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ISO/IEC 33000 -sarjan keskeisimmät uudistukset ja muutokset verrattuna ISO/IEC 15504 -sarjaan

Timo Varkoi, Senior Advisor, FiSMA ry
Aiheet

- ISO/IEC 33001, Concepts and terminology
  - Uusia käsitteitä
- ISO/IEC 33003, Requirements for process measurement frameworks
  - Avoin prosessien mittaus
- ISO/IEC 33020, Process measurement framework for assessment of process capability
  - Kyvykkyyden ominaisuuDET päivitetty
- ISO/IEC 33061, Process capability assessment model for software life cycle processes
  - Entinen 15504-5, päivitetty 33020 mukaisesti
  - 12207 prosessimalli
ISO/IEC 33001, Concepts and terminology

**Process measurement framework**
- Process quality level
- Process attributes
- Process attribute outcomes
- Rating scale

**Process assessment model**

**Process reference model**
- Domain and scope
- Process purpose
- Process outcomes

Figure 2 — Process assessment model relationships
FiSMAAn ehdotus (2012)

Product quality

Product quality (sub)characteristics

Product quality attributes

Process quality

Process quality (sub)characteristics

Process quality attributes
ISO/IEC 33001, Concepts and terminology

- process quality
  - ability of a process to satisfy stated and implied stakeholder needs when used in a specified context

- process quality characteristic
  - measurable aspect of process quality; category of process attributes that are significant to process quality
    - NOTE 1  In order to simplify terminology, in terms related to process quality characteristics the term "process quality" is used. In specific contexts, an identifier of the specific process quality characteristic will be used.
    - NOTE 2  Process quality characteristics include properties of processes such as process capability, efficiency, effectiveness, security, integrity and sustainability

- process quality dimension
  - set of elements in a process assessment model explicitly related to the process measurement framework for the specified process quality characteristic
ISO/IEC 33001, Concepts and terminology

- process measurement framework
  - schema for use in characterizing a process quality characteristic of an implemented process
- process quality level
  - point on a scale of achievement of a process quality characteristic derived from the process attribute ratings for an assessed process
- process attribute, process quality attribute
  - measurable property of a process quality characteristic
- process attribute outcome
  - observable result of achievement of a specified process attribute
ISO/IEC 33001, Concepts and terminology

- **organizational process maturity**
  - the extent to which an organizational unit consistently implements processes within a defined scope that contributes to the achievement of its business needs (current or projected)

- **maturity level**
  - point on an ordinal scale of organizational process maturity that characterises the maturity of the organizational unit assessed in the scope of the maturity model used

- **basic maturity level**
  - lowest level of achievement in a scale of organisational process maturity

- **basic process set**
  - set of processes that ensure the achievement of the basic maturity level
ISO/IEC 33001, Concepts and terminology

- lead assessor
  - assessor who has demonstrated the competencies to conduct an assessment and to monitor and verify the conformance of a process assessment

- assessment team
  - one or more individuals who jointly perform a process assessment

- assessor
  - individual who participates in the rating of process attributes

- objective evidence
  - data supporting the existence or verity of something
    - NOTE Objective evidence may be obtained through observation, measurement, test, or other means.
ISO/IEC 33003, Requirements for process measurement frameworks

- **construct**
  - a concept such as the abstract idea, image, underlying theme, or subject matter that one wishes to measure using process assessments
  - NOTE In process measurement frameworks, constructs (also refers to latent constructs) are theoretical concepts such as the process quality characteristics and process attributes.

- **aggregation method**
  - a method that combines a set of measurement values to create a composite value

- **Rating process attributes**
  - a) The process attributes shall be rated;
  - b) A measurement scale, i.e., nominal, ordinal, interval, or ratio, shall be defined for the process attributes;
  - c) A measurement method shall be identified that objectively assigns a value to each process attribute.
ISO/IEC 33003, Requirements for process measurement frameworks
ISO/IEC 33020, Process measurement framework for assessment of process capability

- process capability
  - characterization of the ability of a process to meet current or projected business goals
- process capability level
  - characterization of a process on an ordinal measurement scale of process capability
ISO/IEC 33020, Process capability levels and attributes

- Process capability Level 0: Incomplete process
  - The process is not implemented, or fails to achieve its process purpose.
  - At this level there is little or no evidence of any systematic achievement of the process purpose.

