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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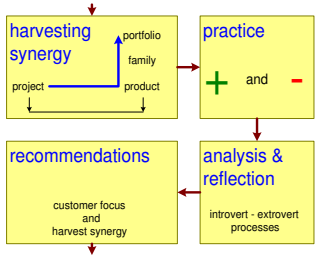
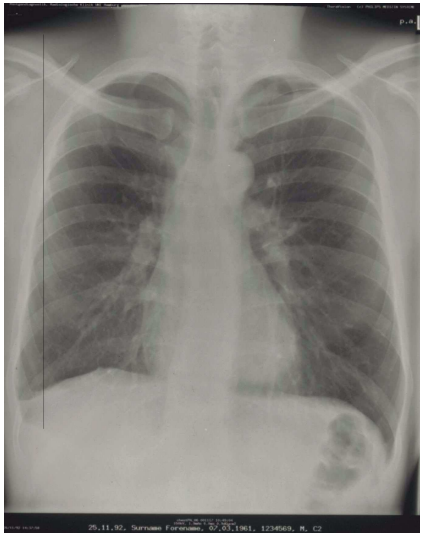


The Health Care Equipment Domain

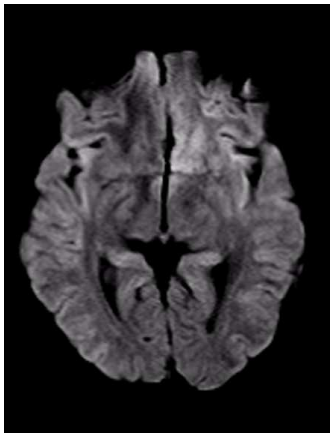
MRI scanner

workstation

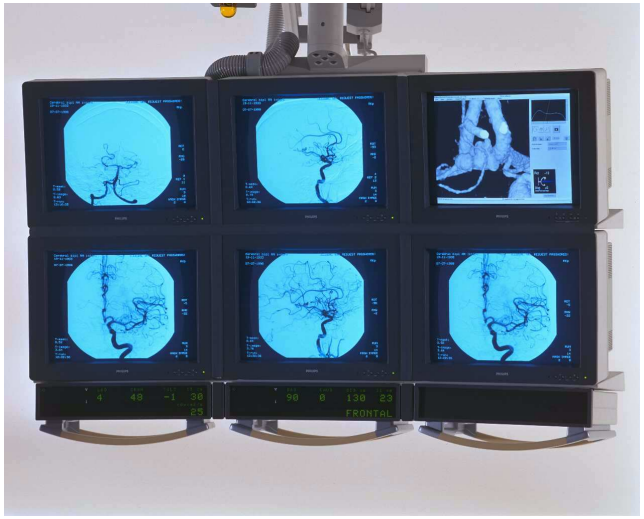
thorax



MRI image



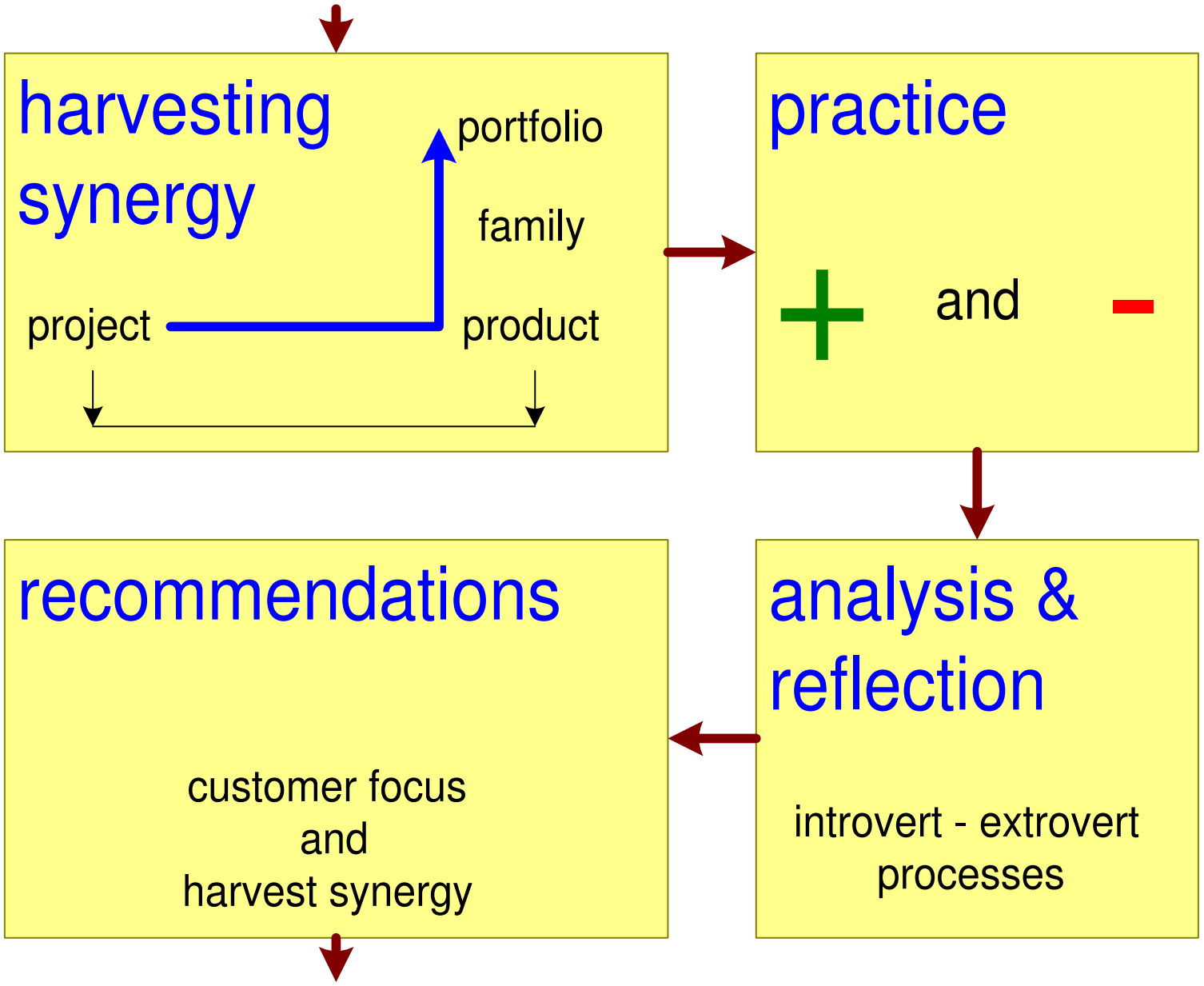
Cardio-Vascular X-ray



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 ~= project hours	mass production economy of scale
investment by customer	investment in product design

