

INF5120

”Modellbasert Systemutvikling” ”Modelbased System development”

Lecture 15: 08.05.2017

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Course parts (16 lectures) - 2017

- January (1-3) (Introduction to Modeling, Business Architecture and the Smart Building project):
- 1-16/1: Introduction to INF5120
- 2-23/1: Modeling structure and behaviour (UML and UML 2.0 and metamodeling) - (establish Oblig groups)
- 3-30/1: WebRatio for Web Apps/Portals and Mobile Apps – and Entity/Class modeling – (Getting started with WebRatio)

- February (4-7) (Modeling of User Interfaces, Flows and Data model diagrams, Apps/Web Portals - IFML/Client-Side):
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- 5-13/2: IFML – Interaction Flow Modeling Language, WebRatio advanced – for Web and Apps
- 6-20/2: BPMN process, UML Activ.Diagrams, Workflow and Orchestration modelling value networks
- 7-27/2: Modeling principles – Quality in Models
- 27/2: Oblig 1: Smart Building – Business Architecture and App/Portal with IFML WebRatio UI for Smart Building

- March (8-11) (Modeling of IoT/CPS/Cloud, Services and Big Data – UML SM/SD/Collab, ThingML Server-Side):
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- April/May (12-14) (MDE – Creating Your own Domain Specific Language):
- 12-3/4: Model driven engineering – Metamodels, DSL, UML Profiles, EMF, Sirius Editors – intro to Oblig 3

- EASTER – 10/4 og 17/4
- 20/4: Oblig 2: Smart Building – Individual and group delivery - Internet of Things control with ThingML – Raspberry Pi, Wireless sensors (temperature, humidity), actuators (power control)

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Content

- Archimate 2.0 and 3.0
- Metamodels for Archimate

- Xtext
- Xtext tutorial
- Xtext for ThingML

- NFR – Non Functional Requirements

Archimate 3.0

- What is new:
- <http://www.opengroup.org/subjectareas/enterprise/archimate/3.0-whats-new>
- Introduction to Archimate 3.0 – part 1 to 7 (vode=
- <https://www.youtube.com/watch?v=ULI9lf0OZco&list=PLB8F2ECDADDEE616AA>
- Archimate 3.0 in Practice – part 1 to 5
- https://www.youtube.com/watch?v=_kmYkxKb_o&list=PLB8F2ECDADDEE616AA&index=8

Archimate 3.0

- <http://pubs.opengroup.org/architecture/archimate3-doc/toc.html>
- <http://www.opengroup.org/subjectareas/enterprise/archimate>

Xtext

- <https://eclipse.org/Xtext/documentation/index.html>
- https://eclipse.org/Xtext/documentation/102_domainmodel_walkthrough.html
- <https://www.eclipsecon.org/france2015/sites/default/files/slides/presentation.pdf>

15 Minutes Tutorial

[Edit on G](#)

Getting Started

15 Minutes Tutorial

[Create A New Xtext Project](#)

[Write The Grammar](#)

[Generate Language Artifacts](#)

[Run the Generated Eclipse Plug-in](#)

[Second Iteration: Adding Packages and Imports](#)

15 Minutes Tutorial - Extended

[Five simple steps to your JVM language](#)

Reference Documentation

[The Grammar Language Configuration](#)

[Language Implementation](#)

[Integration with Java](#)

[Integration with EMF](#)

In this tutorial we will implement a small domain-specific language to model entities and properties similar to what you may know from Rails, Grails or Spring Roo. The syntax is very suggestive :