- Process capability Level 1: Performed process
  - The implemented process achieves its process purpose. The following process attribute demonstrates the achievement of this level.

- PA 1.1 Process performance process attribute
  - The process performance process attribute is a measure of the extent to which the process purpose is achieved. As a result of full achievement of this process attribute:
    - a) The process achieves its defined process outcomes.
ISO/IEC 33020, Process capability levels and attributes

- Process capability Level 2: Managed process
  - The previously described Performed process is now implemented in a managed fashion (planned, monitored and adjusted) and its work products are appropriately established, controlled and maintained.
ISO/IEC 33020, Process capability levels and attributes

- **PA 2.1 Performance management process attribute**
  - The performance management process attribute is a measure of the extent to which the performance of the process is managed. As a result of full achievement of this process attribute:
    - a) Objectives for the performance of the process are identified;
    - b) Performance of the process is planned;
    - c) Performance of the process is monitored;
    - d) Performance of the process is adjusted to meet plans;
    - e) Responsibilities and authorities for performing the process are defined, assigned and communicated;
    - f) Personnel performing the process are prepared for executing their responsibilities;
    - g) Resources and information necessary for performing the process are identified, made available, allocated and used;
    - h) Interfaces between the involved parties are managed to ensure both effective communication and clear assignment of responsibility.
ISO/IEC 33020, Process capability levels and attributes

- PA 2.2 Work product management process attribute

  - The work product management process attribute is a measure of the extent to which the work products produced by the process are appropriately managed. As a result of full achievement of this process attribute:
    - a) Requirements for the work products of the process are defined;
    - b) Requirements for documentation and control of the work products are defined;
    - c) Work products are appropriately identified, documented, and controlled;
    - d) Work products are reviewed in accordance with planned arrangements and adjusted as necessary to meet requirements.
ISO/IEC 33020, Process capability levels and attributes

- Process capability Level 3: Established process
  - The previously described Managed process is now implemented using a defined process that is capable of achieving its process outcomes.
ISO/IEC 33020, Process capability levels and attributes

- **PA 3.1 Process definition process attribute**
  - The process definition process attribute is a measure of the extent to which a standard process is maintained to support the deployment of the defined process. As a result of full achievement of this process attribute:
    - a) A standard process, including appropriate tailoring guidelines, is defined and maintained that describes the fundamental elements that must be incorporated into a defined process;
    - b) The sequence and interaction of the standard process with other processes is determined;
    - c) Required competencies and roles for performing the process are identified as part of the standard process;
    - d) Required infrastructure and work environment for performing the process are identified as part of the standard process;
    - e) Suitable methods and measures for monitoring the effectiveness and suitability of the process are determined.
ISO/IEC 33020, Process capability levels and attributes

- **PA 3.2 Process deployment process attribute**
  - The process deployment process attribute is a measure of the extent to which the standard process is deployed as a defined process to achieve its process outcomes. As a result of full achievement of this process attribute:
    - a) A defined process is deployed based upon an appropriately selected and/or tailored standard process;
    - b) Required roles, responsibilities and authorities for performing the defined process are assigned and communicated;
    - c) Personnel performing the defined process are competent on the basis of appropriate education, training, and experience;
    - d) Required resources and information necessary for performing the defined process are made available, allocated and used;
    - e) Required infrastructure and work environment for performing the defined process are made available, managed and maintained;
    - f) Appropriate data are collected and analyzed as a basis for understanding the behaviour of the process, to demonstrate the suitability and effectiveness of the process, and to evaluate where continual improvement of the process can be made.
ISO/IEC 33020, Process capability levels and attributes