Examples from Health Care

unique
customer specific

catalogue
generic

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

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

unique
customer specific

catalogue
generic

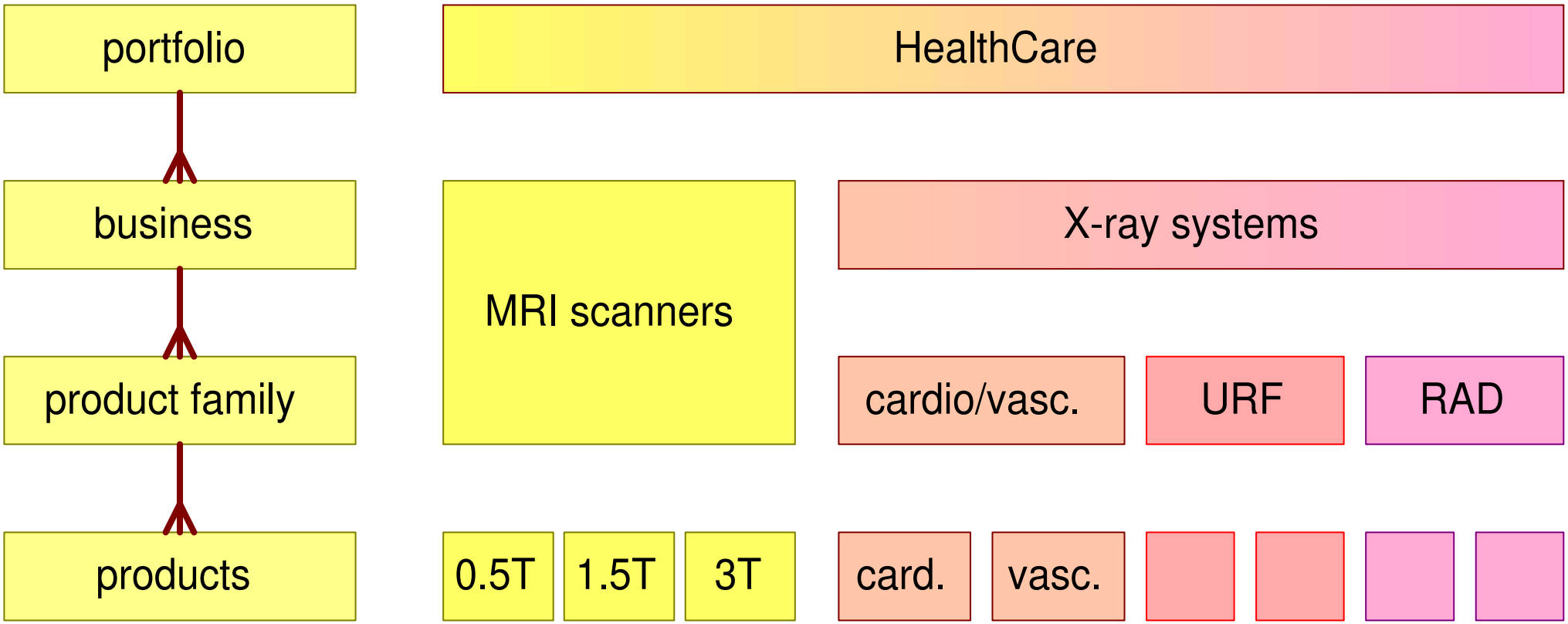
Products versus Family

catalogue
customer generic
application specific

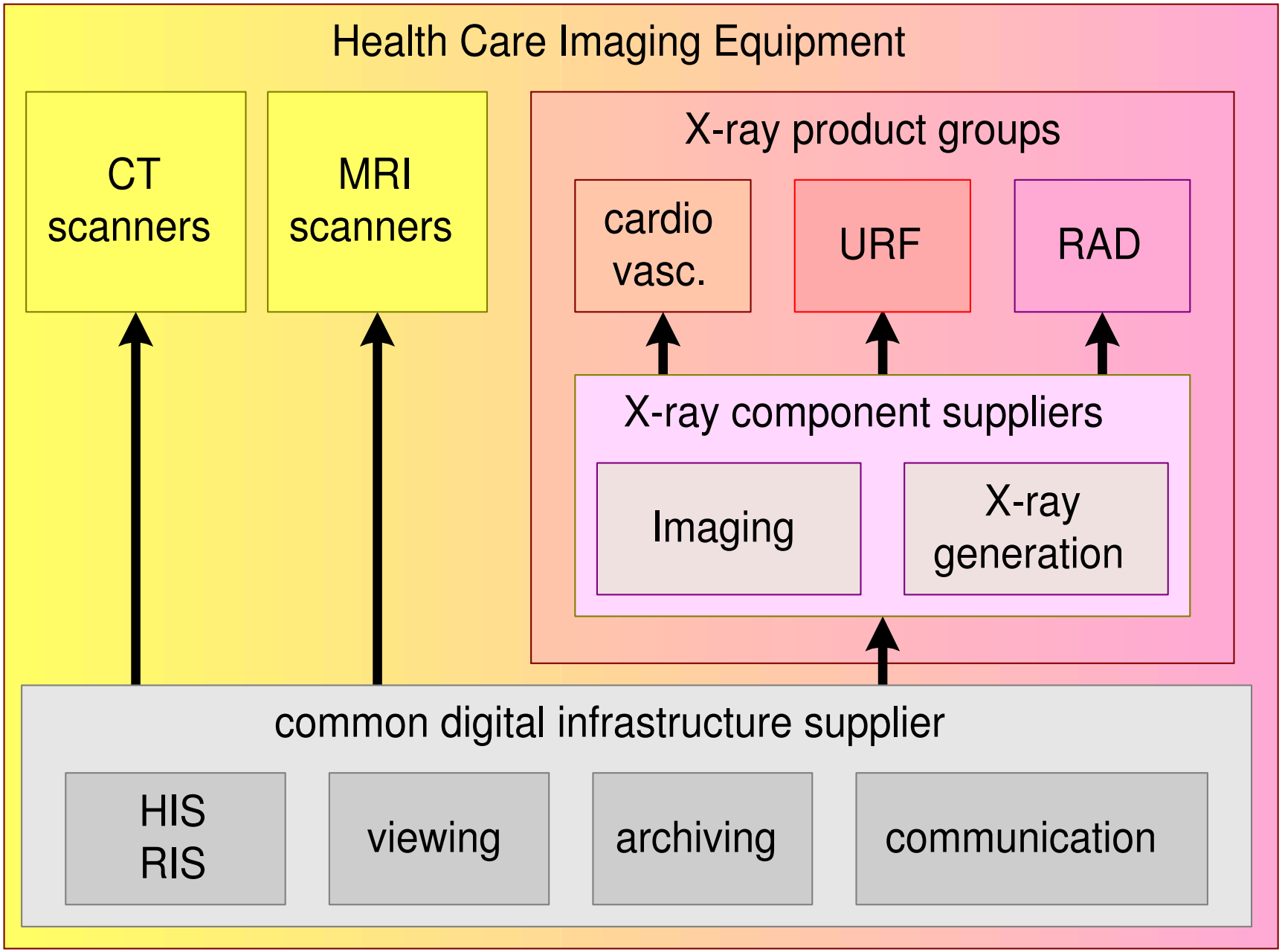
generic superset
common architetcure

Cardio Vascular X-ray systems
MRI scanners

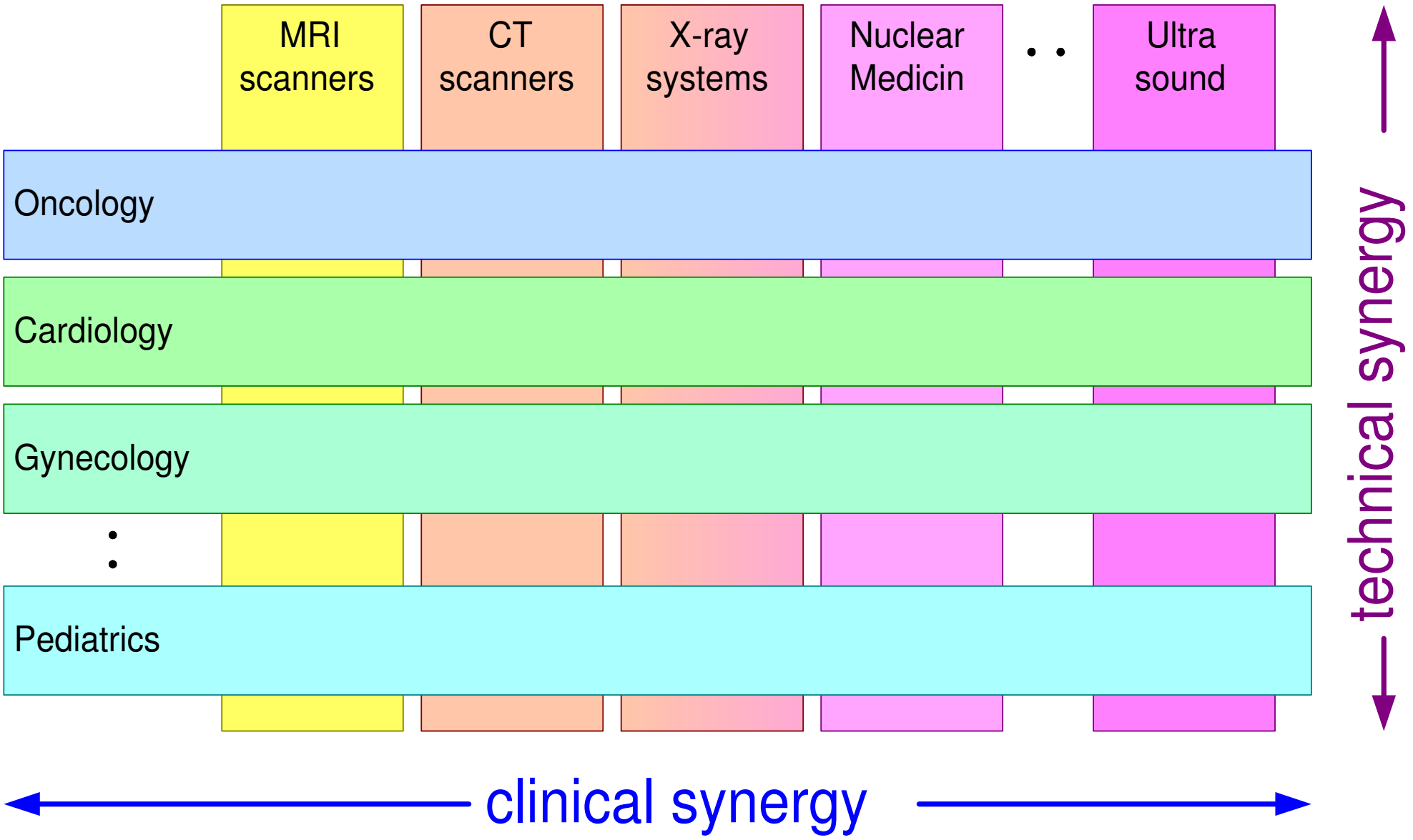
Many Hierarchical Layers



