

# Practical Considerations, Challenges, and Requirements of Tool-Support for Managing Technical Debt

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# Aim

- A fresh perspective on Technical Debt (TD) from a **CMMI Maturity Level 5** company, Keymind.
  - **Vision**
  - **Practical considerations**
  - **Challenges**
  - **Requirements of a tool supported approach**

# Vision

- TD  $\neq$  Software Quality
- Managing TD consists of three main activities:
  1. **Identifying** the TD items
  2. **Estimating** the economic consequences of removing or not removing each TD item
  3. **Analyzing** the different consequences and making tradeoffs

# Practical considerations

- Despite CMMI level 5, all projects have some TD as no project is perfect.
  - It is important to **monitor TD**, not necessarily to eliminate it.
- **Customers** can be involved and educated about TD concepts.
  - Decisions can be made **together with customers**, being aware of the consequences.

# Challenges

- **Principal:** Single values are inadequate -> ranges and probabilities.
- **Interest:**
  - Technical decisions are distant from the economic domain.
  - Related to probabilities of events
- Unavailability of historical data. How to estimate?

# Requirements of a tool supported approach

# R1: Managing principal, interest, and time-to-market.

# R2: Translating decisions into economic consequences



# R3: Managing uncertainty in a rigorous way

# R4: Managing the evolution of economic consequences

# R5: Balancing rigor and ease of use via scalability

# R6: Completeness and integration

# R7: Balancing expert opinions and automated estimates

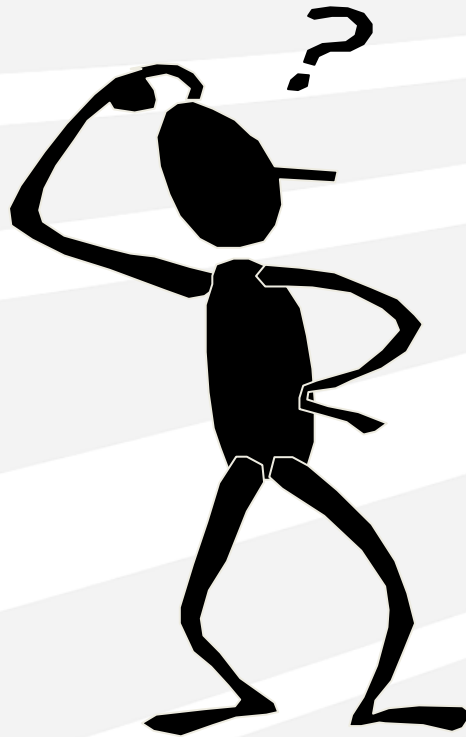
# R8: What-if analysis as interpretation of possible distributions

# R9: Sensitivity analysis

# R10: Scenario analysis



# Contact Information



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