- Process capability Level 4: Predictable process
  - The previously described Established process now operates predictively within defined limits to achieve its process outcomes. Quantitative management needs are identified, measurement data are collected and analysed to identify assignable causes of variation. Corrective action is taken to address assignable causes of variation.
ISO/IEC 33020, Process capability levels and attributes

- PA 4.1 Quantitative analysis process attribute
  - The quantitative analysis process attribute is a measure of the extent to which information needs are defined, relationships between process elements are identified and data are collected. As a result of full achievement of this process attribute:
    - a) The process is aligned with quantitative business goals;
    - b) Process information needs in support of relevant defined quantitative business goals are established;
    - c) Process measurement objectives are derived from process information needs;
    - d) Measurable relationships between process elements that contribute to the process performance are identified;
    - e) Quantitative objectives for process performance in support of relevant business goals are established;
    - f) Appropriate measures and frequency of measurement are identified and defined in line with process measurement objectives and quantitative objectives for process performance;
    - g) Results of measurement are collected, validated and reported in order to monitor the extent to which the quantitative objectives for process performance are met.
ISO/IEC 33020, Process capability levels and attributes

- PA 4.2 Quantitative control process attribute
  - The quantitative control process attribute is a measure of the extent to which objective data are used to manage process performance that is predictable. As a result of full achievement of this process attribute:
  - a) Techniques for analysing the collected data are selected;
  - b) Assignable causes of process variation are determined through analysis of the collected data;
  - c) Distributions that characterize the performance of the process are established;
  - d) Corrective actions are taken to address assignable causes of variation;
  - e) Separate distributions are established (as necessary) for analysing the process under the influence of assignable causes of variation.
ISO/IEC 33020, Process capability levels and attributes

- Process capability Level 5: Innovating process
  - The previously described Predictable process is now continually improved to respond to change aligned with organizational goals.
ISO/IEC 33020, Process capability levels and attributes

- **PA 5.1 Process innovation process attribute**
  - The process innovation process attribute is a measure of the extent to which changes to the process are identified from investigations of innovative approaches to the definition and deployment of the process. As a result of full achievement of this process attribute:
  - a) Process innovation objectives are defined that support the relevant business goals;
  - b) Appropriate data are analysed to identify opportunities for innovation;
  - c) Innovation opportunities derived from new technologies and process concepts are identified;
  - d) An implementation strategy is established to achieve the process innovation objectives.
ISO/IEC 33020, Process capability levels and attributes

- **PA 5.2 Process innovation implementation process attribute**
  - The process innovation process implementation attribute is a measure of the extent to which changes to the definition, management and performance of the process achieves the relevant process innovation objectives. As a result of full achievement of this process attribute:
    - a) Impact of all proposed changes is assessed against the objectives of the defined process and standard process;
    - b) Implementation of all agreed changes is managed to ensure that any disruption to the process performance is understood and acted upon;
    - c) Effectiveness of process change on the basis of actual performance is evaluated against the defined product requirements and process objectives.
ISO/IEC 33020, Process attribute rating scales

- A process attribute is measured using an ordinal scale as defined below.
  - N Not achieved 0 to ≤15% achievement
  - P Partially achieved > 15% to ≤50% achievement
  - L Largely achieved > 50% to ≤85% achievement
  - F Fully achieved > 85% to ≤100% achievement

- The ordinal scale may be further refined for the measures P and L as defined below.
  - P- Partially achieved - >15% to ≤32.5% achievement
  - P+ Partially achieved+ >32.5 to ≤50% achievement
  - L- Largely achieved- > 50% to ≤67.5% achievement
  - L+ Largely achieved+ >67.5% to ≤85% achievement
ISO/IEC 33061, Process capability assessment model for software life cycle processes
ISO/IEC 33061 Process Model

Finnish Software Measurement Association

System life cycle processes

Agreement processes (AGR)
AGR.1 Acquisition
AGR.1A Acquisition preparation
AGR.1B Supplier selection
AGR.1C Agreement monitoring
AGR.1D Acquirer acceptance
AGR.2 Supply
AGR.2A Supplier tendering
AGR.2B Contract agreement
AGR.2C Product/service delivery and support
AGR.3 Contract change management

