History, Überblick und Struktur von SPICE/ISO 15504

People

Technology and Methods

Qualität

Produktivität

Process

Zürich, München

www.itq.ch

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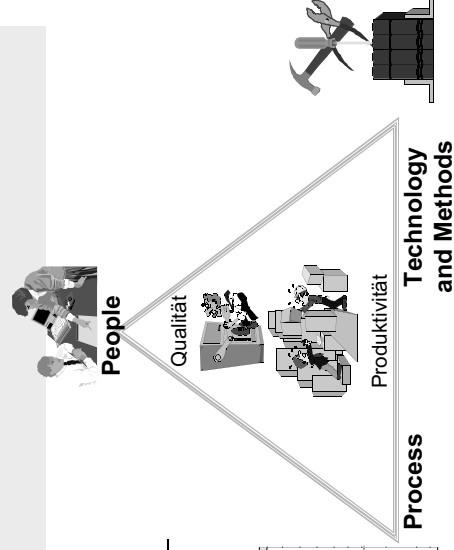
What is ISO/IEC TR 15504?

- International standard for assessing software processes

- Purpose:

  => Continuous process improvement

  => Capability determination

- Scope:

  Processes include acquisition, supply, development, operation, maintenance and support

ISO/IEC TR 15504 is an emerging standard currently in transition to full International Standard status!
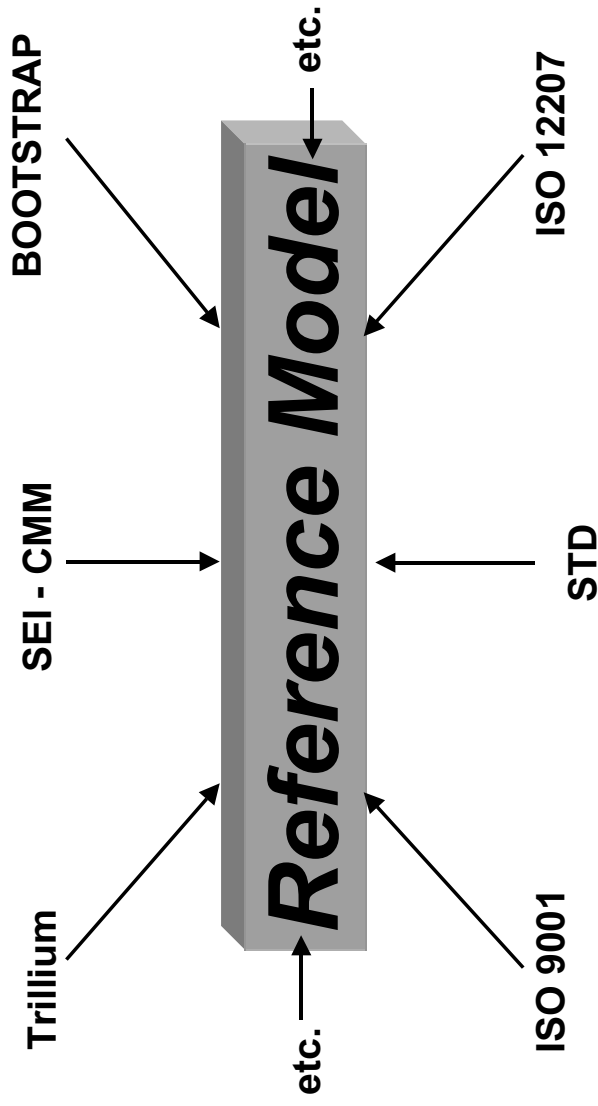
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What is SPICE?

- ❖ SPICE - Software Process Improvement and Capability dEtermination

- ❖ Development of an International Standard on Software Process Assessment (ISO 15504)

