Decision Support for Product Management of Software Intensive Products

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Context

- More than many requirements
- Rich decision support material
- Many customers
  → Triage
  → Prioritisation

Decisions

- Balance between the needs of:
  - customers
  - short-term product needs
  - strategic product and/or company needs
- Examples of influencing forces:
  - “Stay competitive”
  - “Be time-efficient”
  - “Be cost-effective”
  - “Minimise risk”

Decision Support

We thus need to consider

- Which stakeholders that are relevant
- Which decisions they are involved in
- Which strategic concerns they should worry about
- What they should see as value for their product

Five questions to help us on our way

- Where do we want to go?
- How will we get there?
- What should we do?
- Why would we be successful?
- When will we get there?
Impact Evaluation Patterns

- The SVM is 42 pages of text and tables.
- Need further work to make a usable tool of it.

→ Enter: Impact Evaluation Patterns

Impact Evaluation Pattern

- Pattern Name and Classification
- Intent and Motivation
- Also Known As
- Applicability (context)
- Value Aspects
- Impact Evaluation Criteria
- Relationships
- Consequences
- Related Patterns
- Involved Stakeholders

Software Value Map

Start:
- Lacked a consolidated view of value
- Difficult to align perspectives and measurements
- Results in incompatibility between measured values

Thus:
- One map to rule them all: Software value Map
- ... of which the figures here are a very shallow overview.

Extensive research foundation
- Systematic Literature Review (covering 670 relevant articles)
- Industry Evaluation

Software Value Map (Example)

- Value Perspective: Customer
  - Value Aspect: Perceived Value
  - Sub-Value Aspect: Intrinsic value
  - Value Components: Functionality, Reliability, Usability, Maintainability, Portability
  - Sub-Value Aspect: Delivery Process Value
  - Sub-Value Aspect: User Experience Value
- Value Aspect: Customer life time value
- Value Perspective: Financial
- Value Perspective: Internal Business
- Value Perspective: Innovation and Learning
Creating a Pattern

1. Select Scenarios
2. Identify Roles
3. Elicit current decision-making criteria
   - Benchmark current decision process
   - Which value aspects are considered?
   - How are they measured?
   - How should they be measured?
4. Elicit ideal value aspects and components
5. Create valuation patterns
6. Value analysis triage (Critical path)

An Example: PC Pre-analysis Impact Evaluation Pattern

- **Name**: PC Pre-analysis impact evaluation pattern
- **Intent**: To perform a detailed value analysis from business and technical perspectives.
- **Also known as**: Value Analysis Triage
- **Applicability**: To analyze and decide if a PC in question should be done or not
- **Value Aspects**: See figure
- **Impact Evaluation Criteria**: See example
- **Relationships**: Business value contains value for customer and product value
- **Consequences**: Related Patterns:
- Involved stakeholders: SAs, SPMs, and marketing dept.

Usage

- Critical Path value analysis, or
- Complete value analysis
- Theme-based analysis
- Internal-External value analysis

Theme-Based Analysis

- Mandated by strategies / roadmap
- May change over time
- Presents a “baseline” against which artefacts or requirements can be compared.

Example:

**Architecture theme**

Example: Innovation theme
Internal-External value analysis

- Does an artefact contribute more to internal or external value?
- How good are we at estimating the value?

Benefits

- Communication Enabler
  - Common vocabulary
  - Ensures no perspectives are forgotten
  - Ensures no role is forgotten
- Value-based requirements selection
  - Balancing short-term and long-term gains
  - Balancing internal and external value contributors
- Reduced time-to-decision
  - Impact Estimation Patterns
  - Critical Value Path
  - create a reusable and scalable assessment tool
- Retrospective analysis

Conclusions

- Software is no longer a cost. We are beginning to assess its value.
- Questions?

My Dream Project

- Research relevant problem (Not only consultancy)
- Dedicated resources (patience, time, contacts)
- Collaboration, co-research, co-authoring
- Remove blinds
- Plenty of problems.