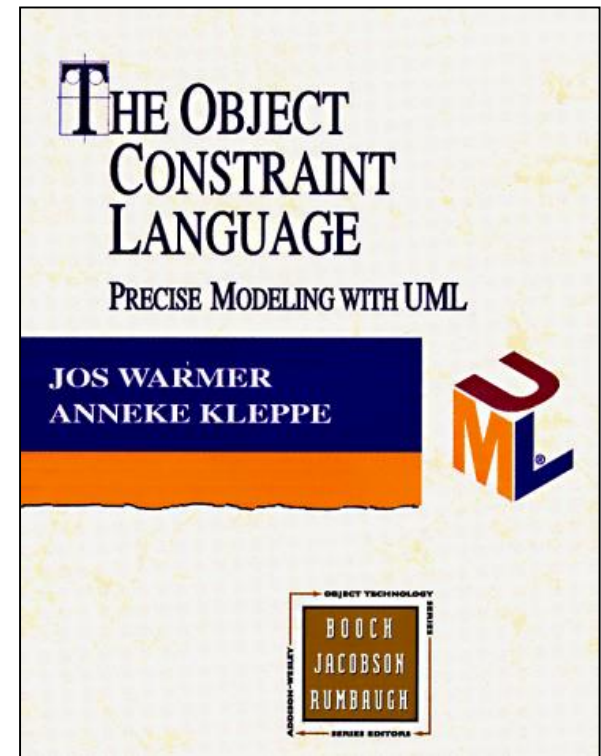
```
1. datatype String
2.
3. entity Blog {
4.     title: String
5.     many posts: Post
6. }
7.
8. entity HasAuthor {
9.     author: String
10. }
11.
12. entity Post extends HasAuthor {
13.     title: String
14.     content: String
15.     many comments: Comment
16. }
17.
18. entity Comment extends HasAuthor {
19.     content: String
20. }
```

After you have installed Xtext on your machine, start Eclipse and set up a fresh workspace.

UML OCL

Object Constraint Language

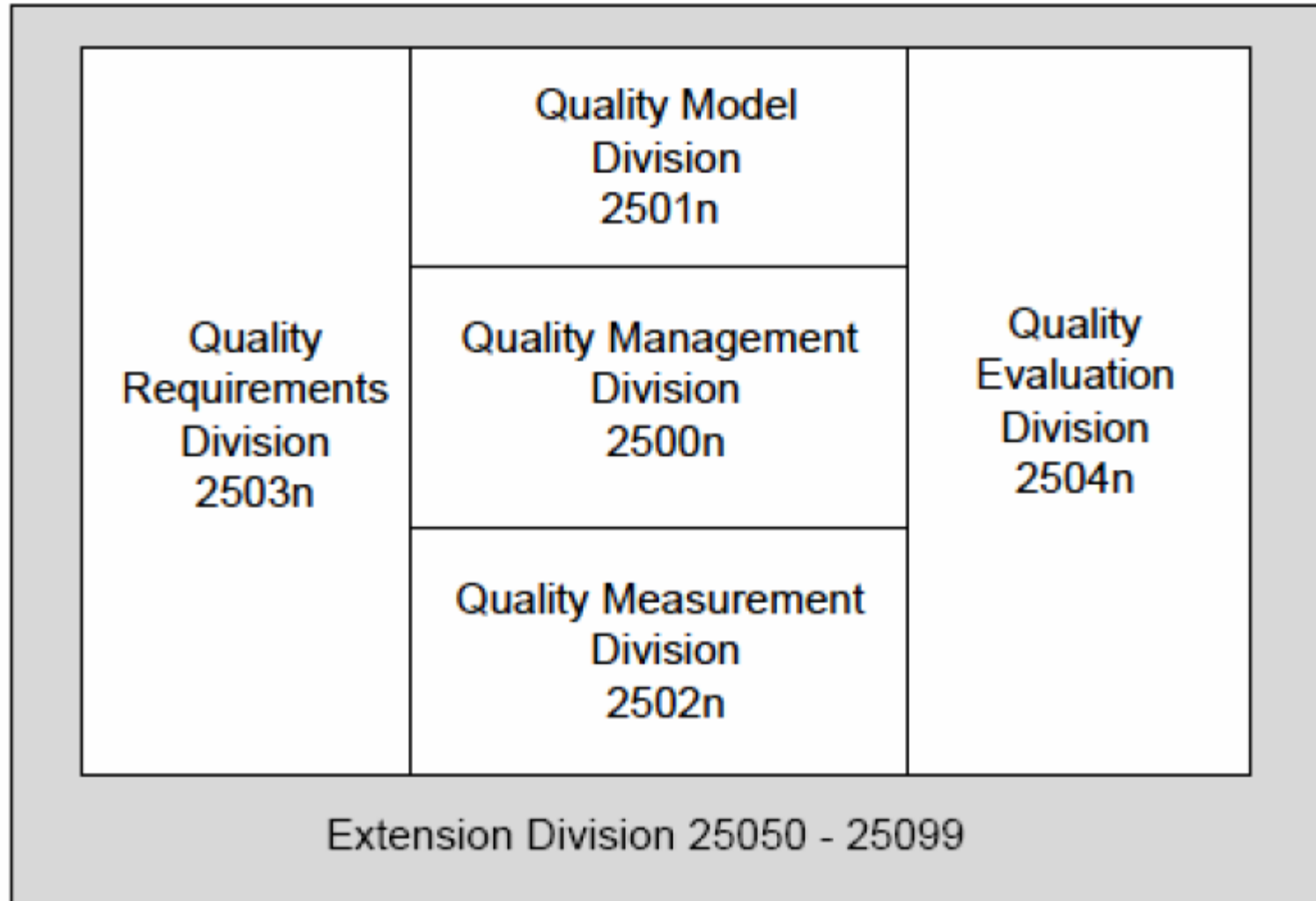
- The Object Constraint Language
 - ISBN 0-201-37940-6
- OCL home page
 - www.klasse.nl/ocl/index.htm



