

Evolvable Product Families; What and Why?

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Abstract

Product lines or product families are used to serve a broad market with a limited development investment. In theory this is easily said, in practice managing product lines effectively turns out to be significant challenge. In this paper we clarify when platform strategies towards product lines make sense. Crucial for success is scoping of product line and the shared assets.

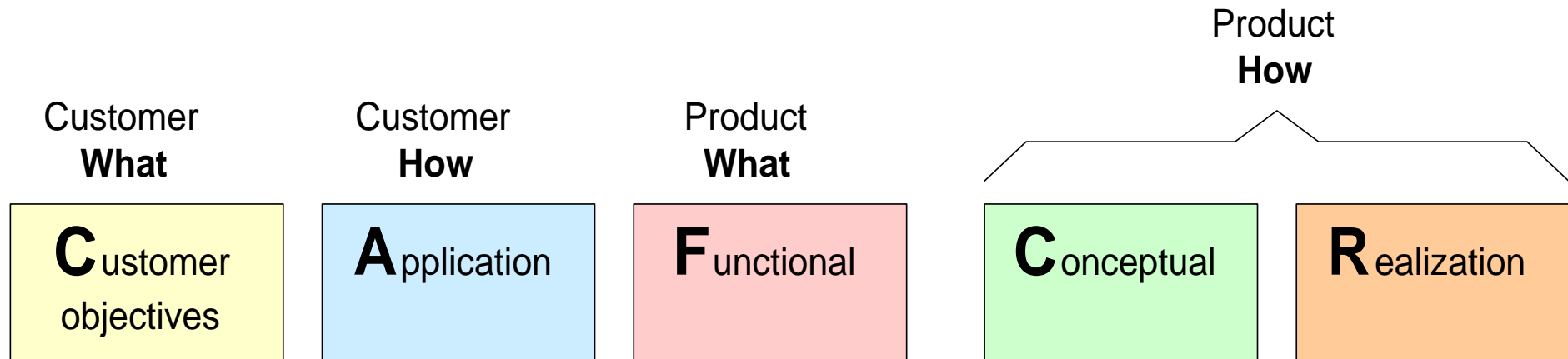
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February 10, 2011
status: planned
version: 0

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TBD

Multiple Markets



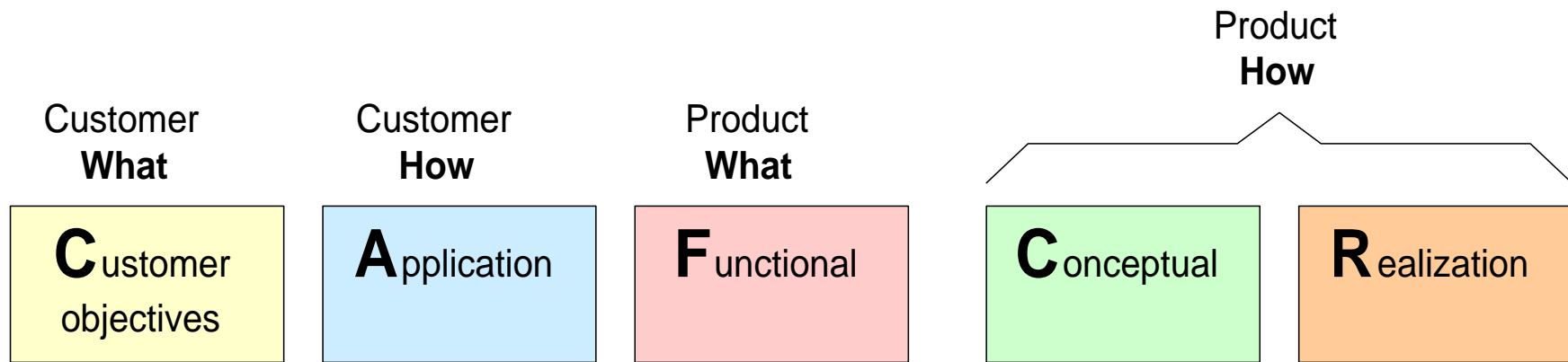
Multiple markets:
different customers
different applications
different products

