History, Überblick
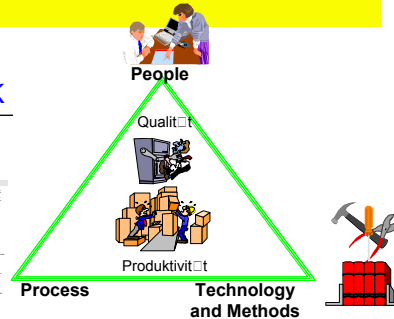# und Struktur von
SPICE/ISO 15504

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People

Qualit t

Produktivit t

Process

**Technology
and Methods**

1

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

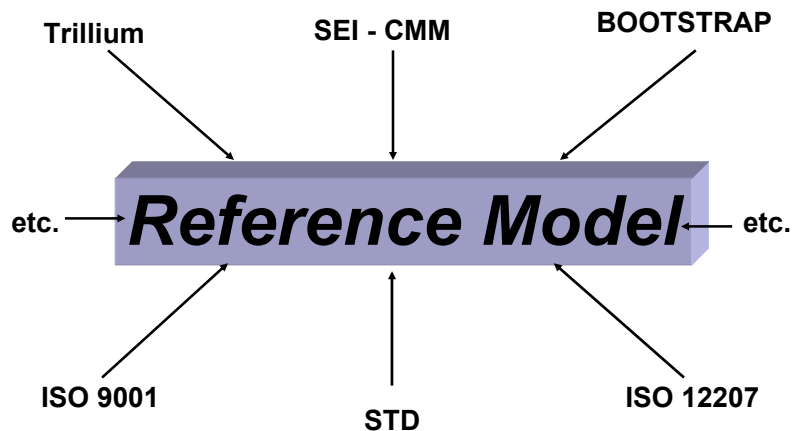currently in transition to full International Standard status!

2

What is SPICE?

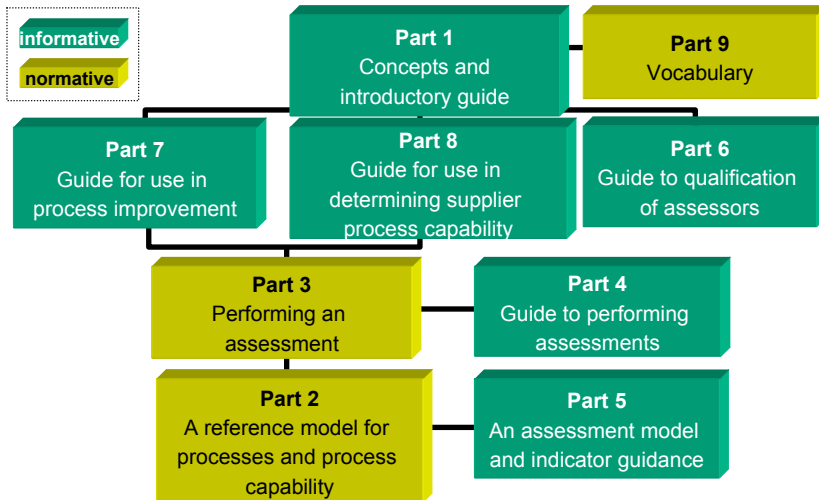❖ SPICE - Software Process Improvement and Capability dEtermination

❖ 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

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Sources of Information

Trillium   SEI - CMM   BOOTSTRAP

etc. → **Reference Model** ← etc.

ISO 9001   STD   ISO 12207

4

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ISO TR 15504 documentation

| informative |
| normative |

Part 1
Concepts and introductory guide

Part 9
Vocabulary

Part 7
Guide for use in process improvement

Part 8
Guide for use in determining supplier process capability

Part 6
Guide to qualification of assessors

Part 3
Performing an assessment

Part 4
Guide to performing assessments

Part 2
A reference model for processes and process capability

Part 5
An assessment model and indicator guidance
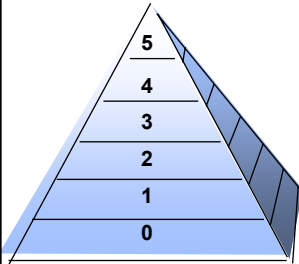
5

The SPICE Model

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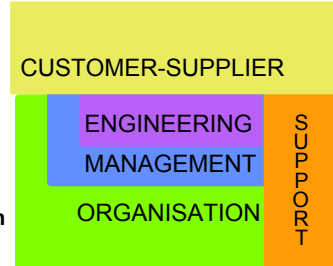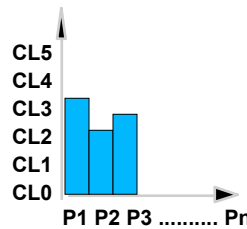 - **Capability** - how well they are implemented and managed

6

ISO 15504 Reference Model

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

```
5
4
3
2
1
0
```

CL5
CL4
CL3
CL2
CL1
CL0

P1 P2 P3 .... Pn

CUSTOMER-SUPPLIER

ENGINEERING

MANAGEMENT

ORGANISATION

S U P P O R T

CAPABILITY DIMENSION
How well they are
implemented and
managed?