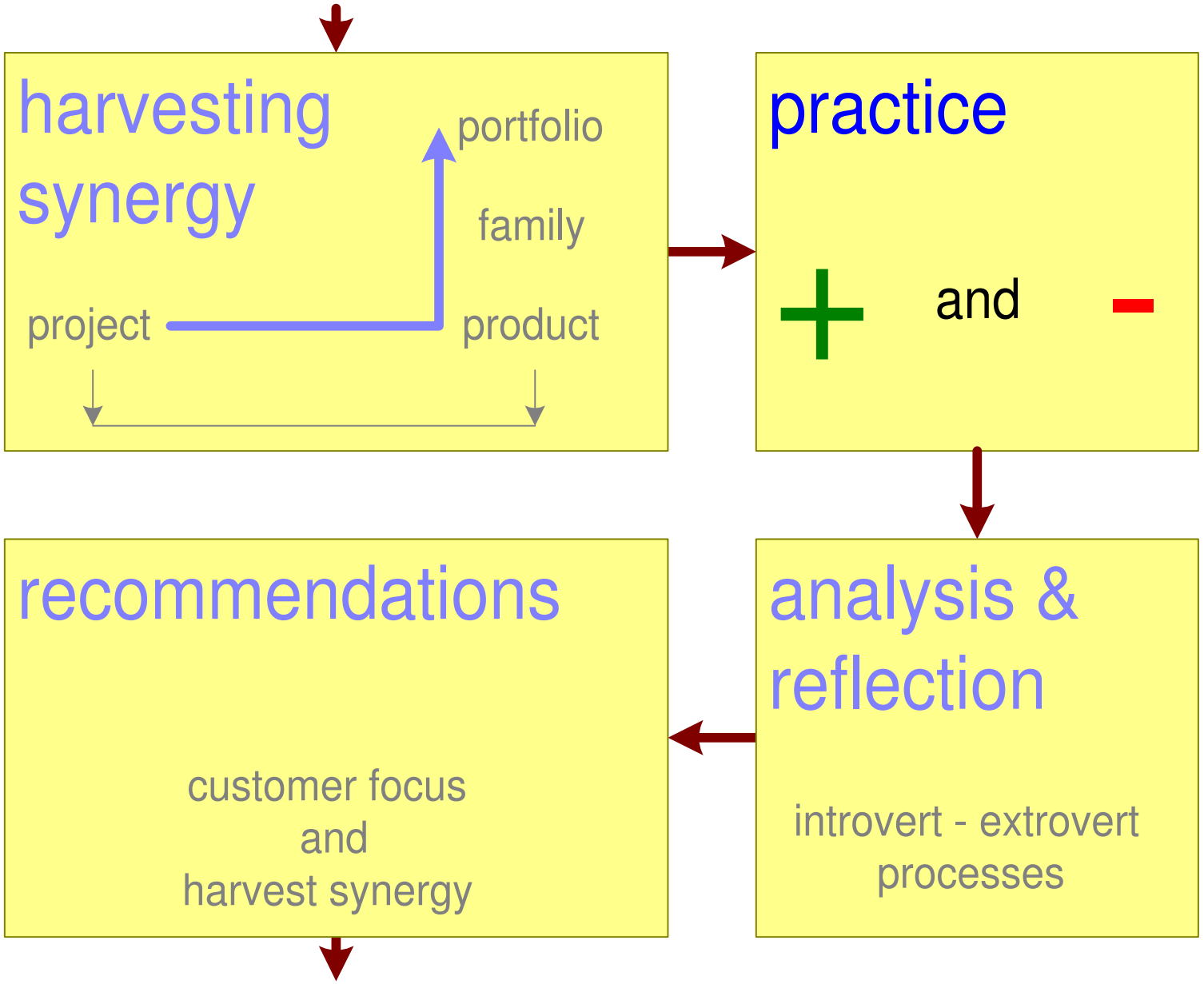
Internal Supply Chain



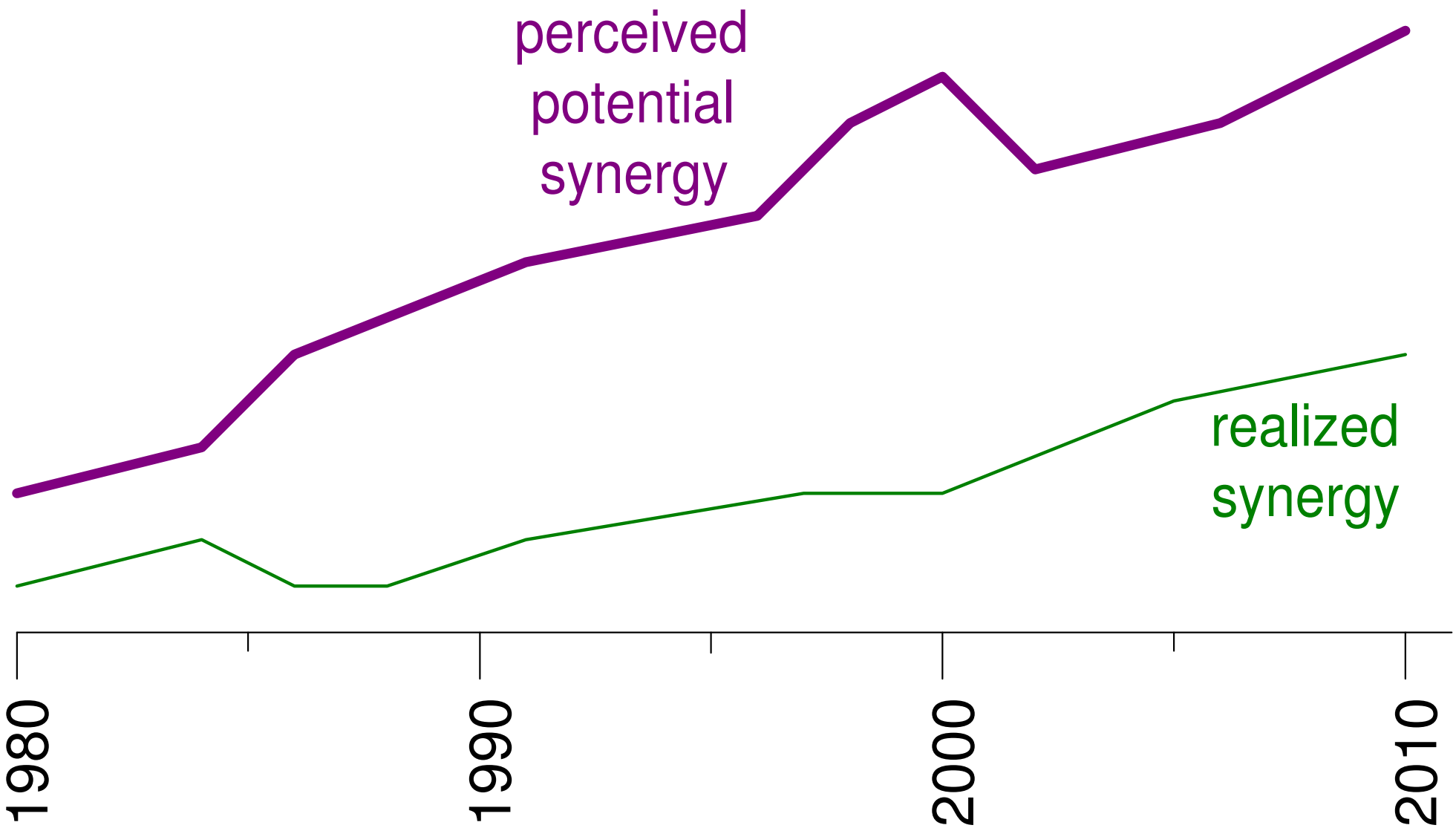
Technical versus Clinical



Practice


harvesting synergy
portfolio
family
project
product
practice
+
and
-
analysis & reflection
introvert - extrovert processes
recommendations
customer focus and harvest synergy

Three Decades of Synergy Drive



Experiences with reuse, from counterproductive to effective

bad	good
longer time to market	reduced time to market
high investments	reduced investment
lots of maintenance	reduced (shared) maintenance cost
poor quality	improved quality
poor reliability	improved reliability
diversity is opposed	easier diversity management
lot of know how required	understanding of one base system
predictable too late	improved predictability
dependability	larger purchasing power
knowledge dilution	means to consolidate knowledge
lack of market focus	increase added value
interference	enables parallel developments
but integration required	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

