

The Balancing Act Of Productification

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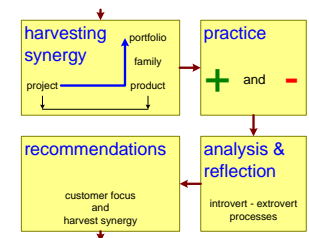
Abstract

Many companies struggle how to benefit from similarities between projects, systems or products. We see that project oriented companies try to benefit from similarities by creating products that perform often used functions. Companies delivering catalogue products try to benefit from similarities between products by standardizing components or platforms internally. In practice all these attempts are only partially successful; practice turns out to be more difficult than theory. We will illustrate the balancing act with examples from Health Care.

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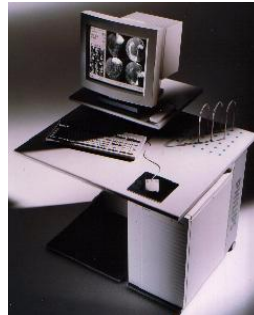
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draft
version: 0



The Health Care Equipment Domain



MRI scanner

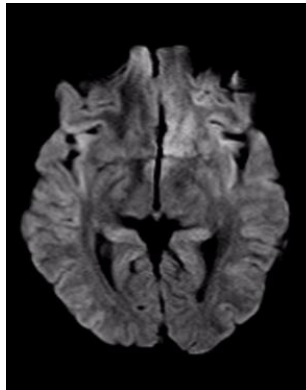


workstation



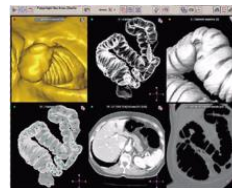
thorax

MRI image



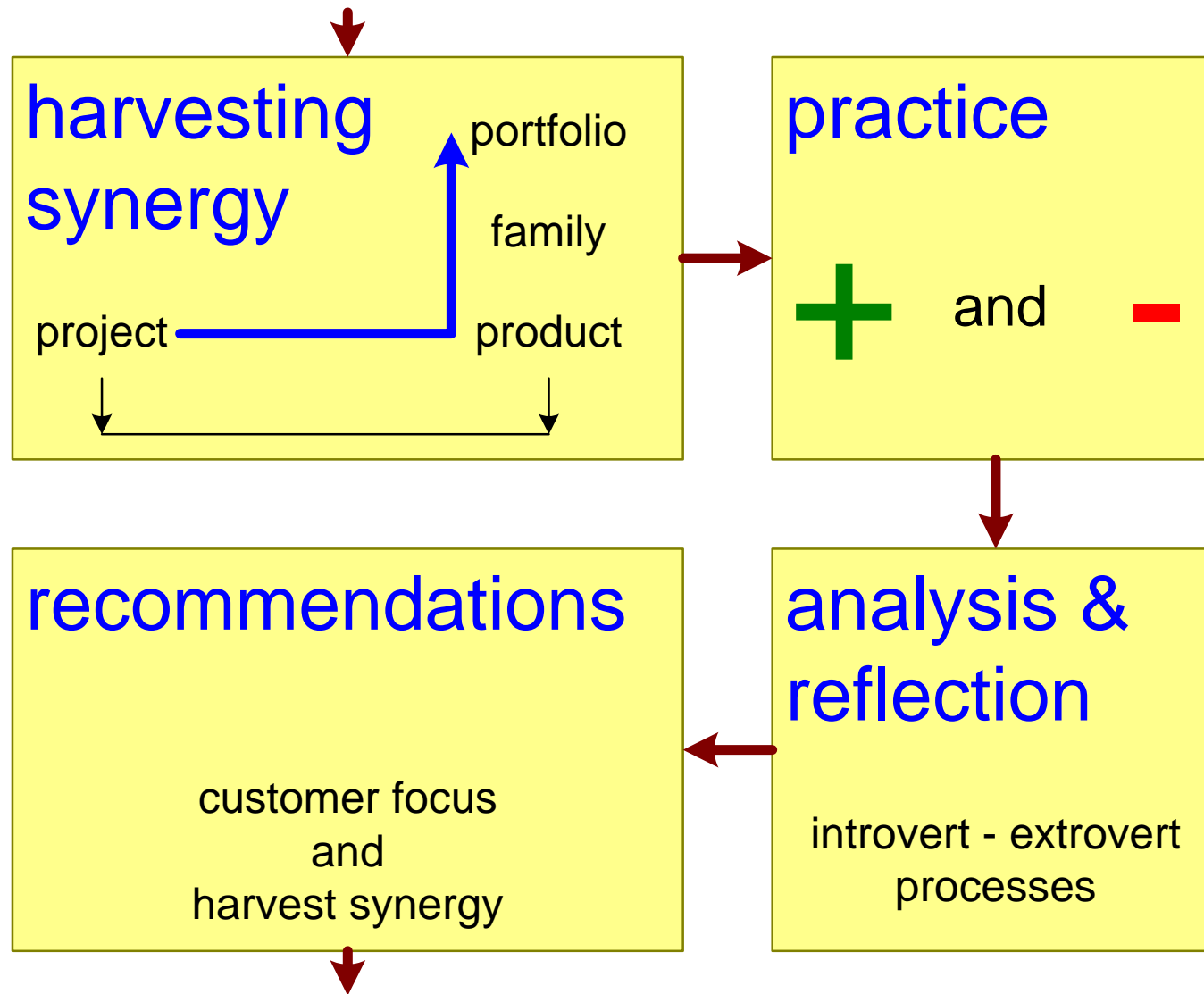
Cardio-Vascular
X-ray

virtual
endoscopy



all photos courtesy of Philips HealthCare

Figure Of Contents™



Projects versus Products

project



product



unique
customer specific

catalogue
generic

tailored to customer needs

"one size fits all"

tender-contract-execution
cost \approx project hours

mass production
economy of scale

investment by customer

investment in product design

Examples from Health Care

project



unique
customer specific

- new hospital
- Hospital Information System
- Radiology Information System
- Picture Archive and Communication Systems