PROCESS DIMENSION
For development and
support of software

7

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SPICE (ISO/IEC 15504)

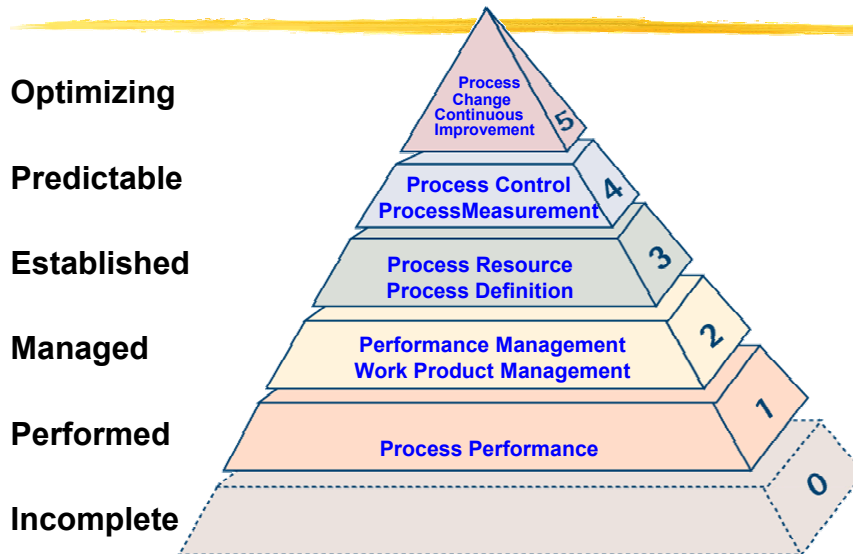| PROCESS DIMENSION	CAPABILITY DIMENSION
Process Categories (5) Processes (40)	**Capability Levels (6)** Process Attributes (9)
*Indicators of Process **Performance**:* • Base Practices • Work Products • Work Product Characteristics	*Indicators of Process **Capability**:* • Management Practices • Practice Performance Characteristics • Resource / Infrastructure Characteristics

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

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SPICE Architecture

CAPABILITY

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

Continuous Improvement
Process Change — Level 5: *Optimizing*

Process Control
Measurement — Level 4: *Predictable*

Process Resource
Process Definition — Level 3: *Established*

Work Product Management
Performance Management — Level 2: *Managed*

Process Performance — Level 1: *Performed*

Process Attributes

PROCESS

Customer Supplier / Engineering / Support / Management / Organization

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Capability Dimension

Optimizing

Predictable

Established

Managed

Performed

Incomplete

Process Change Continuous Improvement — 5

Process Control ProcessMeasurement — 4

Process Resource Process Definition — 3

Performance Management Work Product Management — 2

Process Performance — 1

0

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SPICE processes (summary)

Customer Supplier - those that impact the customer/ supplier relationship
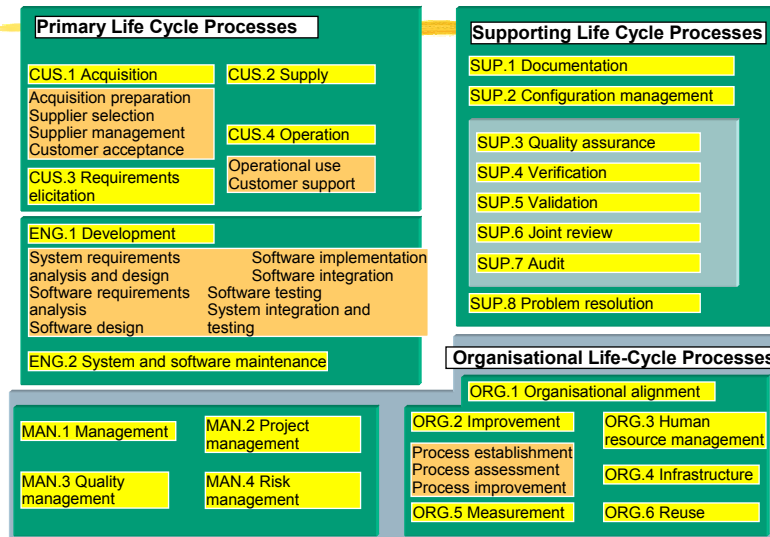
Engineering - those that specify, implement or maintain a system or software product and its user documentation