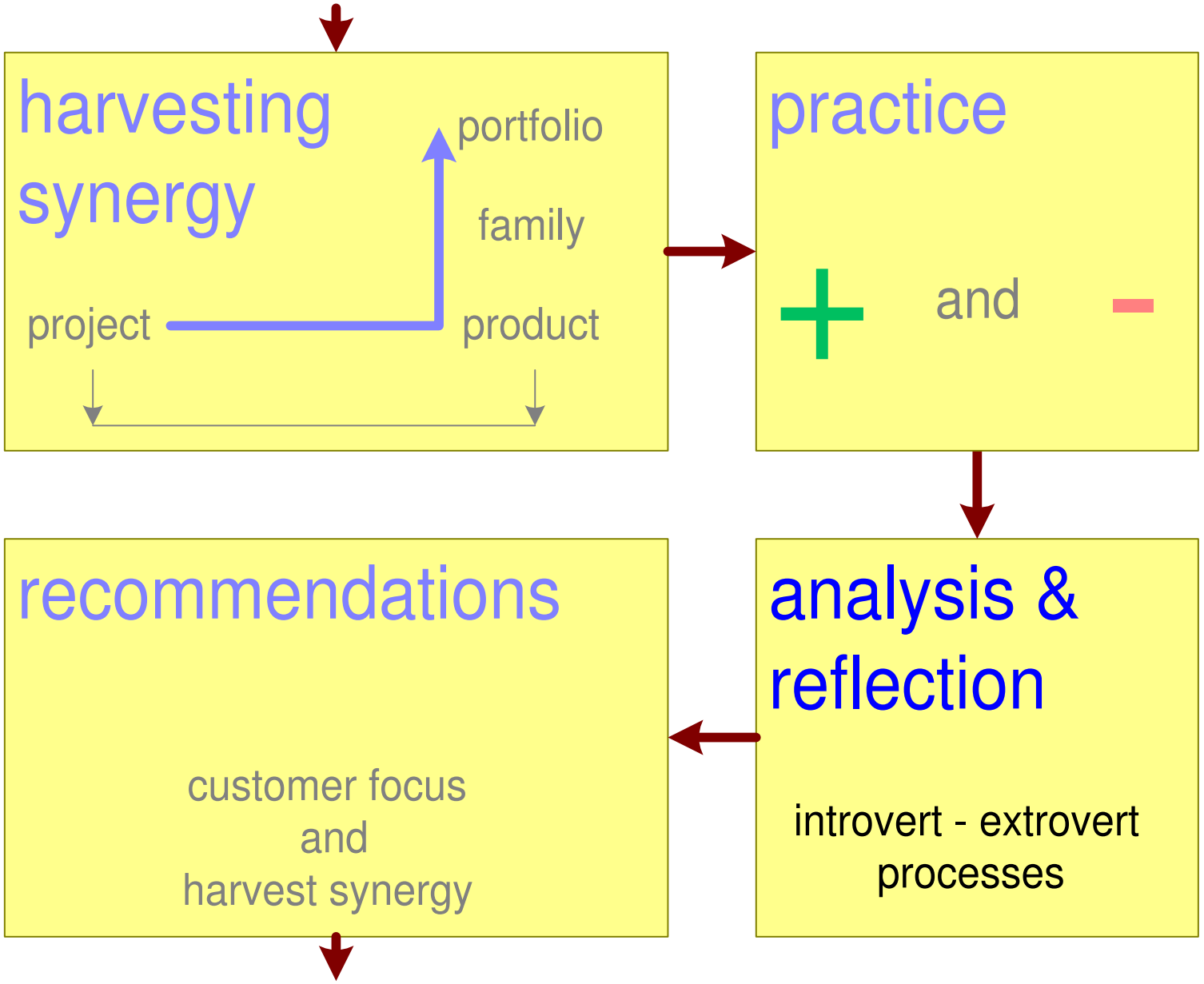
TV: LCD screens
cath lab: image based acquisition control

software maintenance, configurations, integration, release

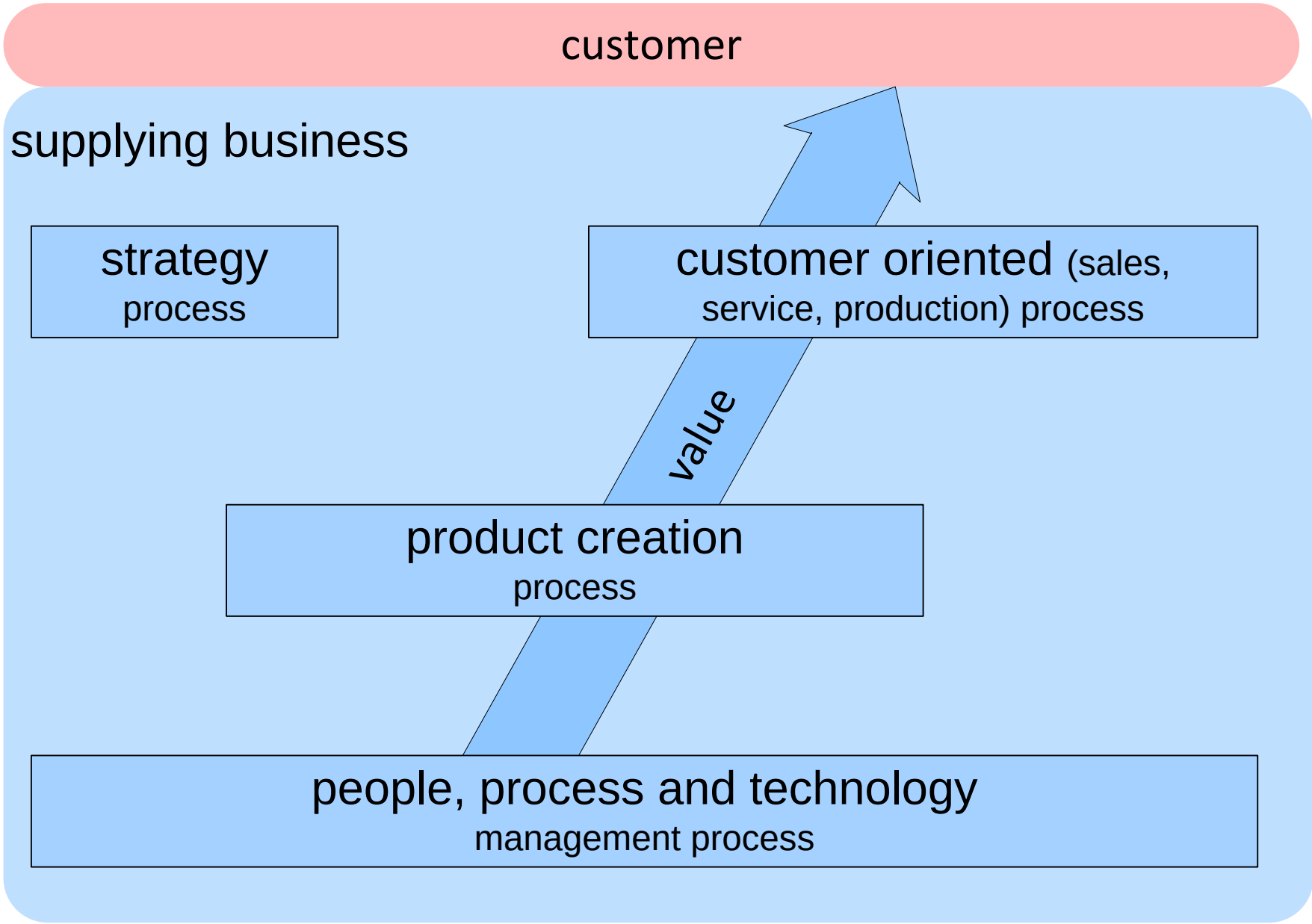
MRI: integration and test
wafersteppers: number of configurations