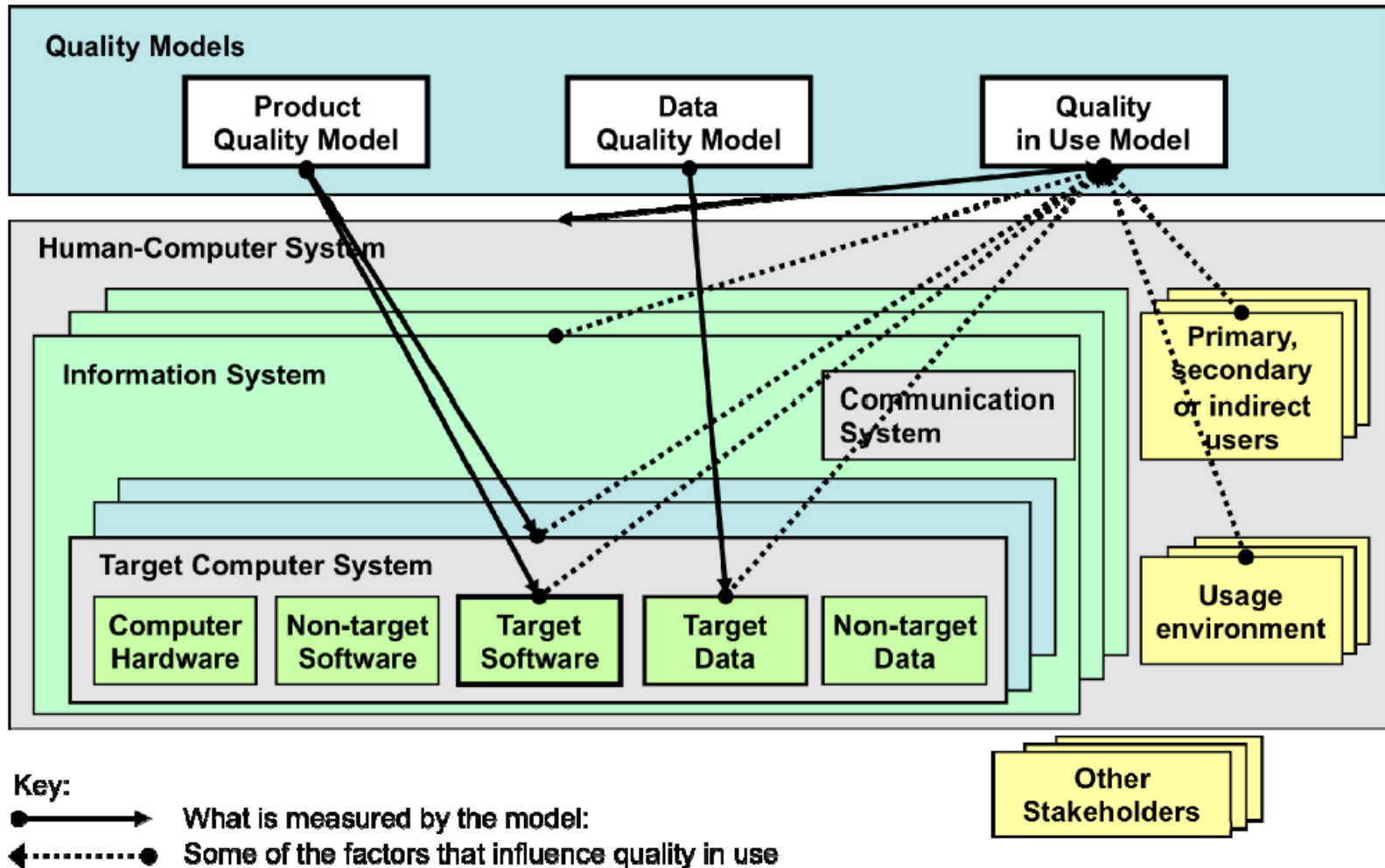
ISO 25010

**Systems and software engineering —
Systems and software Quality
Requirements and Evaluation
(SQuaRE) — System and software quality
models**