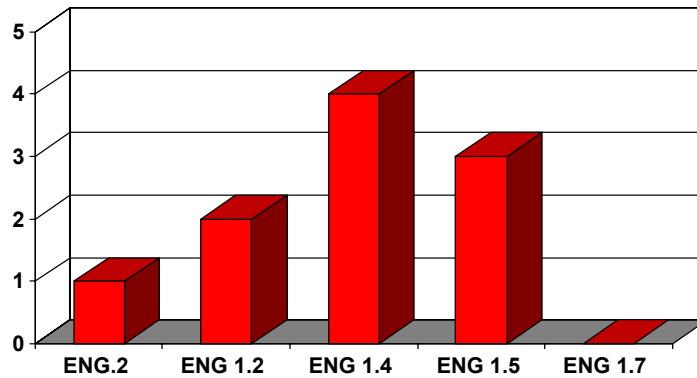**Support** - processes employed by any of the other processes during the Life Cycle

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

Organisation - processes that establish the business goals
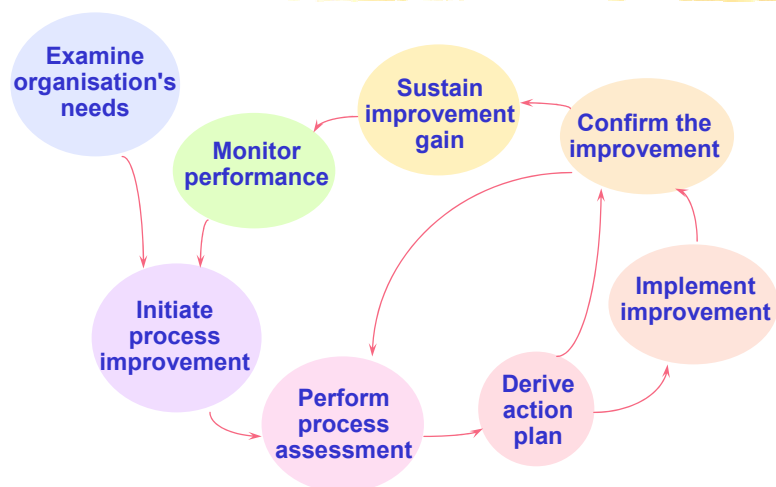

SPICE structure - Process dimension

Primary Life Cycle Processes

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

CUS.3 Requirements elicitation

CUS.2 Supply

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

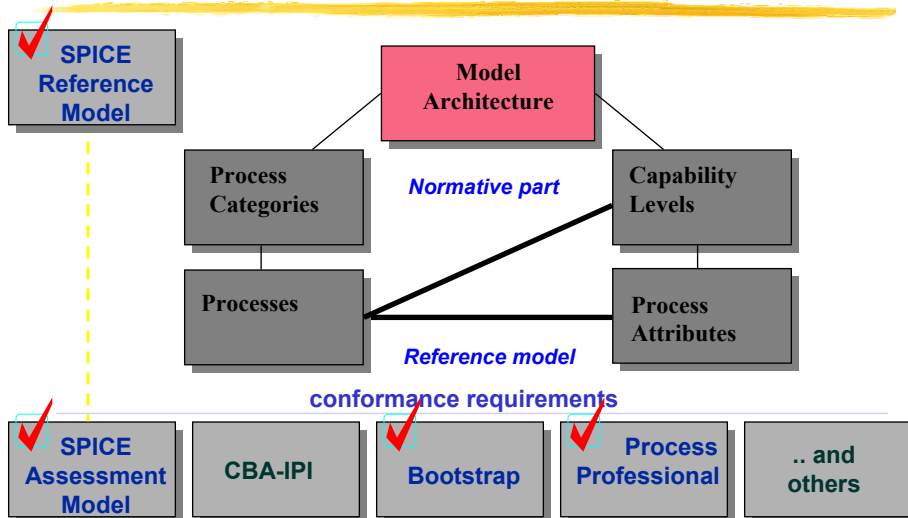ORG.6 Reuse

12

Capability Level Profile

13

Process Improvement Steps

14

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

| SPICE Reference Model |

Model Architecture

Process Categories — *Normative part* — **Capability Levels**

Processes — *Reference model* — **Process Attributes**

conformance requirements

| SPICE Assessment Model | CBA-IPI | Bootstrap | Process Professional | .. and others |

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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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