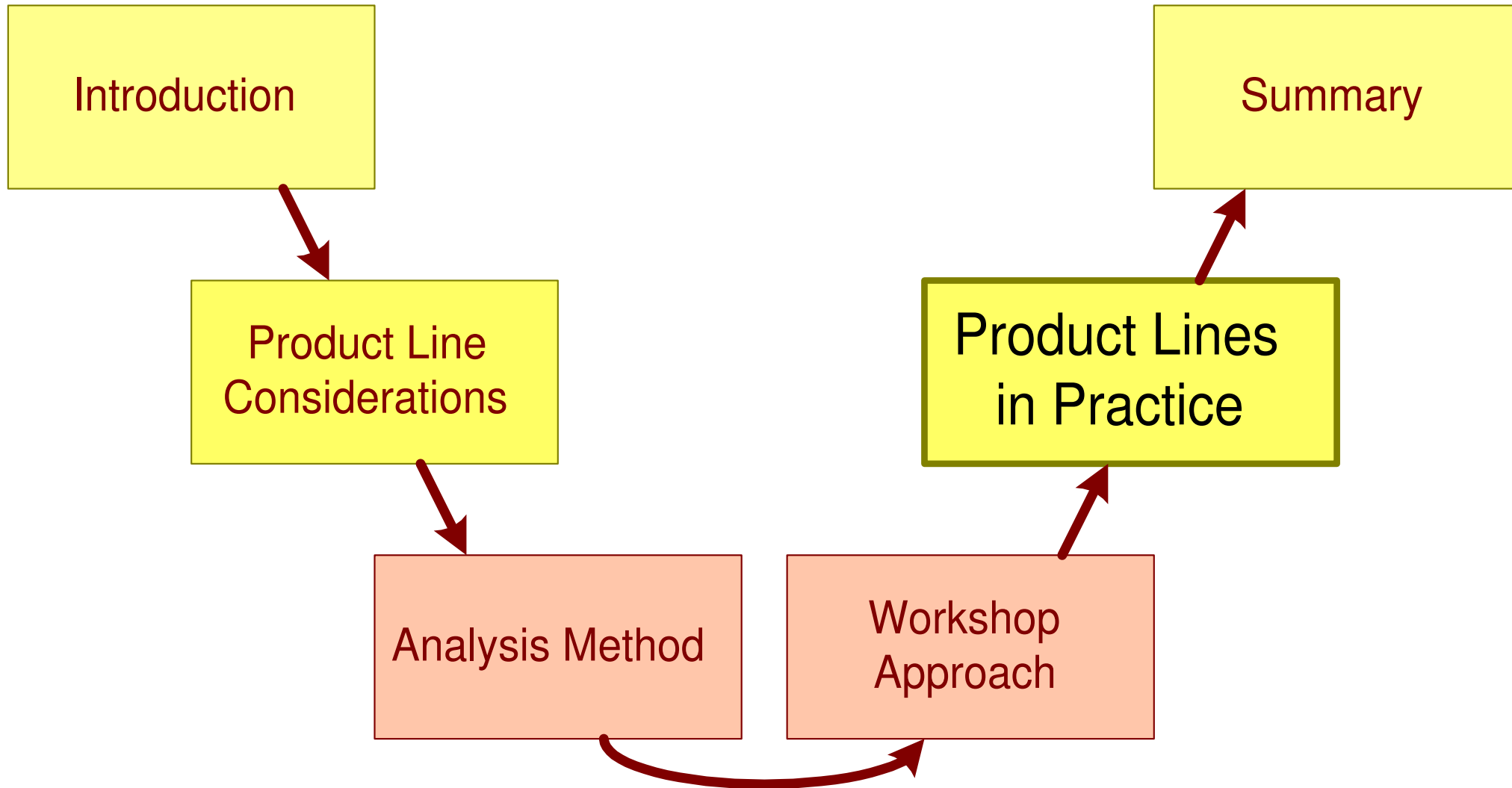
Jojo over Views



Iterations During M&A Course



Product Lines in Practice



Experiences with reuse, from counterproductive to effective

bad

longer time to market
high investments
lots of maintenance
poor quality
poor reliability
diversity is opposed
lot of know how required
predictable too late
dependability
knowledge dilution
lack of market focus
interference
but integration required

good

reduced time to market
reduced investment
reduced (shared) maintenance cost
improved quality
improved reliability
easier diversity management
understanding of one base system
improved predictability
larger purchasing power
means to consolidate knowledge
increase added value
enables parallel developments
free feature propagation