Project processes (PRO)
PRO.1 Project planning
PRO.2 Project assessment and control
PRO.3 Decision management
PRO.4 Risk management
PRO.5 Configuration management
PRO.6 Information management
PRO.7 Measurement

Technical processes (ENG)
ENG.1 Stakeholder requirements definition
ENG.2 System requirements analysis
ENG.3 System architectural design
ENG.4 Software implementation
ENG.5 System integration
ENG.6 Systems qualification testing
ENG.7 Software installation
ENG.8 Software acceptance support
ENG.9 Software operation
ENG.9A Operational use
ENG.9B Customer support
ENG.10 Software maintenance
ENG.11 Software disposal

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Organizational project-enabling processes (ORG)
ORG.1 Life cycle model management
ORG.1A Process establishment
ORG.1B Process assessment
ORG.1C Process improvement
ORG.2 Infrastructure management
ORG.3 Project portfolio management
ORG.4 Human resource management
ORG.4A Skill development
ORG.4B Skill acquisition and provision
ORG.4C Knowledge management
ORG.5 Quality management
ORG.6 Organizational alignment
ORG.7 Organization management

Software implementation processes (DEV)
DEV.1 Software requirements analysis
DEV.2 Software architectural design
DEV.3 Software detailed design
DEV.4 Software construction
DEV.5 Software integration
DEV.6 Software qualification testing

Software support processes (SUP)
SUP.1 Software documentation management
SUP.2 Software configuration management
SUP.3 Software quality assurance
SUP.4 Software verification
SUP.5 Software validation
SUP.6 Software review
SUP.7 Software audit
SUP.8 Software problem resolution

Software reuse processes (REU)
REU.1 Domain engineering
REU.2 Reuse asset management
REU.3 Reuse program management

3.6.2014 SPICE Update
ISO/IEC 33061, Process capability assessment model for software life cycle processes

- In addition to the processes defined in ISO/IEC 12207, this process assessment model contains a further 5 supplementary processes, designed to address specific needs for process assessment.

<table>
<thead>
<tr>
<th>Process identification</th>
<th>Process name</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>QNT.1</td>
<td>Quantitative process improvement</td>
<td>ISO/IEC 15504-7:2008, B.3</td>
</tr>
<tr>
<td>QNT.2</td>
<td>Quantitative performance management</td>
<td>ISO/IEC 15504-7:2008, B.2</td>
</tr>
<tr>
<td>SUP.9</td>
<td>Software change request management</td>
<td>ISO/IEC 15504-5:2013, 5.6.8</td>
</tr>
<tr>
<td>SPL.1D</td>
<td>Product release</td>
<td>ISO/IEC 15504-5:2013, 5.1.9</td>
</tr>
<tr>
<td>SPL.1E</td>
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ISO/IEC 33061, Process capability assessment model for software life cycle processes

- Generic practices for PA.2.1
  - PA.2.1.GP1 Identify the objectives for the performance of the process.
    - NOTE: Performance objectives may include – (1) quality of the artefacts produced, (2) process cycle time or frequency, (3) resource usage and (4) boundaries of the process.
    - Performance objectives are identified based on process requirements.
    - The scope of the process performance is defined.
    - Assumptions and constraints are considered when identifying the performance objectives.
  - PA.2.1.GP2 Plan the performance of the process to fulfil the identified objectives.
    - Plan(s) for the performance of the process are developed. The process performance cycle is defined.
    - Key milestones for the performance of the process are established.
    - Estimates for process performance attributes are determined and maintained.
    - Process activities and tasks are defined.
    - Schedule is defined and aligned with the approach to performing the process.
    - Process work product reviews are planned.
  - …
Kiitokset mielenkiinnosta!

- Kysymyksiä, toiveita?

- Lisätietoja: timo.varkoi@fisma.fi