

A Systematic Process for Defining Expert-Driven EAD Thresholds



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Presentation Agenda

- ① Origin of the Thesis
- ① Preliminary Research Question
- ① Motivation of the Process
- ① The Suggested Process
 - Characterization
 - Modeling
 - Evaluation
- ① Questions and Feedback



“

Enterprise Architecture Debt is a metric that depicts the deviation of the currently present state of an enterprise from a hypothetical ideal state”

Preliminary Research Questions

- *How does a process look like, that can be followed, to identify EAD measure thresholds?*
- *Which EAD measure thresholds are of relevance for practitioners?*
- *How can these thresholds be codified in a structured manner?*

Motivation of the Process

- Software Development and EAD
- Threshold - Quality Indicator
- Derivation of Thresholds
 - Manually
 - Automatically
 - Combination
- Expert-driven approach
 - Converted from Saravia et al. 2019

A Systematic Process for Defining Expert-Driven EAD Thresholds

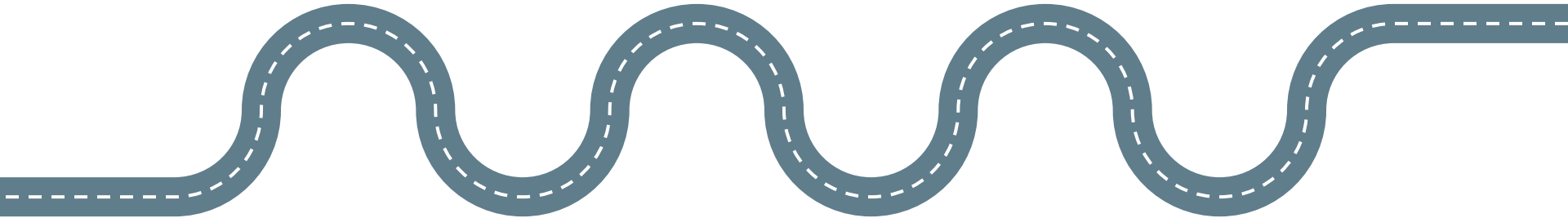
Threshold
Characterization

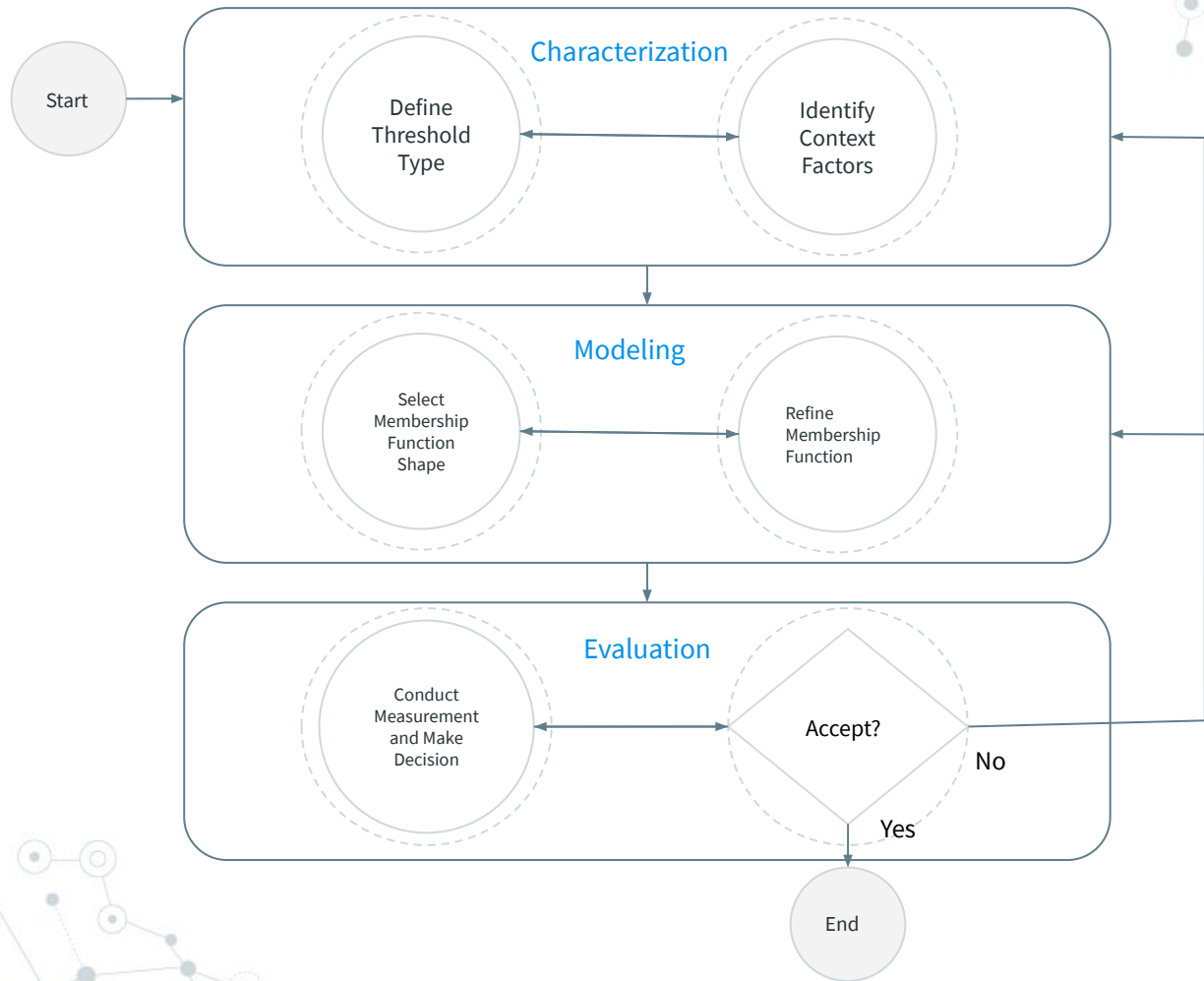


Threshold Modeling



Threshold Evaluation





Threshold Characterization

Start

Define
Threshold
Type

Identify
Context
Factors

Modeling

