



Analysis of Requirements in Variants

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Variance

- A three-dimensional model
- Process
- Benefits

Requirements Variance :

The Problem

Product families

- Context:
 - multiple simultaneous projects
 - multiple customers
 - varying, but similar, requirements

Practical challenges

Determining what to reuse

Managing Common Elements

Product family management

- More than just reuse.
- Not solely driven by next customer requirements.
- Also directed by company strategy.

Product family management

Evolution of a product family
driven by experience gained
from deployments

Project C

Product family (re)use

Maximising efficiency through product component reuse

Concepts

A three-dimensional model

1st dimension: EVOLUTION

Products Evolution

Sub-systems Evolution

Components Evolution

2nd dimension: COMPOSITION

Products Composition

Sub-systems Composition

Components Composition

3rd dimension: TRACEABILITY

Products Traceability

Sub-systems Traceability

Components Traceability

3-Dimensional Model

Evolution

Composition

Traceability

Managing Evolution

Evolved requirements are specialised for each new version

Layered configuration management

Theory of managing
traceability between evolving
layers of requirements

Example

Illustrated example of
managing traceability
between evolving layers of
requirements

Relationship between layers

Illustrated overview of
multilevel traceability
between evolving layers of
requirements

Key Processes

Adding a new component to
a system based on an
existing component

Requirements Update

Evolving requirements for the copied component and linking to existing requirements for the new system

Benefits

- Combines configuration management with requirements management
- Understands relationship between traceability and configuration management
- Built-in reuse through requirements inheritance