- ❖ The SPICE project (92-98 TR, 99-04) created to:
  - ➢ solicit opinions and input of world experts
  - ➢ carry out trials - provide early feedback
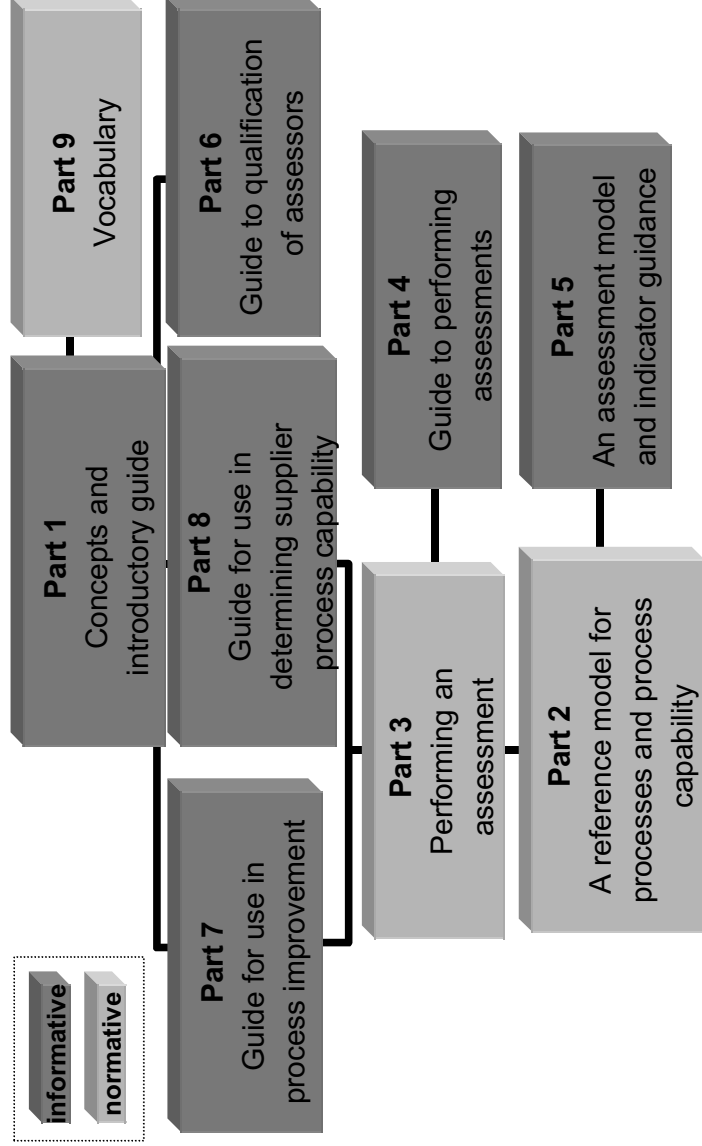 - ➢ create awareness of the new standard by conferences

Sources of Information

BOOTSTRAP

SEI - CMM

Trillium

Reference Model

ISO 12207

etc.

STD

ISO 9001

etc.

ISO TR 15504 documentation

Part 9 — Vocabulary

Part 6 — Guide to qualification of assessors

Part 1 — Concepts and introductory guide

Part 8 — Guide for use in determining supplier process capability

Part 4 — Guide to performing assessments

Part 5 — An assessment model and indicator guidance

Part 7 — Guide for use in process improvement

Part 3 — Performing an assessment

Part 2 — A reference model for processes and process capability
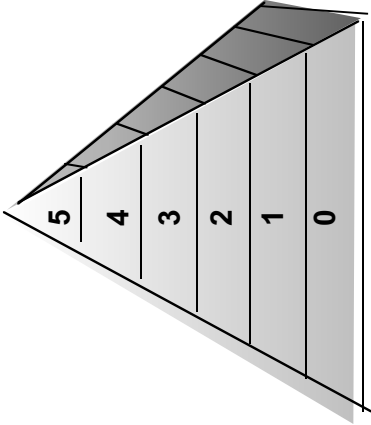
- informative
- normative
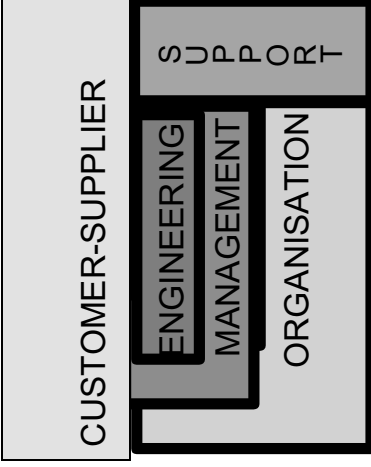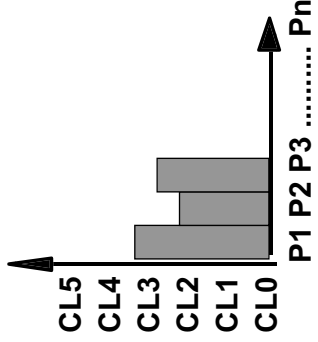
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The SPICE Model

- Two dimensional approach:
  - **Process** - the processes associated with the development and support of software
  - **Capability** - how well they are implemented and managed

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ISO 15504 Reference Model

Each process receives a capability level rating
This is referred to as a Continuous Model

CUSTOMER-SUPPLIER

ENGINEERING

SUPPORT

MANAGEMENT

ORGANISATION

PROCESS DIMENSION
For development and support of software

CL5
CL4
CL3
CL2
CL1
CL0

P1 P2 P3 .... Pn

5
4
3
2
1
0

CAPABILITY DIMENSION
How well they are implemented and managed?