how to innovate?

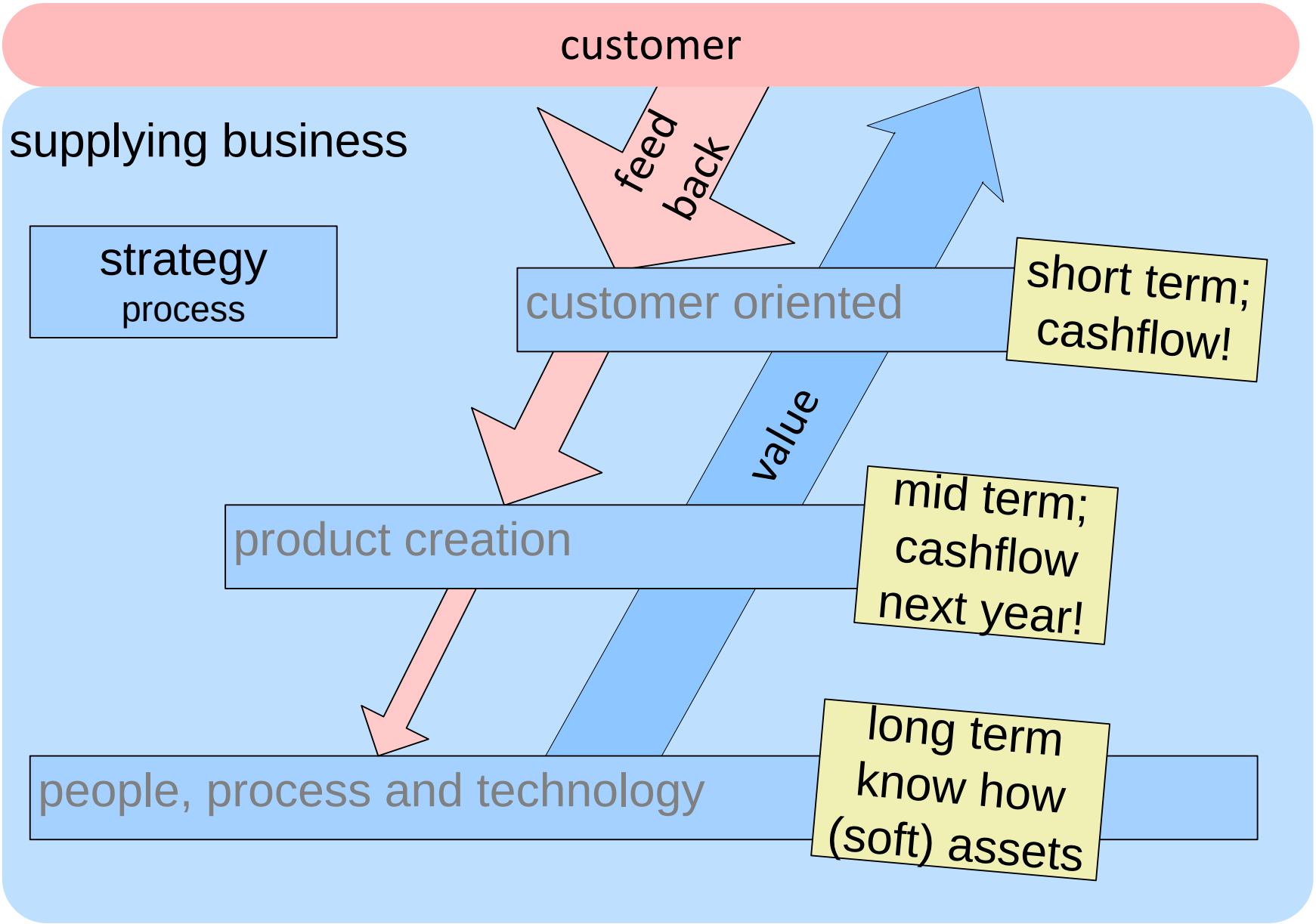
Analysis and Reflection



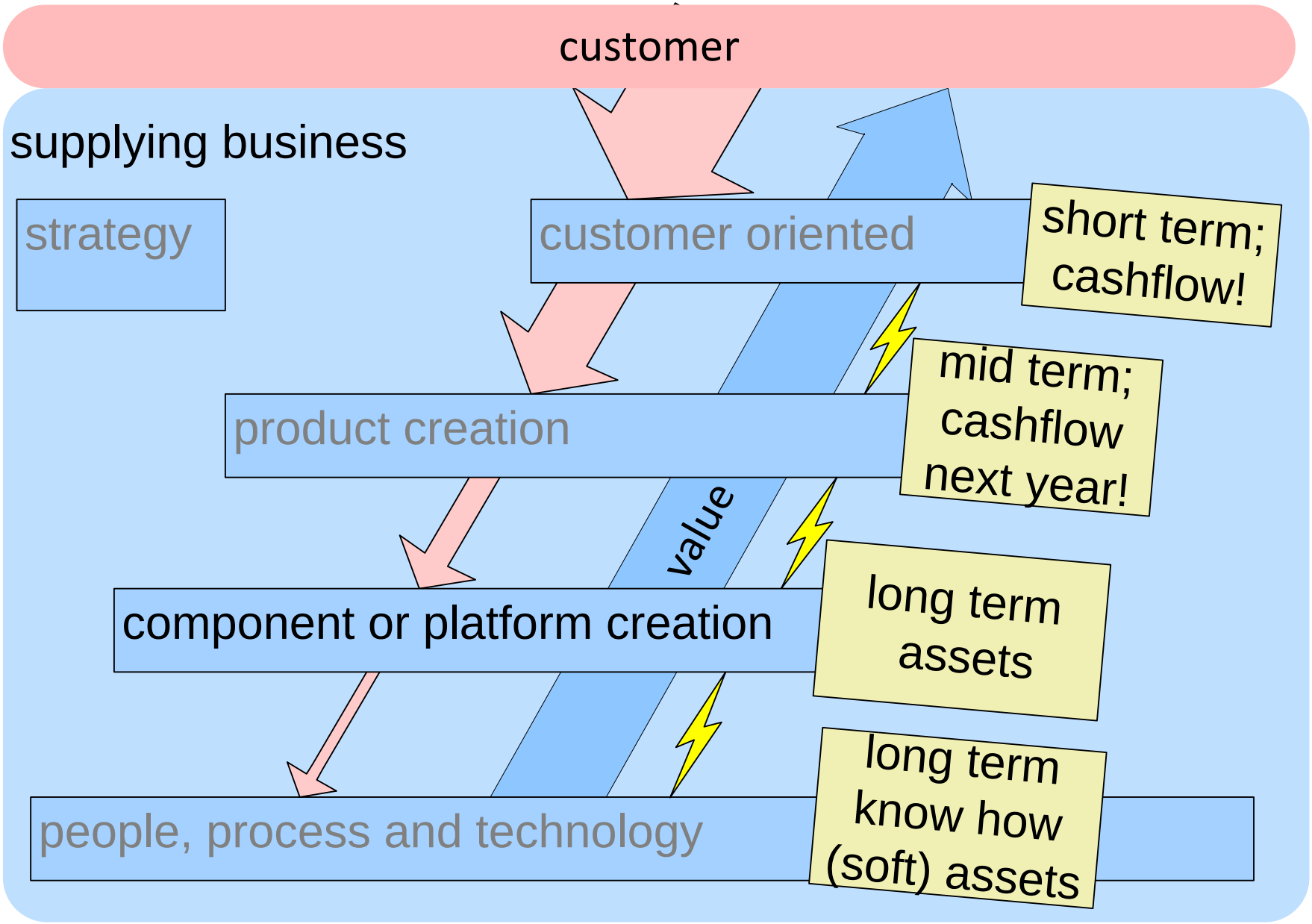
Simplified process view



Tension between processes



Platform strategy adds one layer



Sources of Failure in Generic Developments

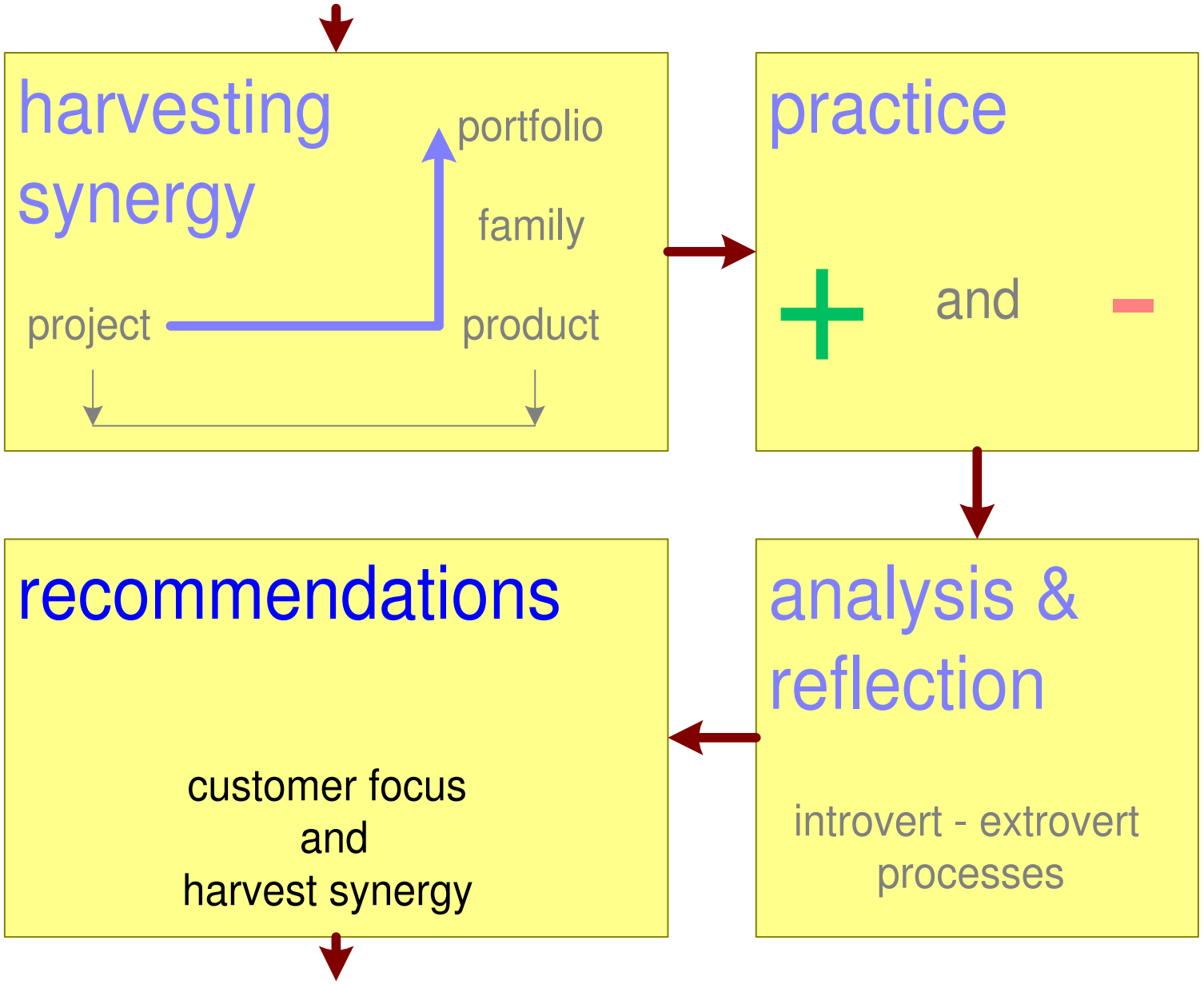
