Abstract

The creation and evolution of a product family is based on a business analysis. Such a business analysis is used for the definition of the family: Which products are members of the family, what distribution of features, which performance range?

This article is to be used in the “Family Engineering Handbook”, a collective effort of Philips Research employees to consolidate their experiences in family engineering.
Roadmapping
Reference Architecture
Requirements Capturing
Feature Space Exploration
Value Engineering
Scope Determination
Reference Architecture

Customer Architecture:
- Key drivers
- Customer Business Models
- Market Model (competition, complementors)

Application Architecture:
- Applicational drivers
- Application Domain Model:
  - entities + relations
  - behavior
- Stakeholders

Functional Architecture:
- Commercial Decomposition:
  - Features, Functions, Options
- Price Performance Dimensioning

Realization

customer objectives
application
functional
conceptual
realization

Customer objectives
Application
Functional
Conceptual
Realization
Who appreciates what?
Who pays when for what?
Who takes decisions?
Yoyo over Views

Customer architecture
Application architecture
Functional architecture
Conceptual architecture
Realization architecture

knowledge learning curve
learning
more learning
abstraction, consolidation
business analysis
feature exploration
scoping
specification and design

1st prototype 1st product 1st family definition

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PFproductFamilyJojo
Which part of the market do we want to serve?
Component-Based Conceptual Architecture

- Customer objectives
- Application
- Functional
- Conceptual
- Realization

architecture guidelines

product-specific components

generic components
Attention Points for Life Cycle Requirements

Installation
Configuration
Customization
Life-cycle management (amongst others upgrading)
Configuration Management
Licensing strategy
1. Make an inventory of features
2. Map features on market segments
3. Determine products
4. Map features on products
5. Determine valuation criteria
6. Valuate features per product
Product Feature Map

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features

products

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Examples of Valuation Criteria

- 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)
## Product Feature Map with Substituted Numbers

<table>
<thead>
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<th>features</th>
<th>P1800</th>
<th>P1900</th>
<th>P2200</th>
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<td>customer sales price market share satisfaction</td>
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<td>1</td>
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</table>
What feature will be realized when for what product?