Evaluation Characteristic

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Discussion

An Evaluation Characteristic identifies a characteristic of a subject selected for measurement, observation, comparison, or evaluation.

A subject can include:

- A Candidate Solution
- A Distributed System
- A Node
- A Node Set
- A Test Item
- A service
- A software component
- A hardware component
- A product
- A technology
- An architecture
- An implementation
- A Configuration
- An Operational Resource
- A process
- An outcome
- Another subject of evaluation

An Evaluation Characteristic can concern:

- Quality
- Functional behavior
- Performance
- Reliability
- Security
- Resource consumption
- Cost
- Compliance
- Risk
- Another observable or measurable property

An Evaluation Characteristic can identify:

- Its identity
- Its name
- Its description
- Its characteristic type

- Its subject
- Its applicable context
- Its applicable measure
- Its measurement method
- Its observation method
- Its comparison method
- Its evaluation method
- Its measurement unit
- Its required precision
- Its permitted tolerance
- Its permitted exclusions
- Its applicable reference value
- Its applicable DIDO Baseline
- Its applicable Validation Criteria
- Its applicable Acceptance Criteria
- Its applicable Governance Policies
- Its Evidence
- Its Provenance
- Its Traceability

An Evaluation Characteristic can be evaluated using:

- A direct measurement
- A derived measurement
- An observation
- A binary determination
- A qualitative classification
- A quantitative comparison
- A statistical comparison
- A structural comparison
- A behavioral comparison
- A temporal comparison
- A semantic comparison
- Another method established by the Acceptance Criteria

Definition

characteristic of a subject selected for measurement, observation, comparison, or evaluation

Source

Adapted from:

- ISO/IEC 25010:2023, Systems and software Quality Requirements and Evaluation (SQuaRE) — Product quality model
- ISO/IEC 25002:2024, Systems and software Quality Requirements and Evaluation (SQuaRE) — Quality model overview and usage

- Candidate Solution
- Test Result
- Validation Criteria
- DIDO Reference Implementation Conceptual Model
- DIDO-TE draft Requirements Register

ISO/IEC 25002 establishes a framework for quality models composed of quality characteristics and subcharacteristics.

ISO/IEC 25010 defines a product-quality model for specifying, measuring, and evaluating ICT and software-product quality.

This definition generalizes the characteristic concept to include quality and non-quality characteristics used by DIDO-TE to evaluate Candidate Solutions and other subjects.

Note

An Evaluation Characteristic differs from a measure:

- An Evaluation Characteristic identifies what is evaluated
- A measure identifies how a value is assigned to the Evaluation Characteristic

An Evaluation Characteristic differs from a measured value:

- An Evaluation Characteristic identifies the property subject to evaluation
- A measured value records the result obtained by applying a measure

An Evaluation Characteristic differs from Validation Criteria:

- An Evaluation Characteristic identifies what is evaluated
- Validation Criteria establish the conditions used to determine whether the evaluation outcome is acceptable

An Evaluation Characteristic differs from Acceptance Criteria:

- An Evaluation Characteristic identifies what is evaluated
- Acceptance Criteria establish the conditions, methods, limits, and evidence used to determine acceptance

The same Evaluation Characteristic can have different:

- Measures
- Measurement units
- Measurement conditions
- Reference values
- Tolerances
- Validation Criteria
- Acceptance Criteria

An Evaluation Characteristic should be sufficiently specific to permit selection of an applicable measurement, observation, comparison, or evaluation method.

Terms such as **better**, **faster**, **more reliable**, and **more efficient** do not identify objectively verifiable outcomes unless the applicable Evaluation Characteristic, method, reference, and comparison rule are established.

A Quality Characteristic is an Evaluation Characteristic concerning the degree to which a subject exhibits a quality property.

Example

An organization uses DIDO-TE to compare three Candidate Solutions.

The applicable Acceptance Criteria select the following Evaluation Characteristics:

- Functional Correctness
- Performance Efficiency
- Reliability
- Energy Consumption
- Cost

Each Evaluation Characteristic has its own measures, measurement conditions, units, precision, tolerances, and comparison rules.

DIDO-TE preserves Traceability among each Candidate Solution, Evaluation Characteristic, measure, Test Result, comparison outcome, and supporting Evidence.