product



catalogue
generic

- MRI scanner
- X-ray systems
- Ultra Sound Systems
- Radio Therapy systems

Convergence of Projects and Products

harvest and use
standardized components/products

configuration and customization
customer specific at customer site

project

product



unique
customer specific

catalogue
generic

Products versus Family

product



product
family

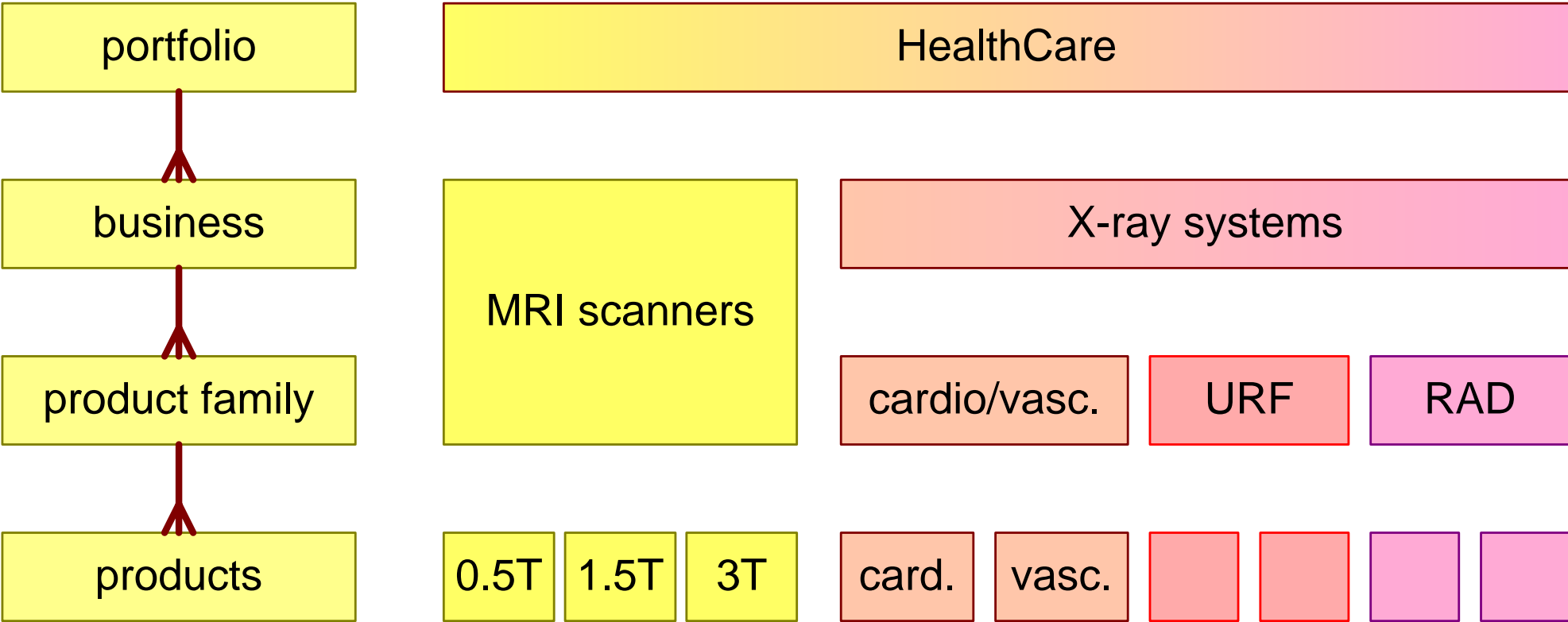


catalogue
customer generic
application specific

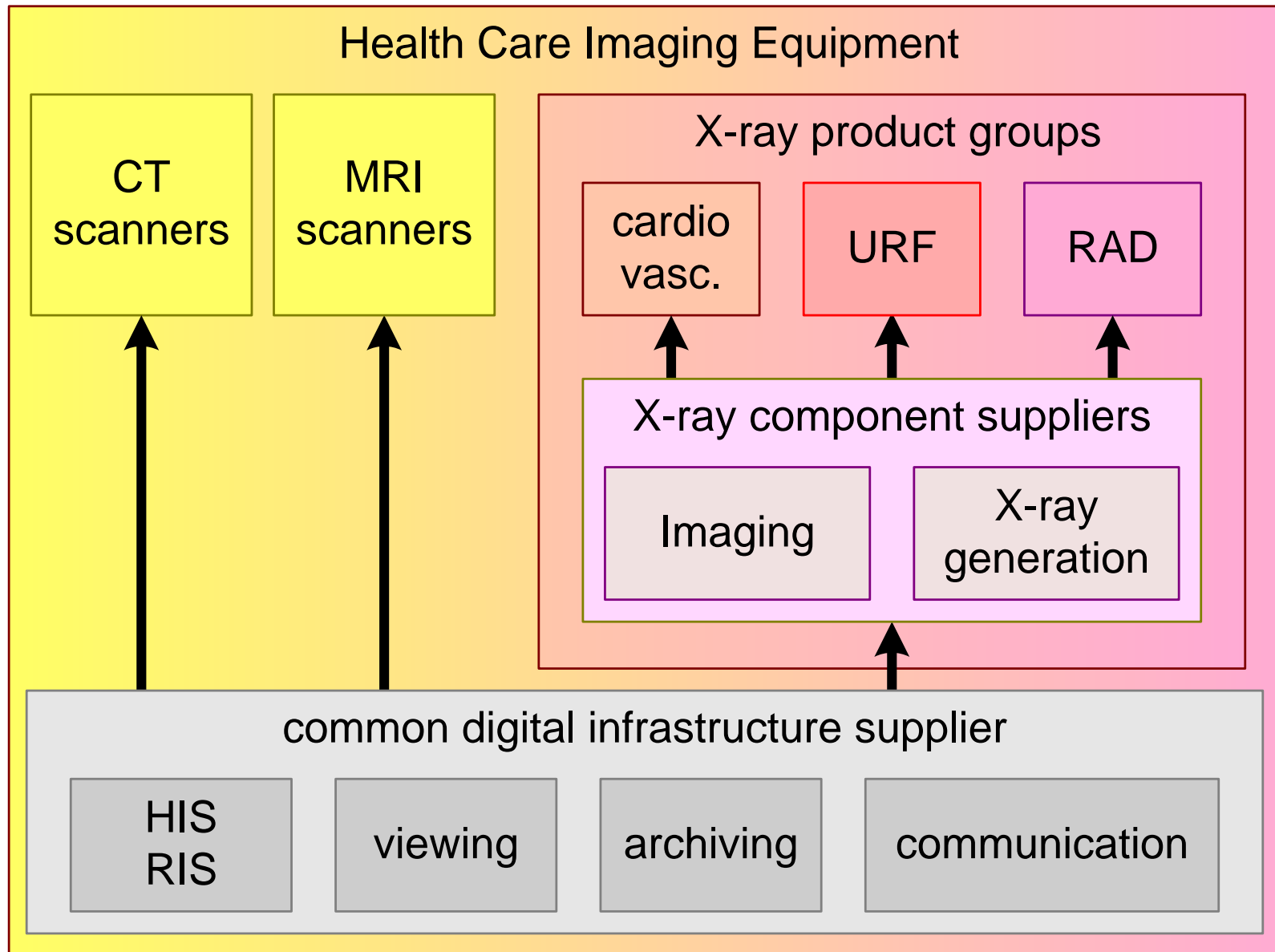
generic superset
common architecture

Cardio Vascular X-ray systems
MRI scanners

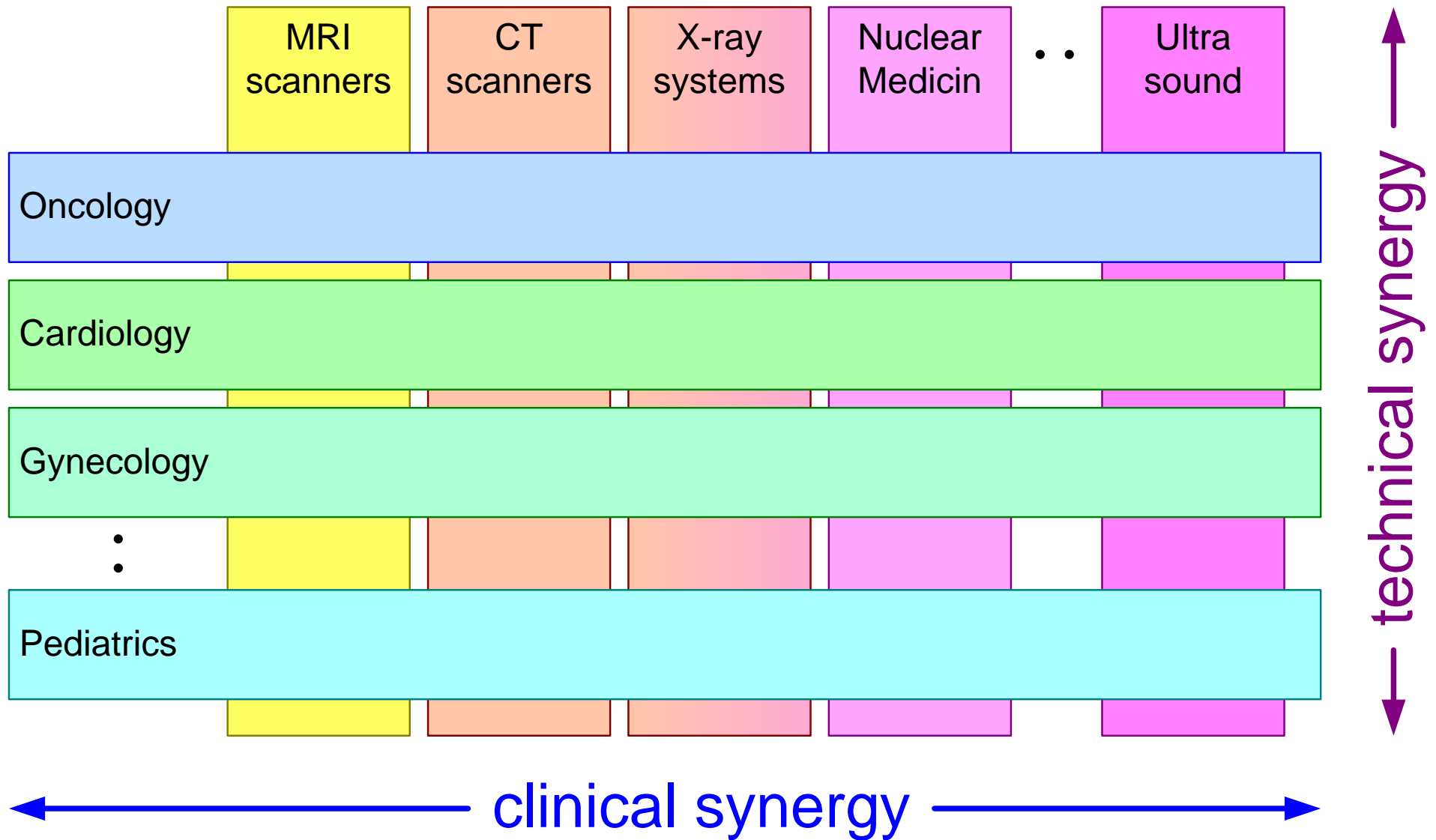
Many Hierarchical Layers



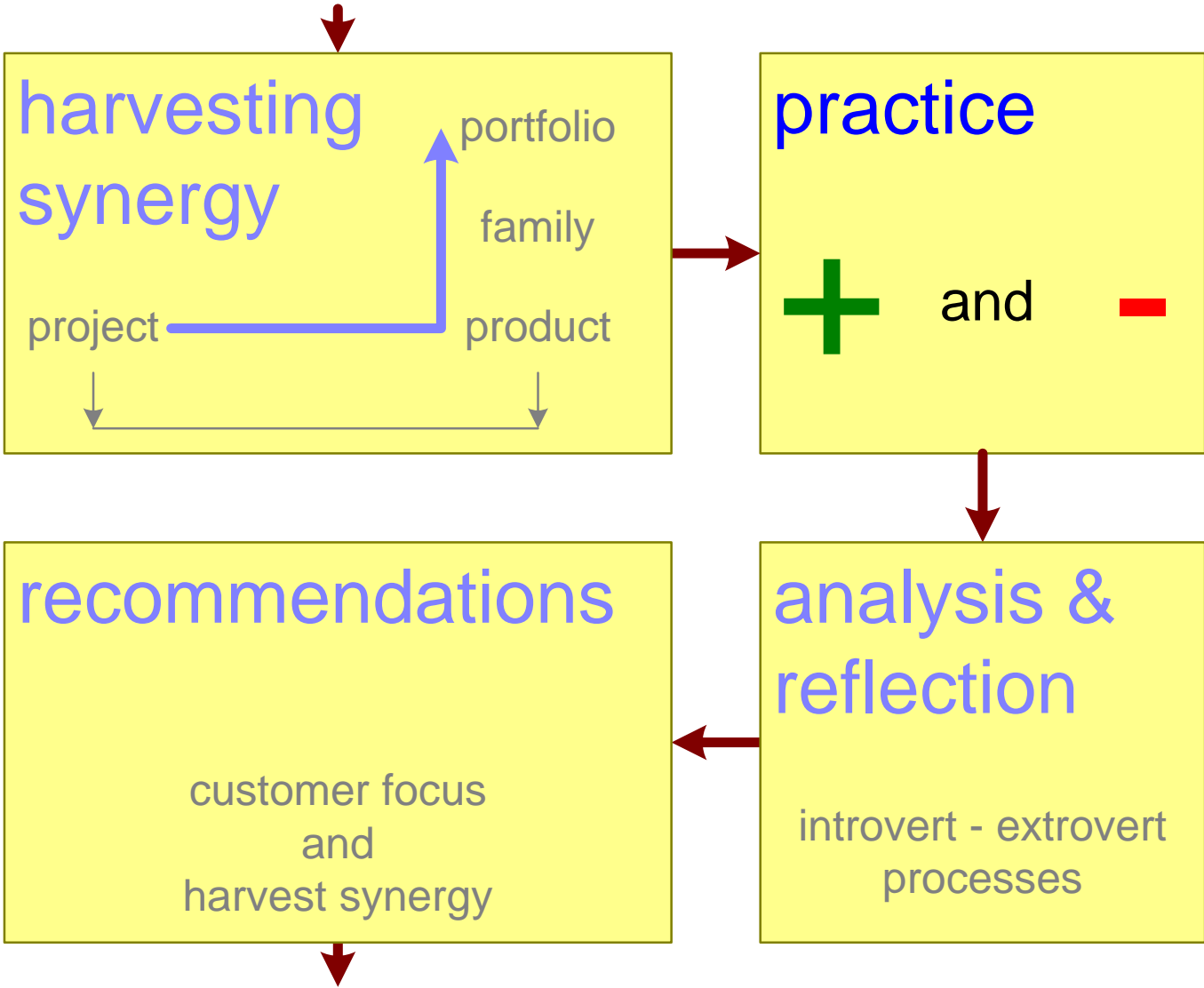