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

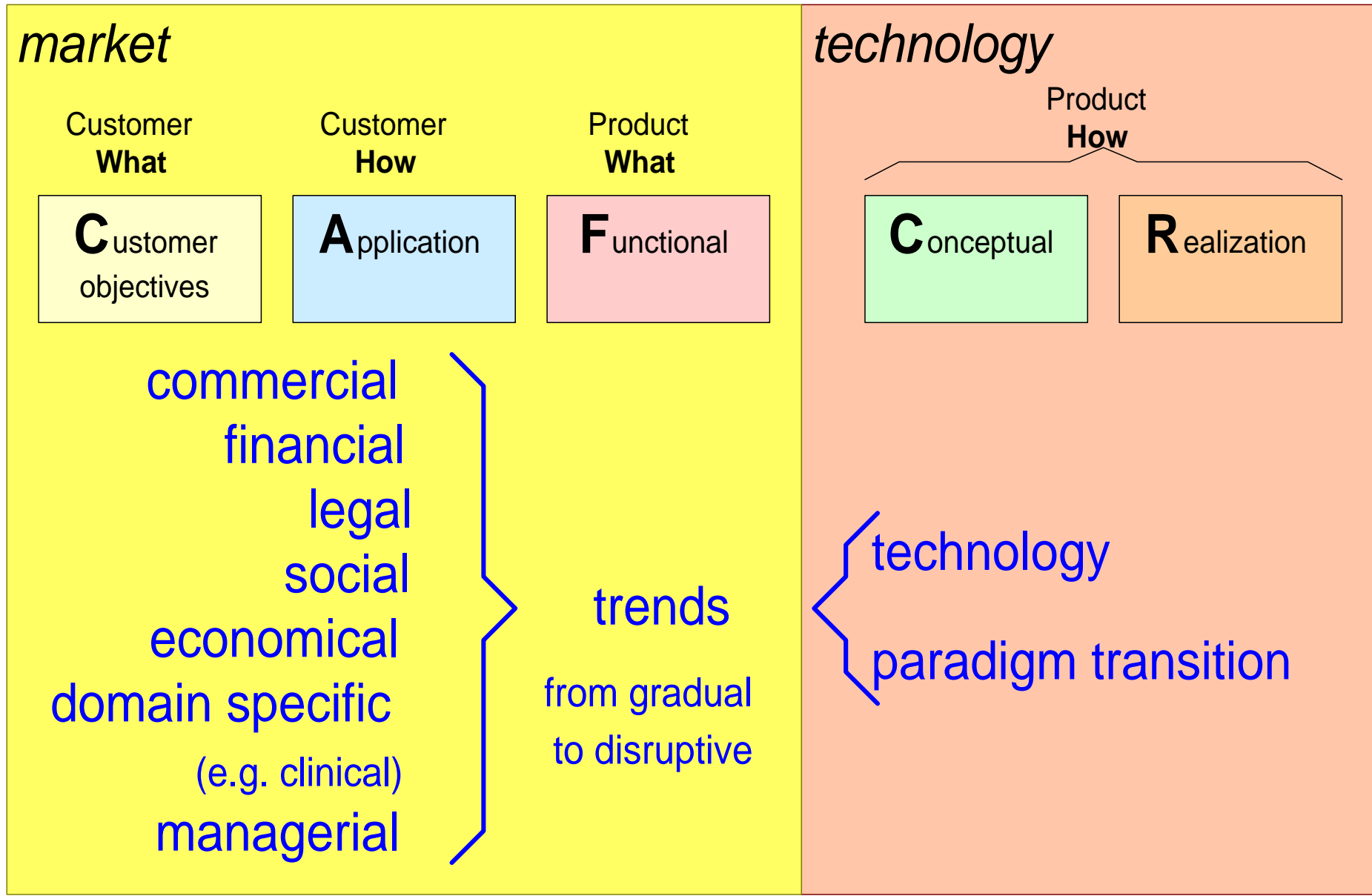
analyse characteristics

analyse differentiators

functionality

characteristics

Roadmapping: Impact of Future



Criteria and Forces for Synergy

unification

development cost
development effort
logistics cost

market share
time to market
installed base evolution
future (potential) value
market approach
(luminary sites, price fighter)

fit to customer
fit to stakeholder
fit to application

dedication

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!

Reuse is needed ... as part of the solution






trends

-  features
-  performance expectations
-  number of products
-  release cycle time
years → months
-  openness
interoperability

consequences

-  feature interaction
-  complexity
-  amount of software
-  integration effort
-  reliability

solutions

-  new methods
new tools
-  hardware performance
-  new software technology
-  new standards
-  reuse