SPICE (ISO/IEC 15504)

PROCESS DIMENSION

Process Categories (5)
Processes (40)

*Indicators of Process **Performance**:*
- Base Practices
- Work Products
- Work Product Characteristics

CAPABILITY DIMENSION

Capability Levels (6)
Process Attributes (9)

*Indicators of Process **Capability**:*
- Management Practices
- Practice Performance Characteristics
- Resource / Infrastructure Characteristics

Source: ISO/IEC TR 15504-5- Part 5: An assessment model and indicator guidance

SPICE Architecture

Attribute Rating Scale
Fully Achieved: (86-100%)
Largely Achieved: (51-85%)
Partially Achieved: (16-50%)
Not Achieved: (0-15%)

CAPABILITY

Level 5: Optimizing
Level 4: Predictable
Level 3: Established
Level 2: Managed
Level 1: Performed

PROCESS

Continuous Improvement
Process Change
Process Control
Measurement
Process Resource
Process Definition
Work Product Management
Performance Management
Process Performance

Process Attributes

Customer Supplier
Engineering
Support
Management
Organization

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Capability Dimension

Optimizing

Predictable

Established

Managed

Performed

Incomplete

5 — Process Change Continuous Improvement

4 — Process Control Process Measurement

3 — Process Resource Process Definition

2 — Performance Management Work Product Management

1 — Process Performance

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SPICE processes (summary)

Customer Supplier - those that impact the customer/ supplier relationship

Engineering - those that specify, implement or maintain a system or software product and its user documentation

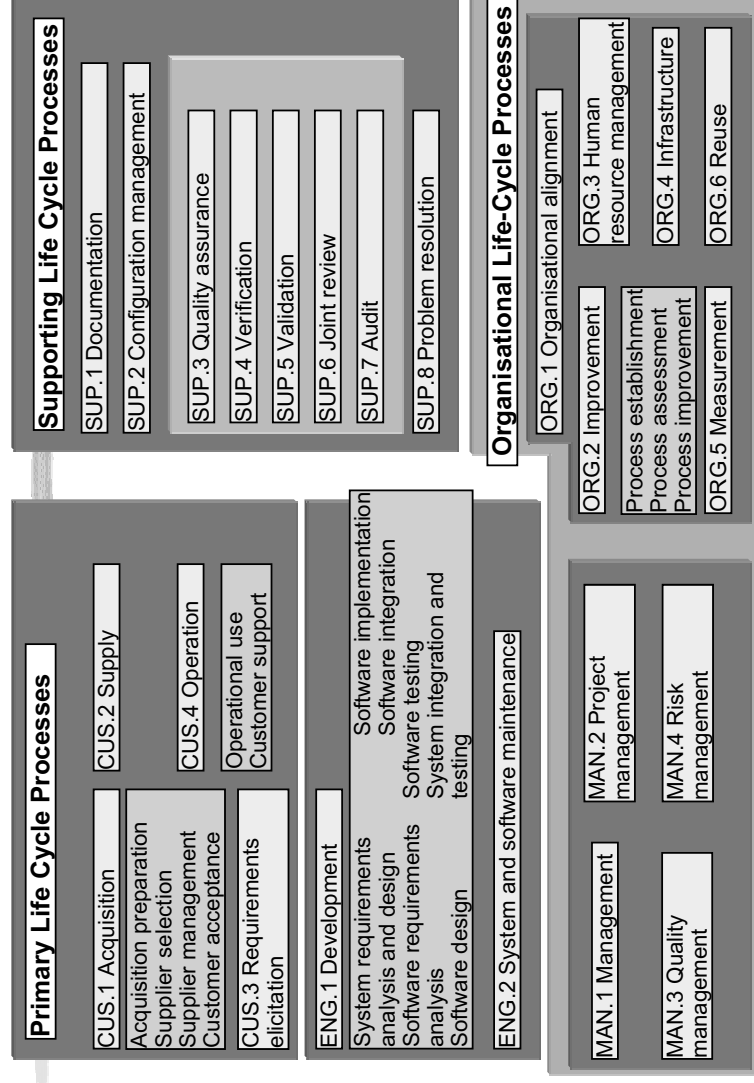**Support** - processes employed by any of the other processes during the Life Cycle

Management - processes used by anyone managing any project or activity within the Life Cycle