Technical

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

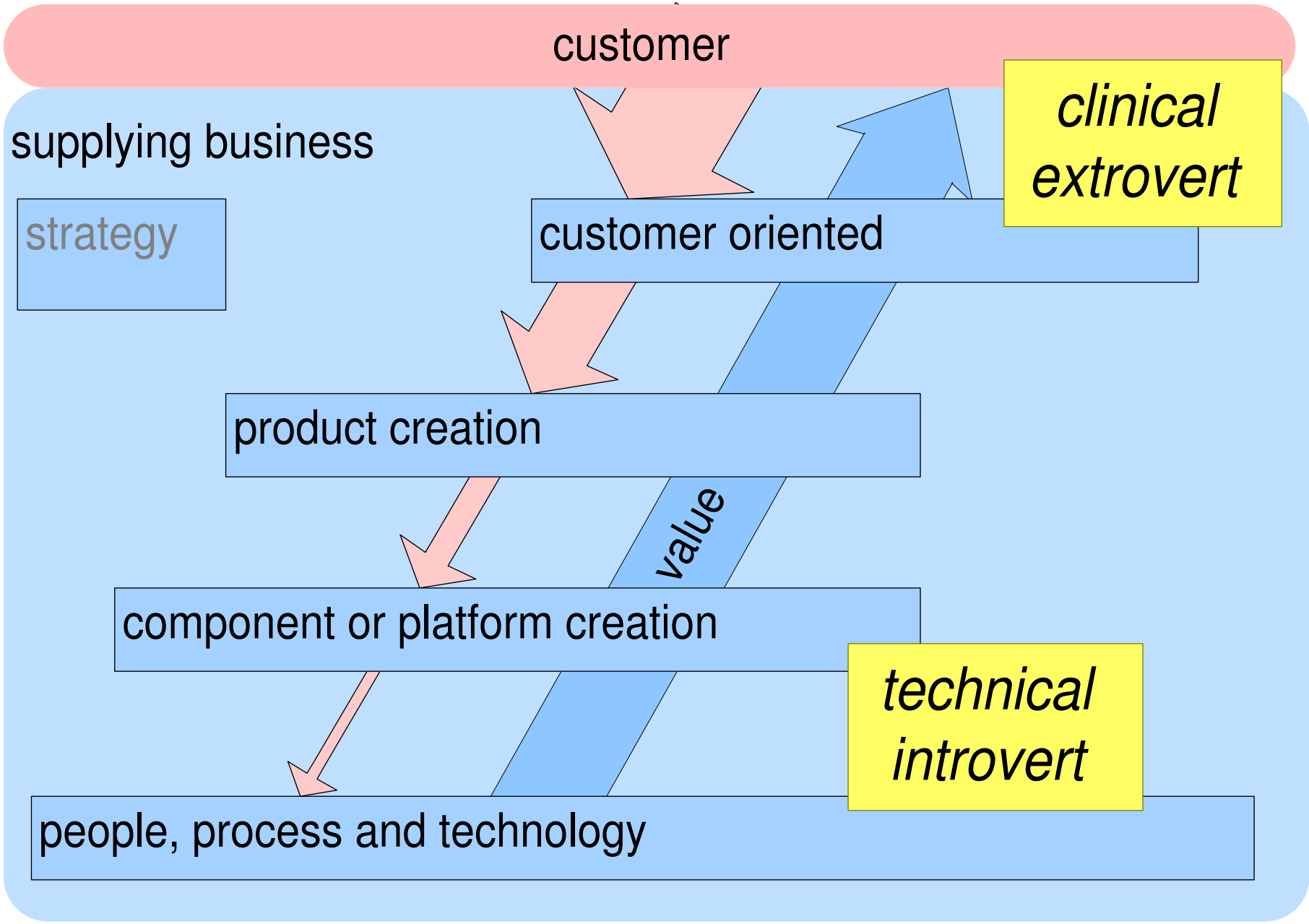
Process/People/Organization

- 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

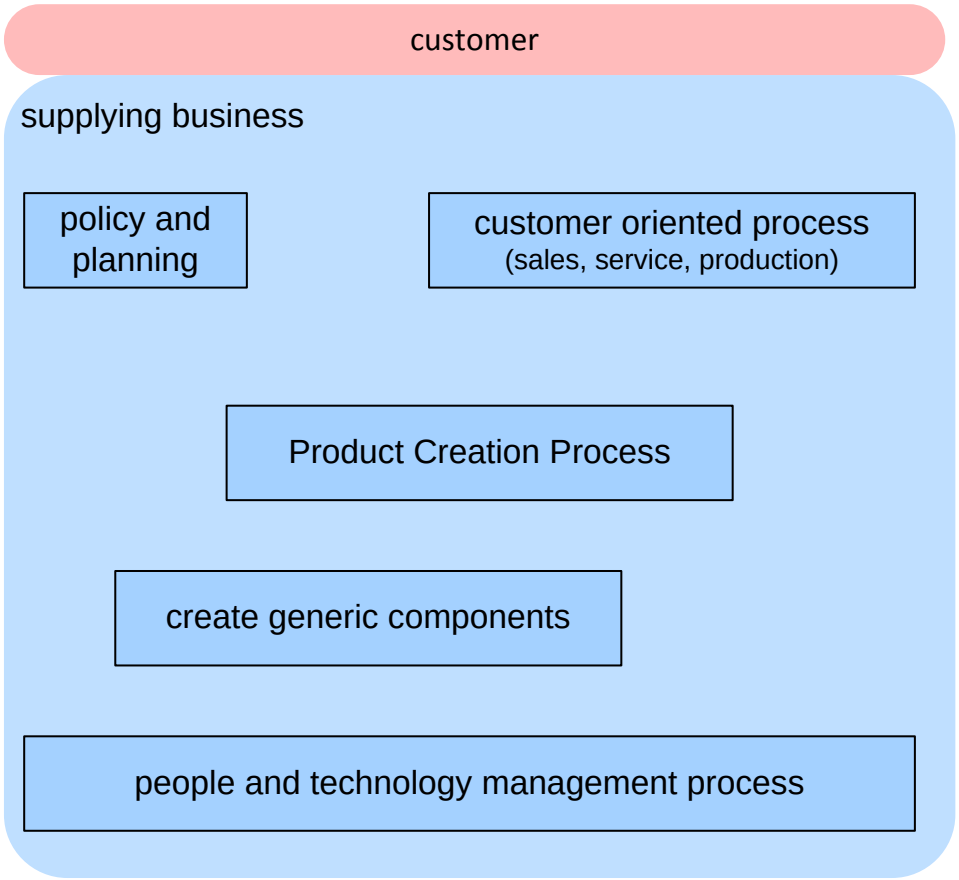
Recommendations



Beware of Introvert Bias



Models for Generic Development



lead customer	direct feedback too specific?
carrier product	product feedback product specific?
platform	feedback problem too generic
technology push	no feedback

Recommendations

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).