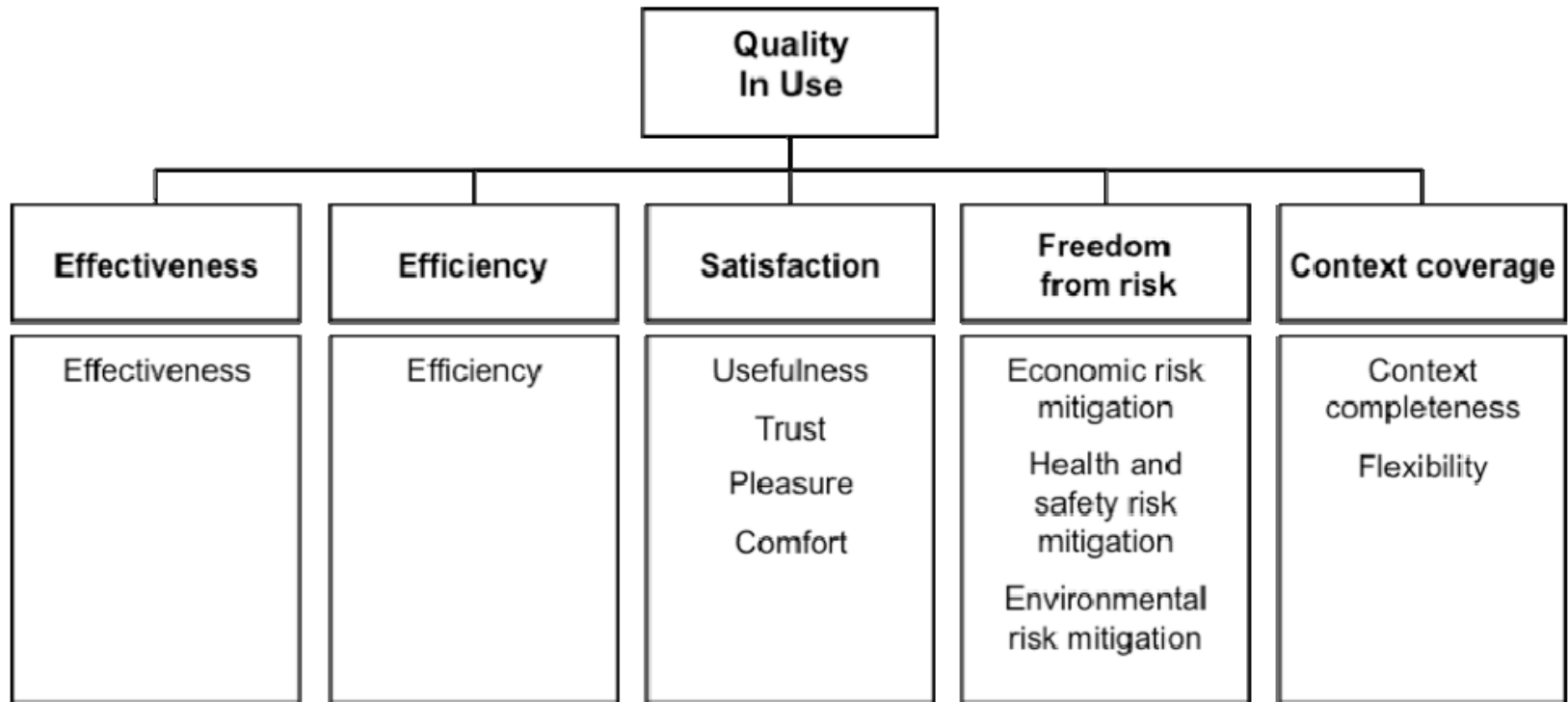
ISO standards, 250xx



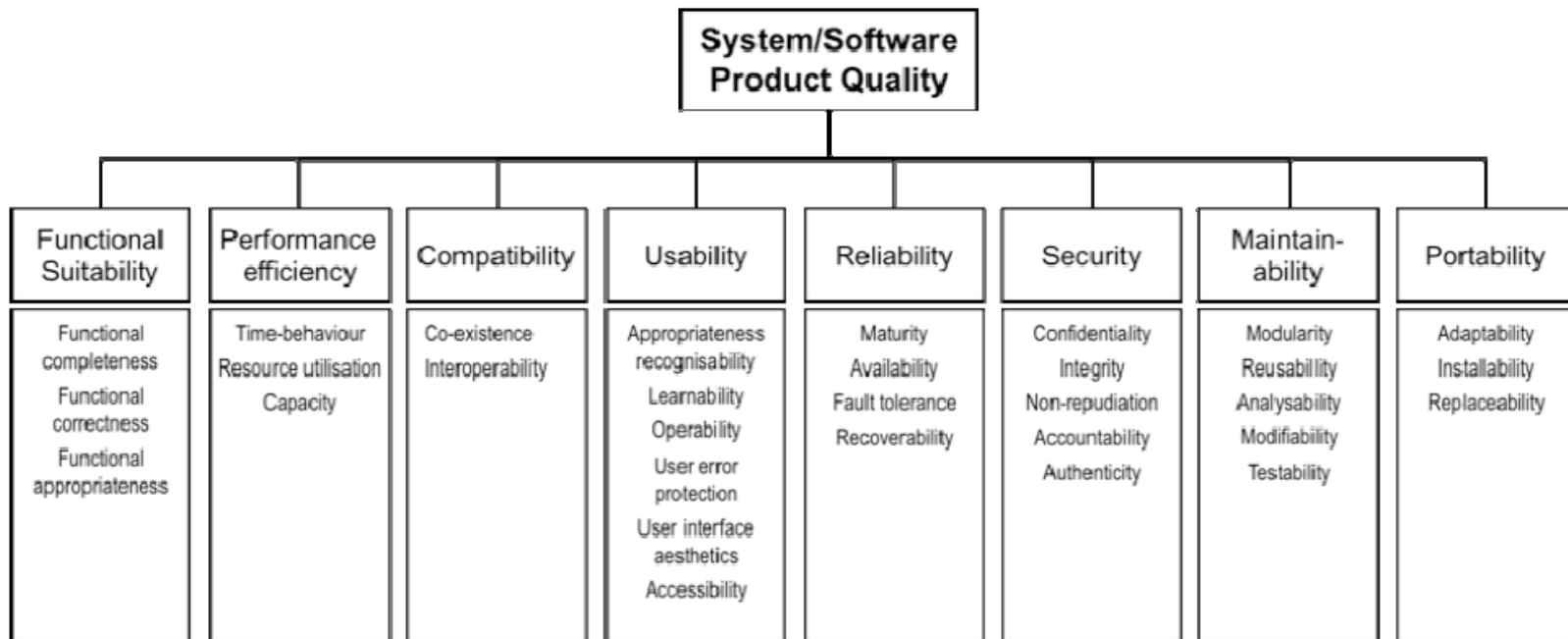
Targets of Quality Models



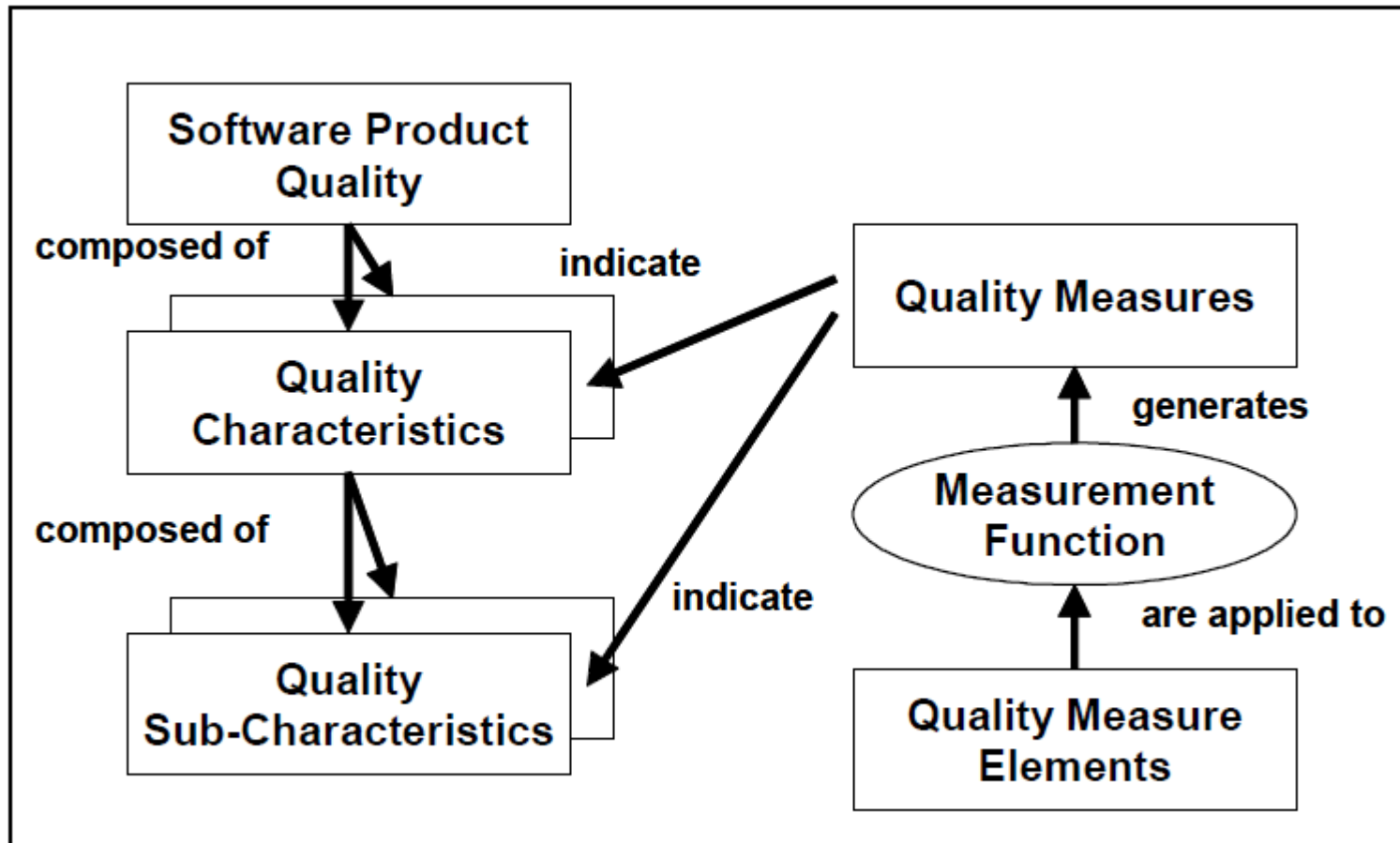
Quality in Use



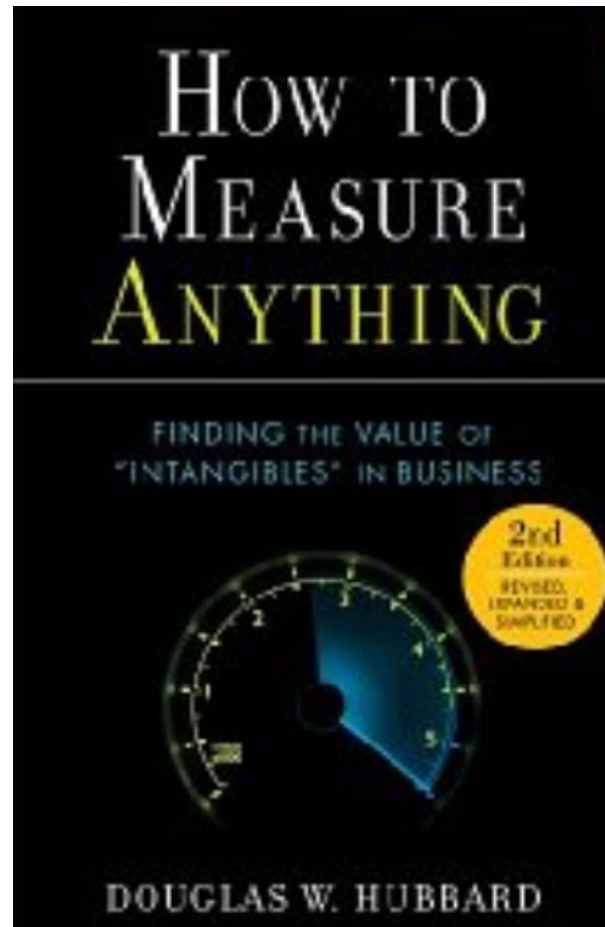