Threshold Characterization

- Define metric semantic scale
 - Boolean or Ordinal
- Identify type of threshold
 - Marginal or Interval
- Identify Context factors
 - Diminishing or Enhancing

Threshold Modeling

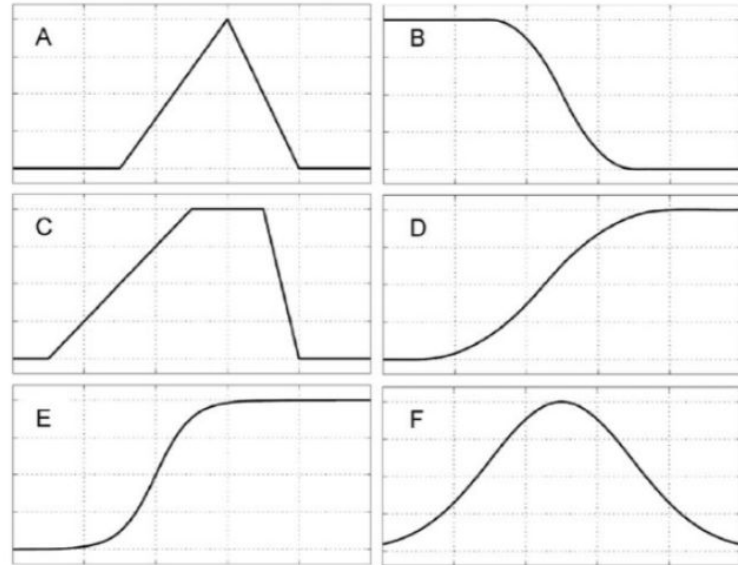
Select
Membership
Function
Shape

Refine
Membership
Function

Evaluation

Threshold Modeling

- A membership function for each term in the linguistic variable.



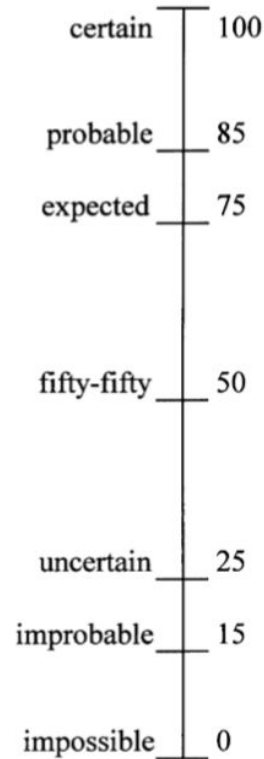
1. Membership function Shapes (Saravia et al. 2019)

Threshold Modeling

The probability is mapped to the verbal scale.

Code coverage crisp value	Not OK	OK
10	Certain	Impossible
20	Certain	Impossible
30	Certain	Impossible
40	Probable	Improbable
50	Expected	Uncertain
60	Fifty-fifty	Fifty-fifty
70	Uncertain	Expected
80	Improbable	Probable
90	Uncertain	Expected
100	Probable	Improbable

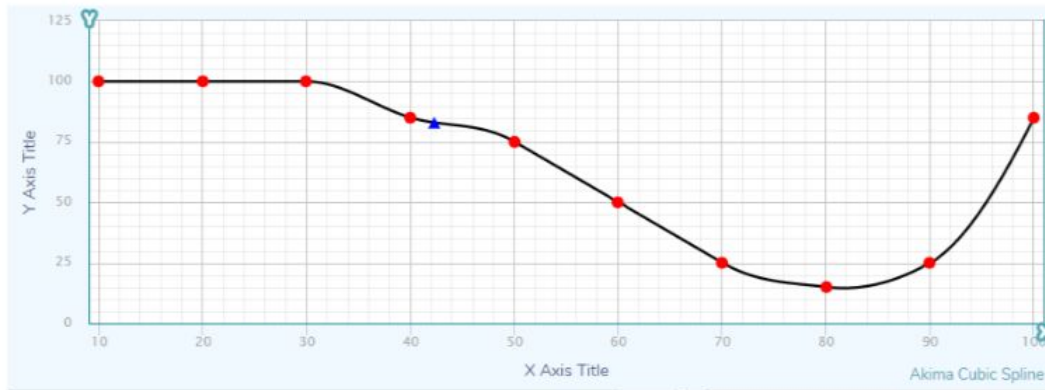
2. What-if scenarios for code coverage (Saravia et al., 2019)



3. Verbal probability scale (Renooji & Witterman, 1999)

Threshold Modeling

The values are interpolated and visually analyzed



4. Interpolated Not Ok-scale for code coverage metric (Saravia et al., 2019)

Threshold Evaluation


Conduct
Measurement
and Make
Decision

Accept?

No

Yes

En
d



**How to set the
crisp values?**

Questions?