

Quality Characteristic

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Discussion

A Quality Characteristic is an [Evaluation Characteristic](#) concerning the degree to which a subject exhibits a quality property.

A Quality Characteristic can apply to:

- A [Candidate Solution](#)
- A [Distributed System](#)
- A [Node](#)
- A [Node Set](#)
- A [Test Item](#)
- A software product
- A hardware product
- A service
- A technology
- A process
- A result
- Another evaluation subject

Quality Characteristics can include:

- Functional Correctness
- Performance Efficiency
- Reliability
- Operational Stability
- Security
- Interoperability
- Scalability
- Maintainability
- Recoverability

A Quality Characteristic can be decomposed into more specific Quality Characteristics or quality subcharacteristics.

A Quality Characteristic can identify:

- Its identity
- Its name
- Its description
- Its parent Quality Characteristic
- Its child Quality Characteristics
- Its evaluation subject
- Its applicable context

- Its applicable measures
- Its applicable measurement methods
- Its applicable measurement units
- Its applicable reference values
- Its applicable DIDO [Baselines](#)
- Its applicable [Validation Criteria](#)
- Its applicable [Acceptance Criteria](#)
- Its applicable [Governance Policies](#)
- Its [Evidence](#)
- Its [Provenance](#)
- Its [Traceability](#)

Definition

[Evaluation Characteristic](#) concerning the degree to which a subject exhibits a quality property

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](#)
- [Evaluation Characteristic](#)
- DIDO Reference Implementation Conceptual Model
- DIDO-TE draft Requirements Register

ISO/IEC 25002 describes quality models composed of quality characteristics and subcharacteristics.

ISO/IEC 25010 defines a product-quality model containing characteristics and subcharacteristics applicable to ICT and software products.

This definition places Quality Characteristic within the broader DIDO Evaluation Characteristic model so DIDO-TE can evaluate both quality properties and non-quality characteristics such as cost and resource consumption.

Note

Every Quality Characteristic is an Evaluation Characteristic. An Evaluation Characteristic is not necessarily a Quality Characteristic.

A Quality Characteristic differs from a measure:

- A Quality Characteristic identifies the quality property subject to evaluation

- A measure identifies how a value is assigned to the Quality Characteristic

A Quality Characteristic differs from a quality requirement:

- A Quality Characteristic identifies a quality property
- A quality requirement establishes a normative obligation concerning that quality property

A Quality Characteristic differs from a [Test Result](#):

- A Quality Characteristic identifies what is evaluated
- A Test Result records an outcome produced by [Test Execution](#)

One Test Result can provide information about multiple Quality Characteristics.

Multiple Test Results can contribute to the evaluation of one Quality Characteristic.

A Quality Characteristic does not by itself establish:

- A required value
- A minimum value
- A maximum value
- A preferred direction
- A measurement method
- A permitted tolerance
- An acceptance threshold

The applicable Acceptance Criteria or Validation Criteria establish those constraints.

A higher numerical value does not necessarily indicate better quality. The interpretation depends on the Quality Characteristic and its applicable measure.

For example:

- Higher throughput can indicate greater Performance Efficiency
- Higher response time can indicate lower Performance Efficiency
- Higher failure frequency can indicate lower Reliability
- Higher recovery success can indicate greater Recoverability

Example

A DIDO-TE comparative evaluation selects Reliability as a Quality Characteristic.

The applicable Acceptance Criteria establish:

- The Candidate Solutions subject to evaluation
- The workload
- The Test Environment
- The duration of the evaluation
- The failure conditions
- The Reliability measures
- The required measurement precision

- The comparison method

DIDO-TE produces Test Results used to evaluate Reliability for each Candidate Solution.

Reliability identifies the quality property being evaluated. The Test Results contain the observations and measurements used to evaluate it.

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