Internal Supply Chain



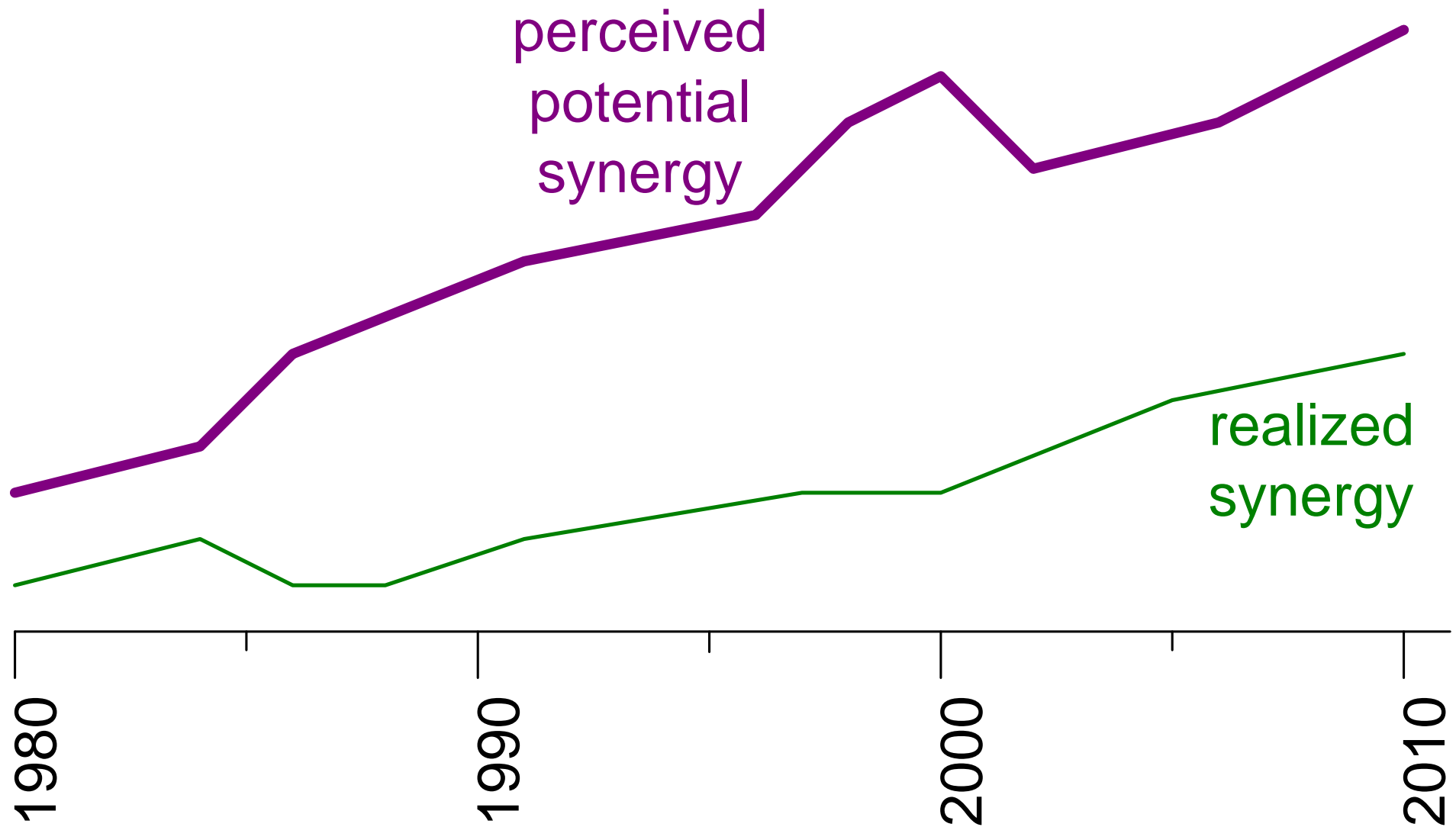
Technical versus Clinical



Practice



Three Decades of Synergy Drive



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

struggle with integration/convergence with other domains

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

how to innovate?