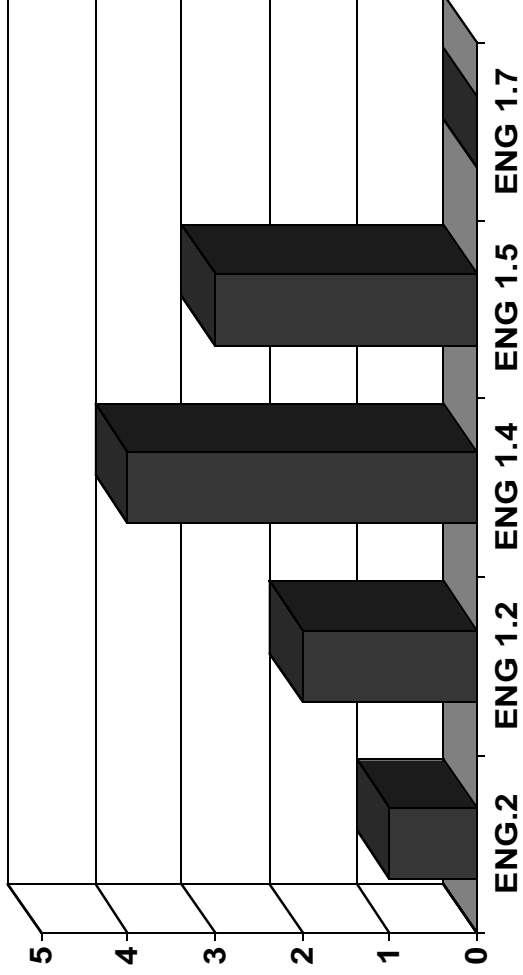**Organisation** - processes that establish the business goals
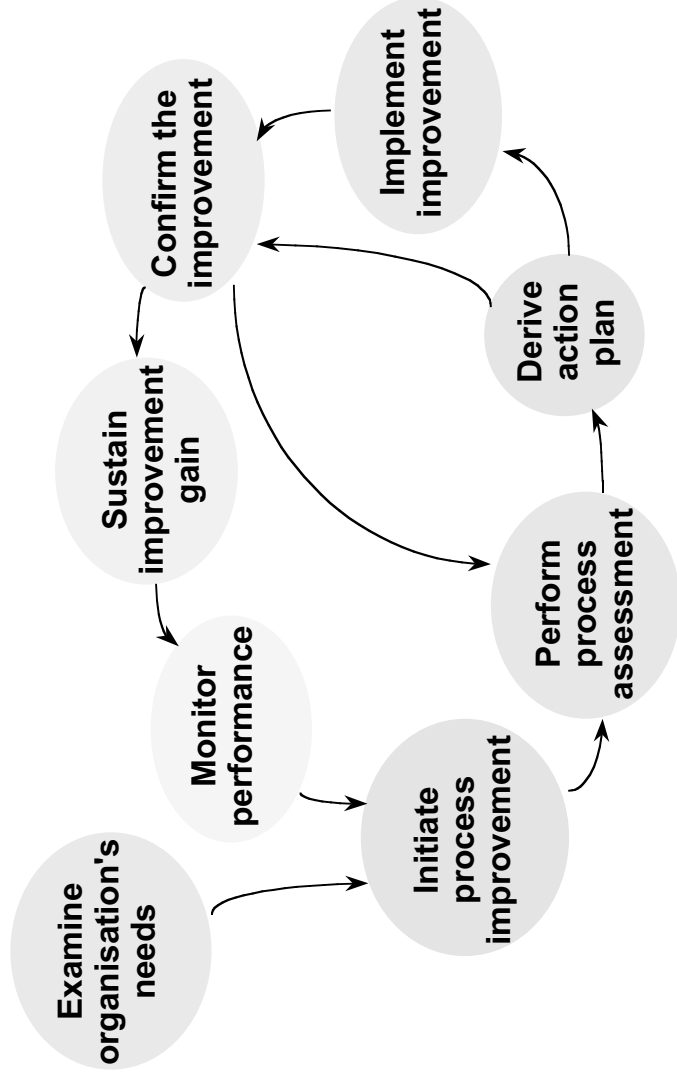
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SPICE structure - Process dimension

Primary Life Cycle Processes

CUS.1 Acquisition
Acquisition preparation
Supplier selection
Supplier management
Customer acceptance

CUS.2 Supply

CUS.3 Requirements elicitation

CUS.4 Operation

Operational use
Customer support

ENG.1 Development
System requirements analysis and design
Software requirements analysis
Software design
Software implementation
Software integration
Software testing
System integration and testing