Successful examples of reuse

homogeneous domain

cath lab
MRI
television
waferstepper

hardware dominated

car
airplane
shaver
television

limited scope

audio codec
compression library
streaming library

Limits of successful reuse

struggle with integration/convergence with other domains

TV: digital networks and media
cath lab: US imaging, MRI

poor/slow response on paradigm shifts

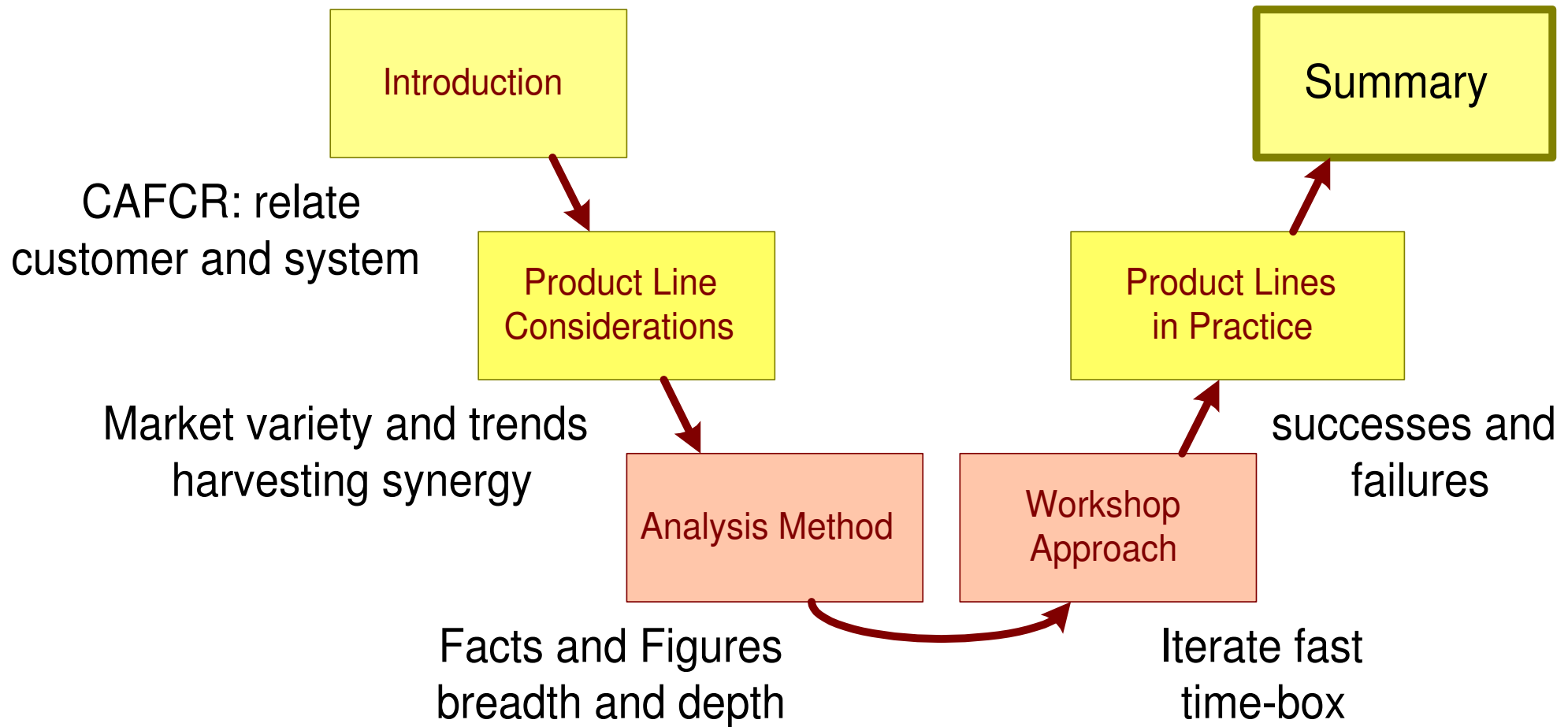
TV: LCD screens
cath lab: image based acquisition control

software maintenance, configurations, integration, release

MRI: integration and test
wafersteppers: number of configurations

how to innovate?

Summary



CAFCR background

www.gaudisite.nl/ArchitecturalReasoning.html

key driver graph paper

www.gaudisite.nl/KeyDriversHowToPaper.pdf

key driver graph slides

www.gaudisite.nl/KeyDriversHowToSlides.pdf

roadmapping

www.gaudisite.nl/TutorialRoadmappingForStrategySupportPaper.pdf

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