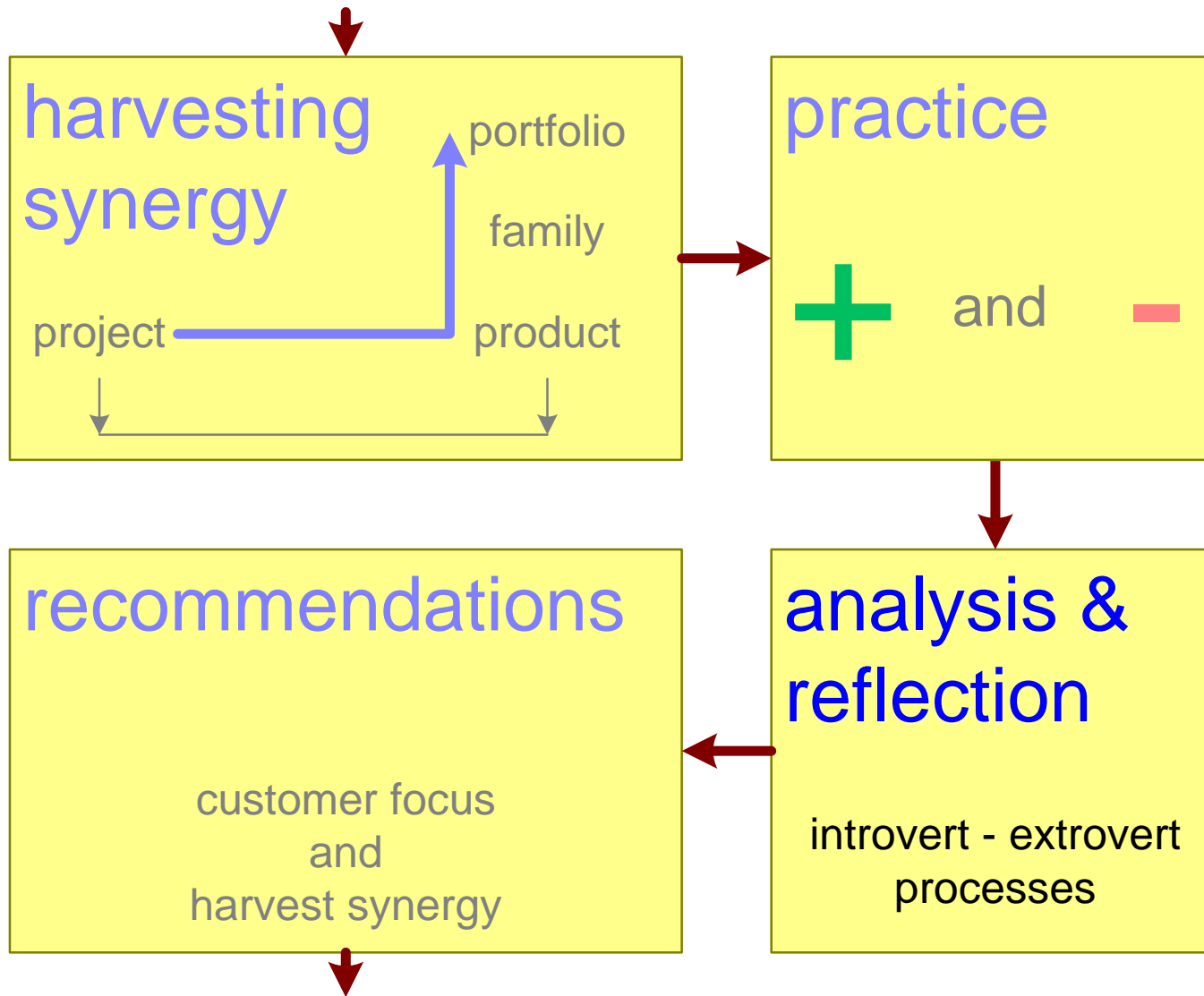
poor/slow response on paradigm shifts

TV: LCD screens
cath lab: image based acquisition control

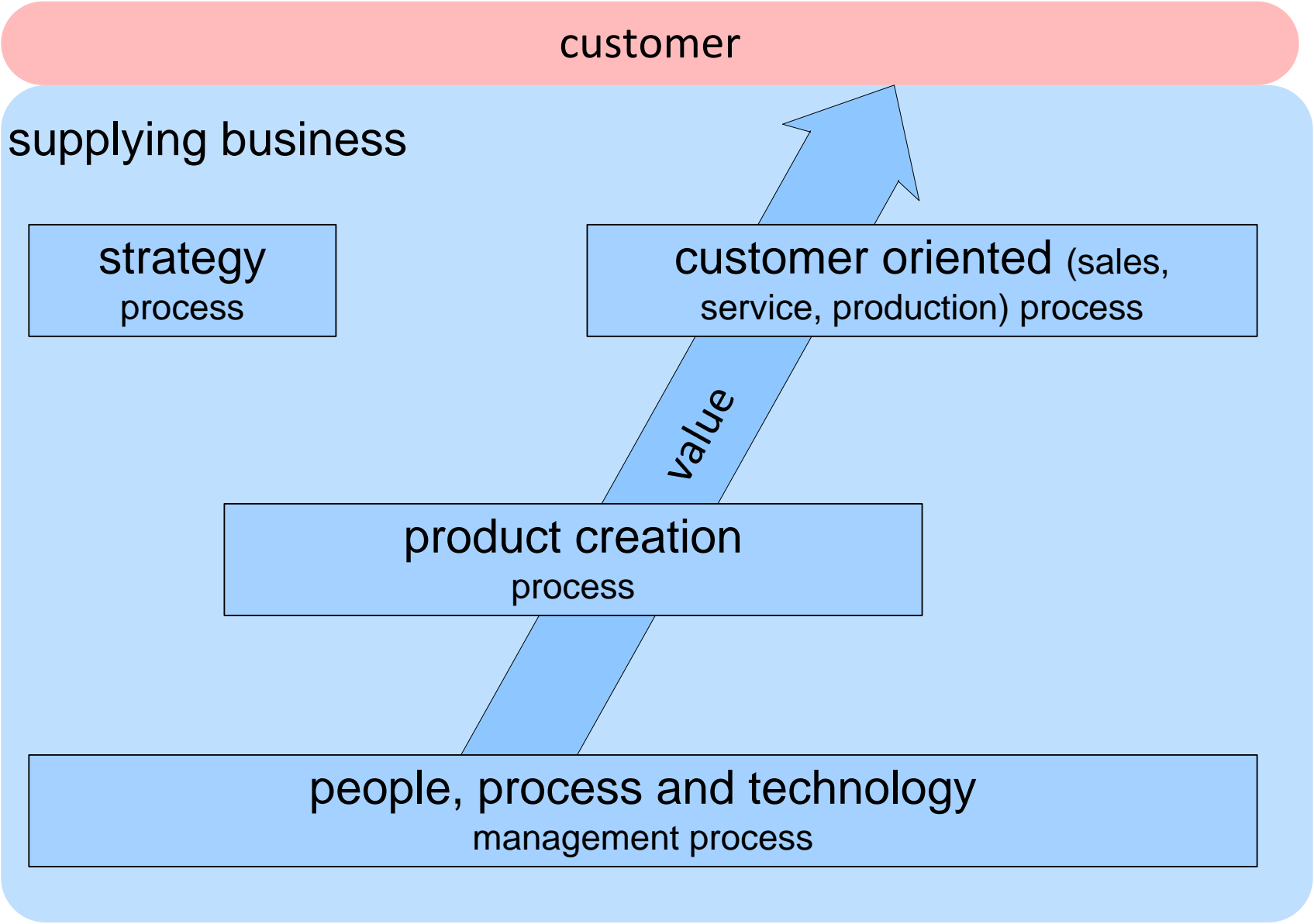
software maintenance, configurations, integration, release