ENG.2 System and software maintenance

MAN.1 Management

MAN.2 Project management

MAN.3 Quality management

MAN.4 Risk management

Supporting Life Cycle Processes

SUP.1 Documentation
SUP.2 Configuration management
SUP.3 Quality assurance
SUP.4 Verification
SUP.5 Validation
SUP.6 Joint review
SUP.7 Audit
SUP.8 Problem resolution

Organisational Life-Cycle Processes

ORG.1 Organisational alignment
ORG.2 Improvement
Process establishment
Process assessment
Process improvement
ORG.3 Human resource management
ORG.4 Infrastructure
ORG.5 Measurement
ORG.6 Reuse

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Capability Level Profile

5
4
3
2
1
0

ENG.2 ENG 1.2 ENG 1.4 ENG 1.5 ENG 1.7

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Process Improvement Steps

Examine organisation's needs

Initiate process improvement

Monitor performance

Sustain improvement gain

Confirm the improvement

Implement improvement

Derive action plan

Perform process assessment

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Using ISO15504

❖ It provides a set of requirements for performing software process assessment using

➢ A Reference Model for Processes and Process Cap.*(p2)*

➢ Requirements for an assessment *(part 3)*

❖ It also provides additional guidance information to support use of the Standard

❖ In addition, it provides an **Assessment model** conformant to the SPICE Reference Model *(part 5)*

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SPICE Conformant Models
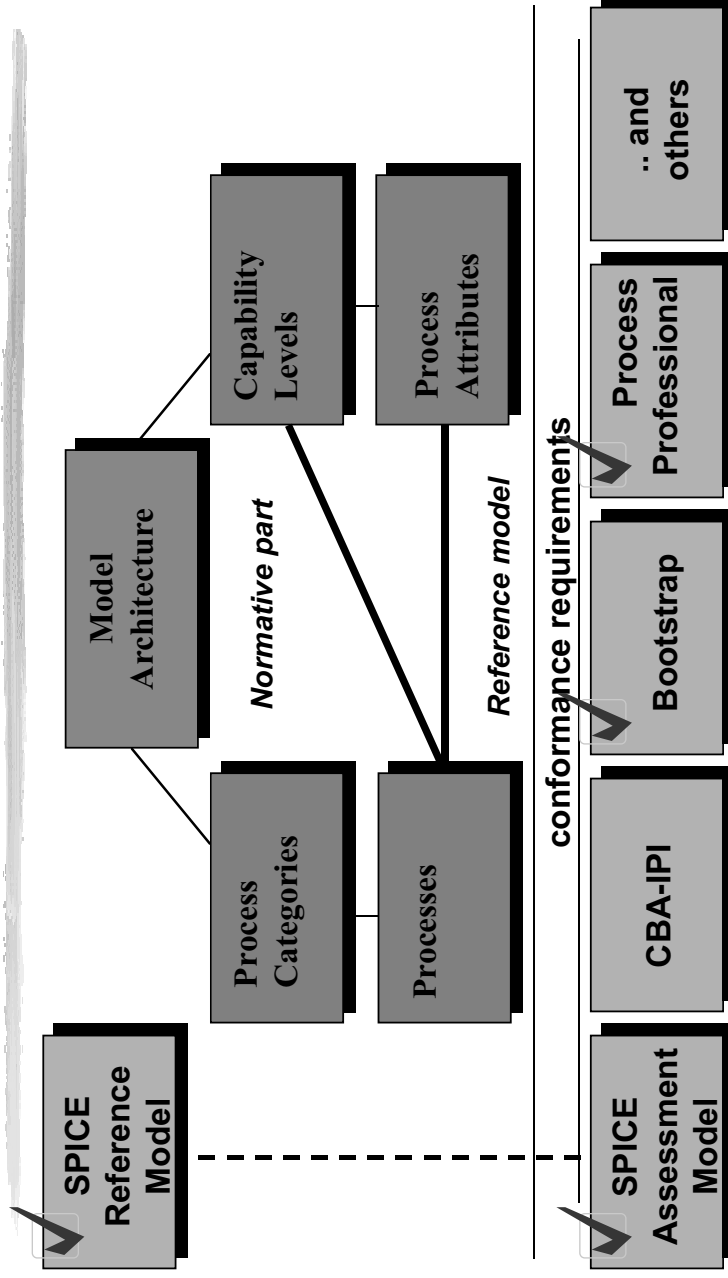
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Fragen

A. Welchen Nutzen können Sie aus einem Prozess-Referenzmodell ziehen?

B. Welchen Nutzen können Sie aus dem SPICE-Verbesserungsprozess ziehen?

C. Was deckt SPICE nicht ab?

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