Product Quality



Quality Measures

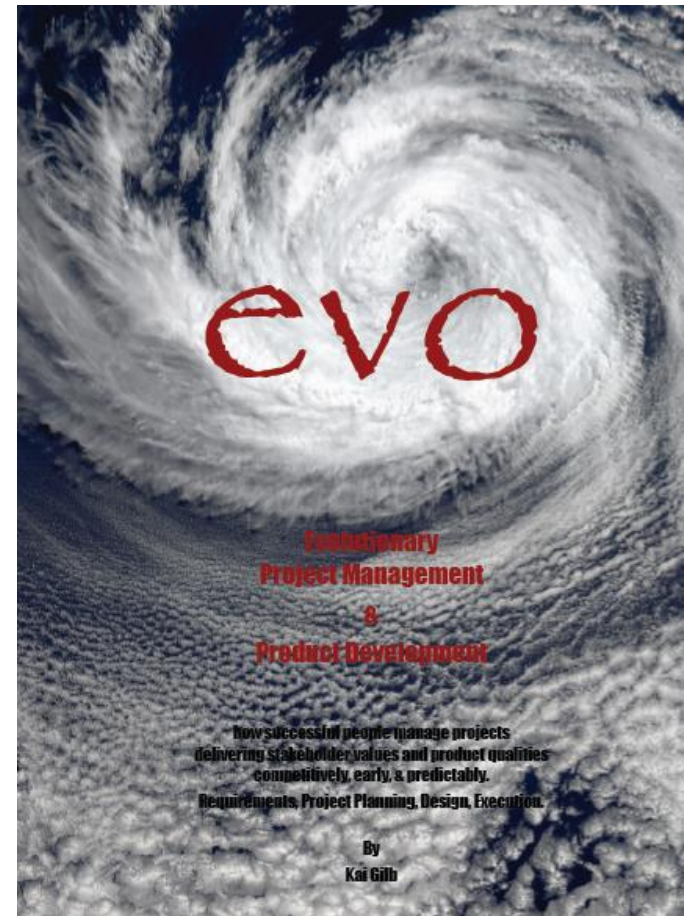


Measurements

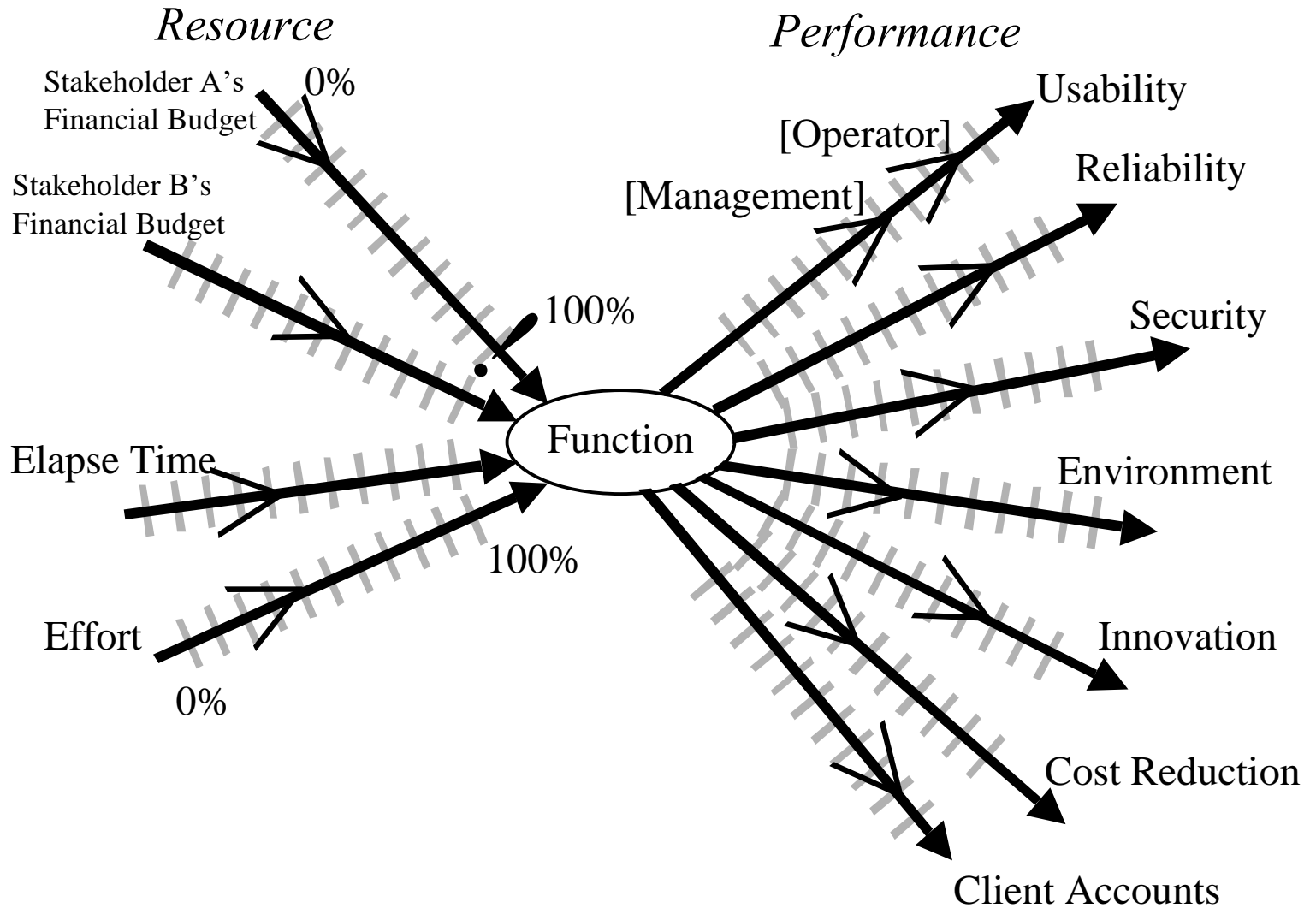


Tom and Kai Gilb

www.Gilb.com

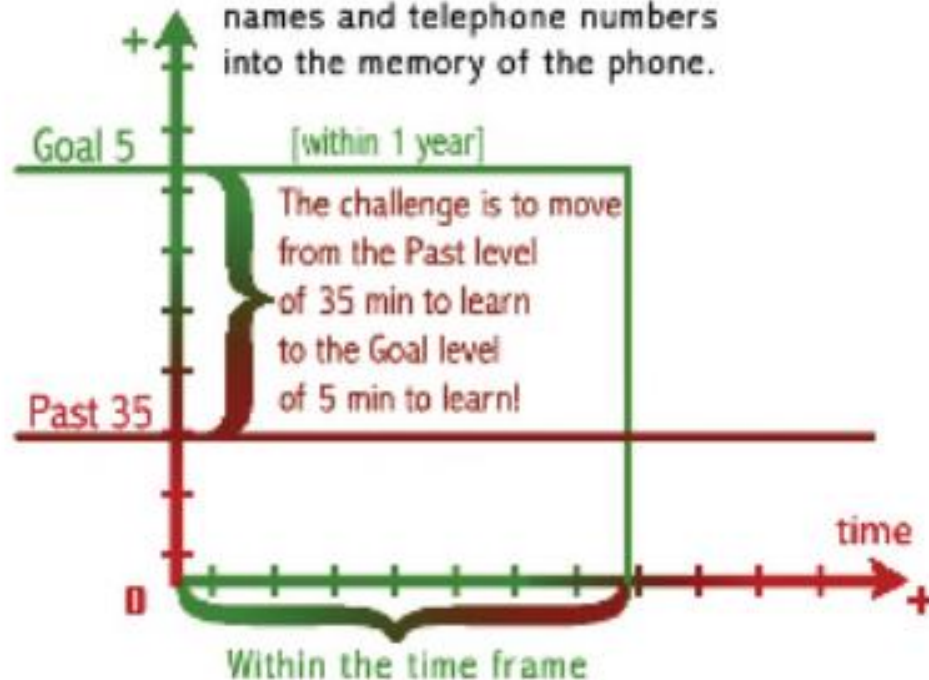


**Multiple Required Performance and Cost Attributes
are the basis for architecture selection and evaluation**



User-Friendliness.Learn

SCALE: average time in minutes,
to learn how to program contact
names and telephone numbers
into the memory of the phone.



Scale and Meter, Past and Goal

User-Friendliness.Learn.Contacts

Scale: average time in minutes, to learn how to program contact names and telephone numbers into the memory of the phone.

Meter: time 5 people who have not had a mobile telephone before, as well as 5 people who has, use the average.

Past 35 min.

Goal [within 1 year] 5 min.

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