MRI: integration and test
wafersteppers: number of configurations

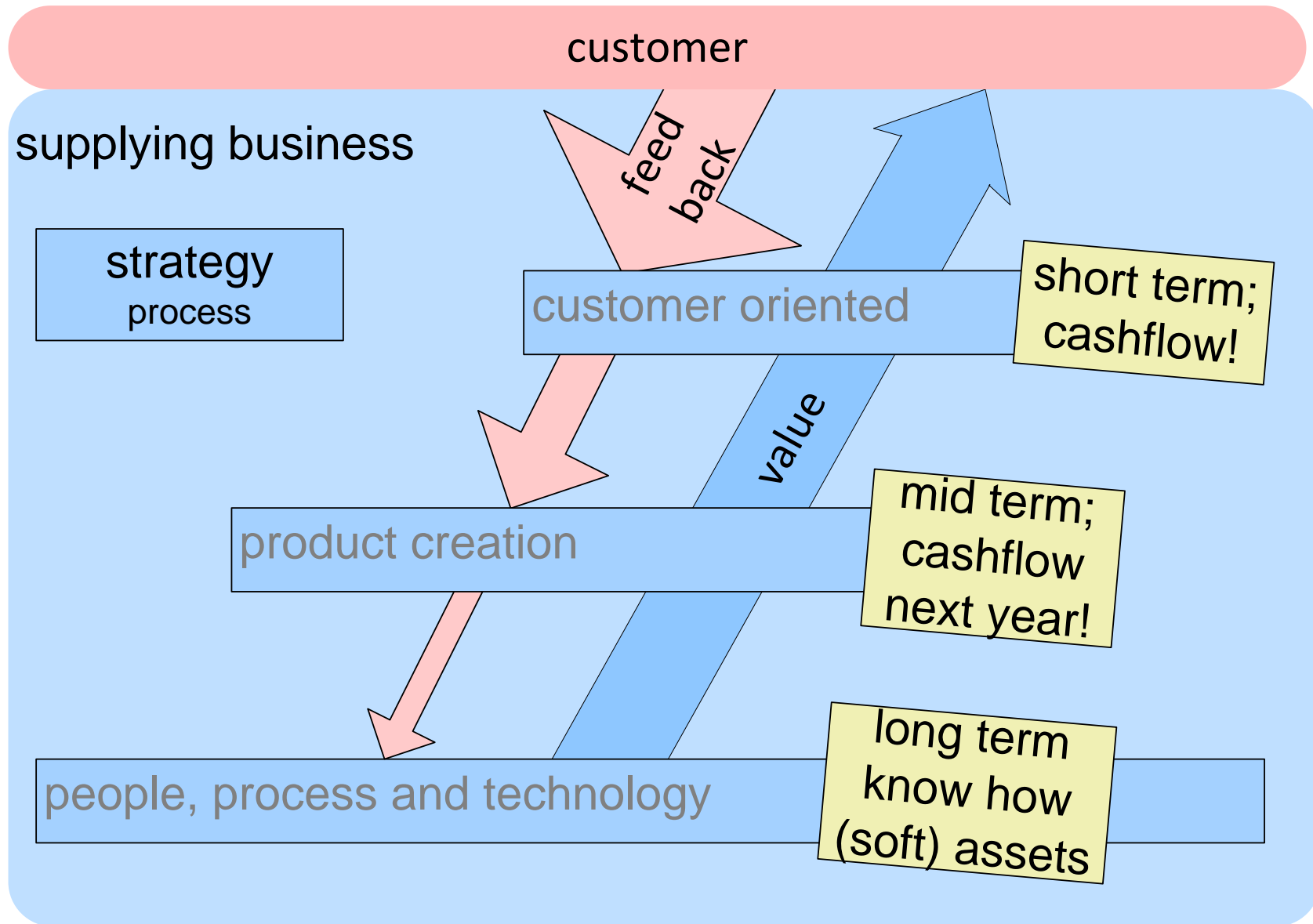
Analysis and Reflection



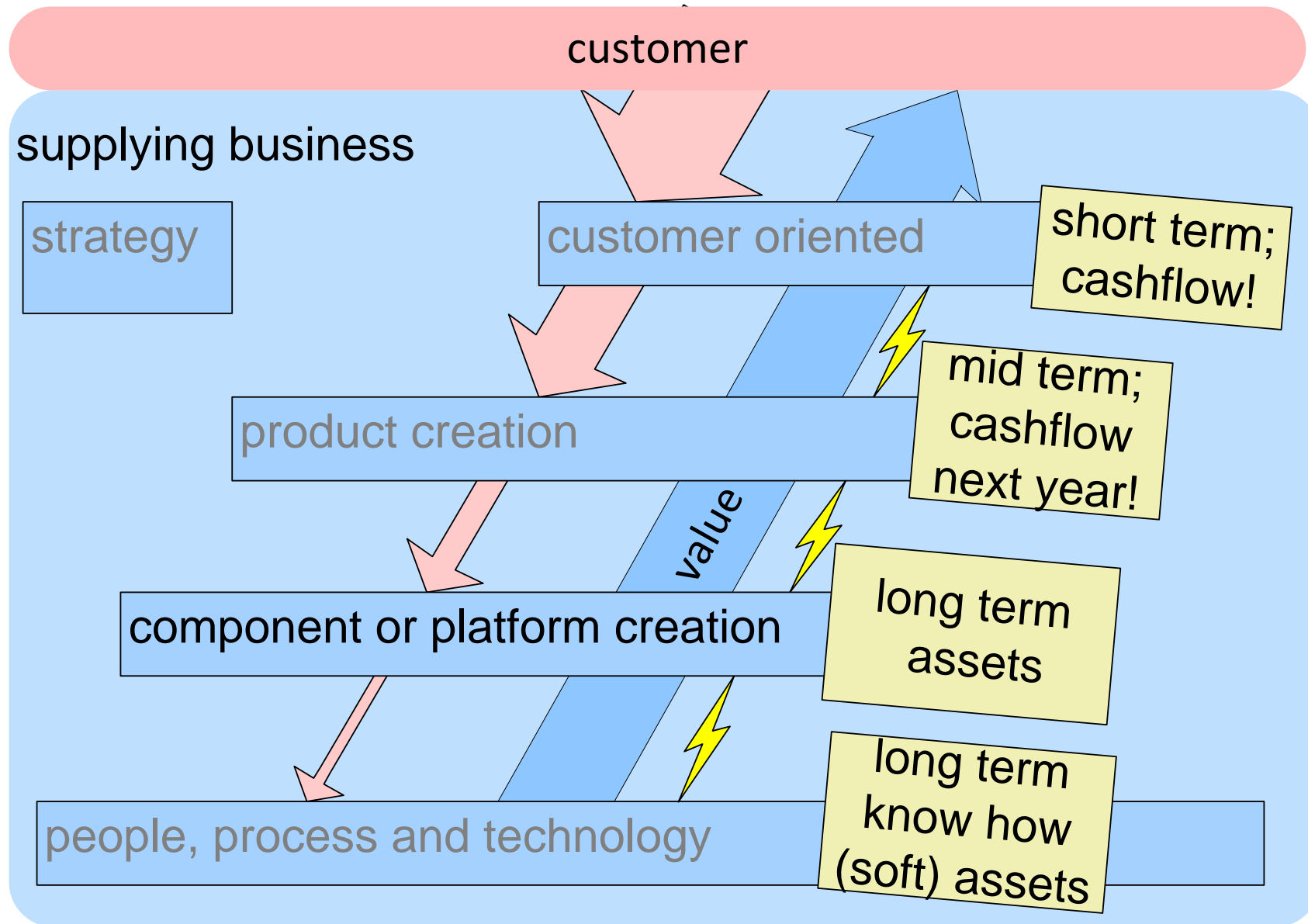
Simplified process view



Tension between processes



Platform strategy adds one layer



Sources of Failure in Generic Developments

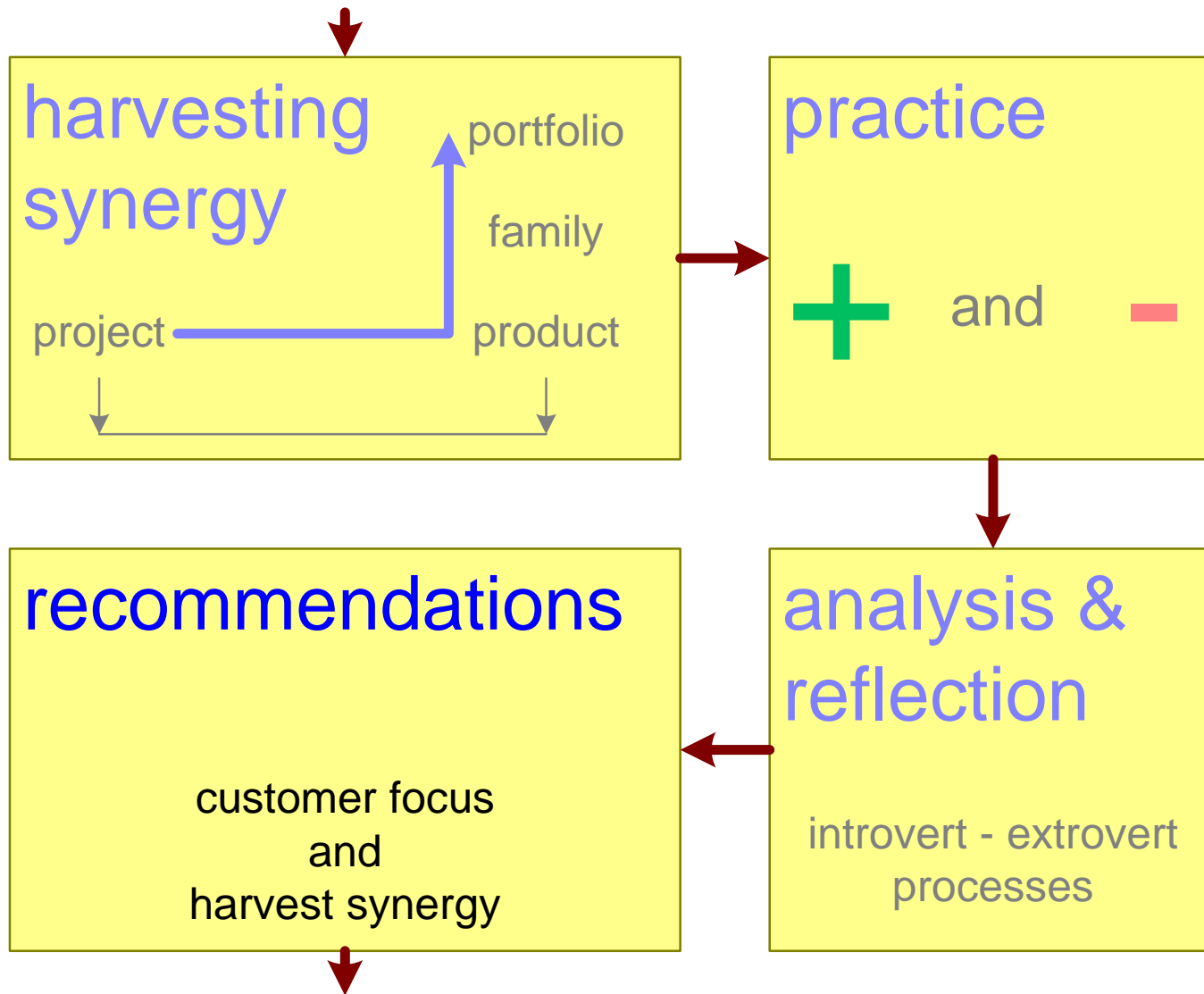
Technical

- Too generic
- Innovation stops (stable interfaces)
- Vulnerability

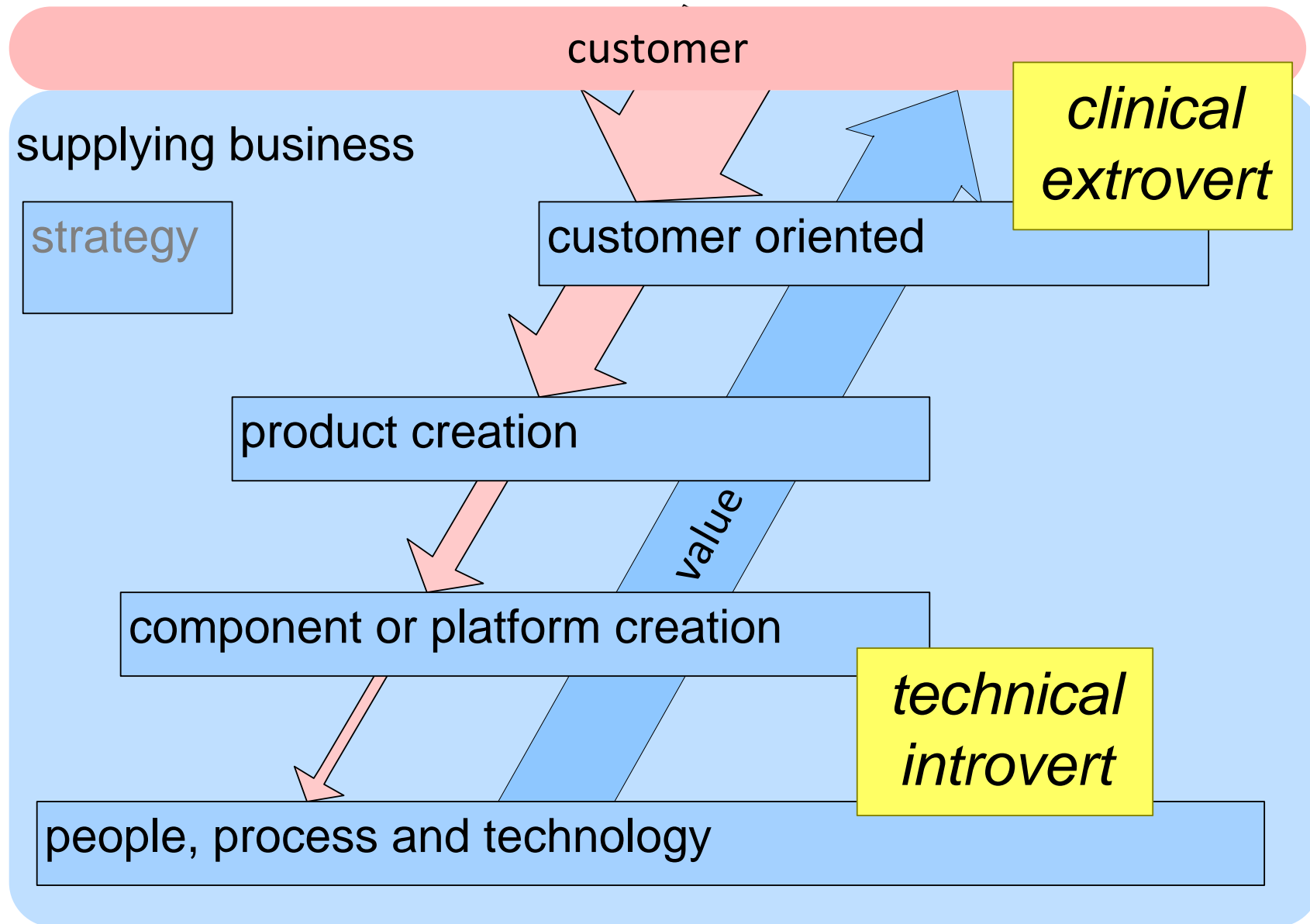
Process/People/Organization

- Forced cooperation
- Time platform feature to market
- Unrealistic expectations
- Distance platform developer to customer
- No marketing ownership
- Bureaucratic process (no flexibility)
- New employees, knowledge dilution
- Underestimation of platform support
- Overstretching of product scope
- Nonmanagement, organizational scope increase
- Underestimation of integration
- Component/platform determines business policy
- Subcritical investment

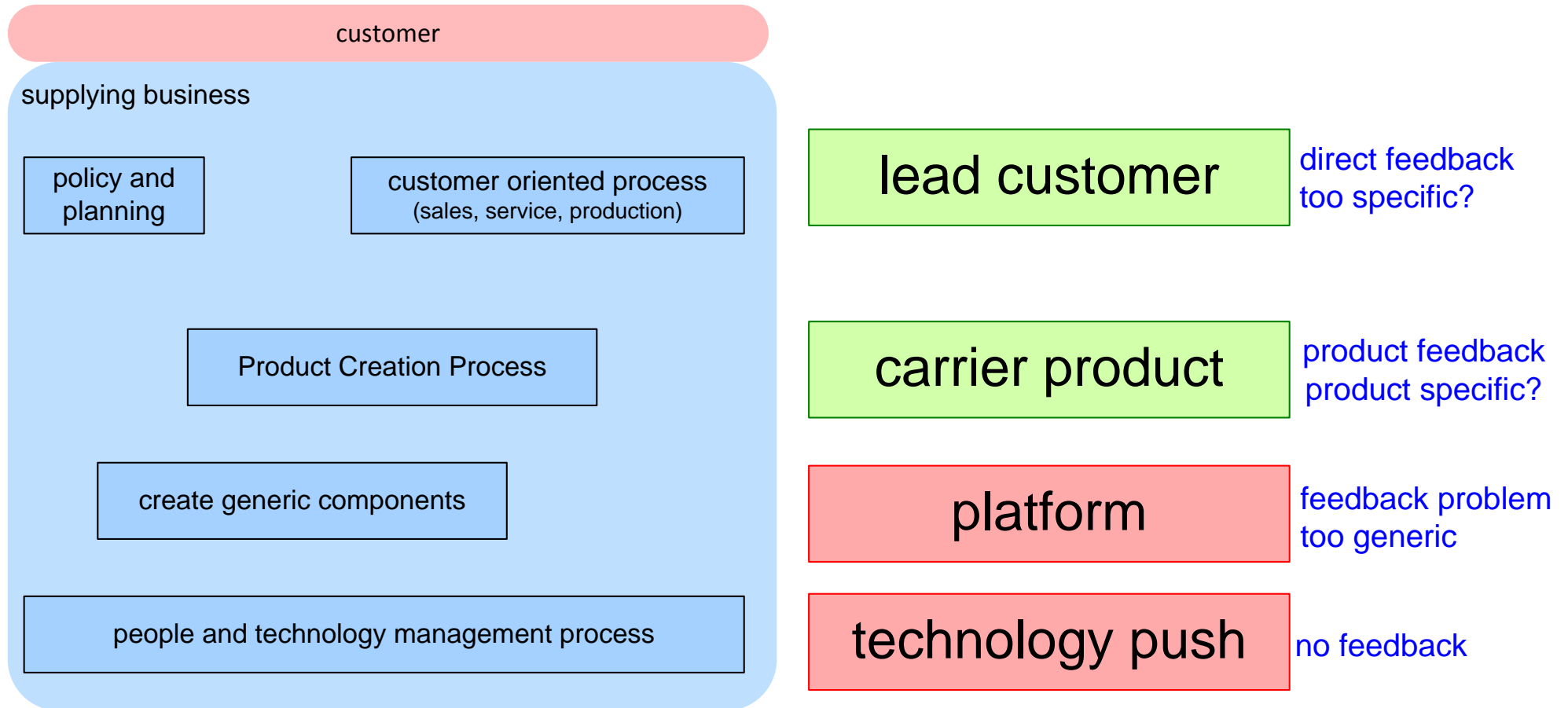
Recommendations



Beware of Introvert Bias



Models for Generic Development



Harvesting **synergy** is long term **must**:
economical and competitive.

If synergy is **introvert** drive only,
then **customer**, **sales**, and **marketing**
will **not ask** for it, **nor pay** for it.

Maintain the old competence
(**customer focus**, **dedication**, and **responsiveness**)
while **developing new** competence
(harvesting synergy).