# Standard Glossary of Terms Used in Software Testing

# Version 3.0

## Terms Used in the Advanced Level - Test Manager Syllabus

International Software Testing Qualifications Board




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# ISTQB Glossary Report - Advanced Test Manager

### acceptance criteria

**Ref:** IEEE 610

The exit criteria that a component or system must satisfy in order to be accepted by a user, customer, or other authorized entity.

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### acceptance testing

**Ref:** After IEEE 610 **See Also:** user acceptance testing

Formal testing with respect to user needs, requirements, and business processes conducted to determine whether or not a system satisfies the acceptance criteria and to enable the user, customers or other authorized entity to determine whether or not to accept the system.

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### accuracy

**Ref:** ISO 9126 **See Also:** functionality

The capability of the software product to provide the right or agreed results or effects with the needed degree of precision.

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### actual result

**Synonyms:** actual outcome

The behavior produced/observed when a component or system is tested.

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### anomaly

**Ref:** IEEE 1044 **See Also:** defect, error, fault, failure, incident, problem

Any condition that deviates from expectation based on requirements specifications, design documents, user documents, standards, etc., or from someone's perception or experience. Anomalies may be found during, but not limited to, reviewing, testing, analysis, compilation, or use of software.

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### audit

**Ref:** IEEE 1028

An independent evaluation of software products or processes to ascertain compliance to standards, guidelines, specifications, and/or procedures based on objective criteria, including documents that specify: (1) the form or content of the products to be produced, (2) the process by which the products shall be produced, (3) how compliance to standards or guidelines shall be measured.

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### availability

**Ref:** IEEE 610

The degree to which a component or system is operational and accessible when required for use. Often expressed as a percentage.

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### best practice

A superior method or innovative practice that contributes to the improved performance of an organization under given context, usually recognized as "best" by other peer organizations.

### black-box testing

**Synonyms:** specification-based testing

Testing, either functional or non-functional, without reference to the internal structure of the component or system.

### branch coverage

The percentage of branches that have been exercised by a test suite. 100% branch coverage implies both 100% decision coverage and 100% statement coverage.

### build verification test (BVT)

**See Also:** regression testing, smoke test

A set of automated tests which validates the integrity of each new build and verifies its key/core functionality, stability and testability. It is an industry practice when a high frequency of build releases occurs (e.g., Agile projects) and it is run on every new build before the build is released for further testing.

### Capability Maturity Model Integration (CMMI)

**Ref:** CMMI

A framework that describes the key elements of an effective product development and maintenance process. The Capability Maturity Model Integration covers best-practices for planning, engineering and managing product development and maintenance.

### cause-effect graph

A graphical representation of inputs and/or stimuli (causes) with their associated outputs (effects), which can be used to design test cases.

### cause-effect graphing

**Ref:** BS 7925/2

**Synonyms:** cause-effect analysis

A black-box test design technique in which test cases are designed from cause-effect graphs.

### certification

The process of confirming that a component, system or person complies with its specified requirements, e.g., by passing an exam.

### change management

**See Also:** configuration management

(1) A structured approach to transitioning individuals, and organizations from a current state to a desired future state. (2) Controlled way to effect a change, or a proposed change, to a product or service.

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### code

**Ref:** IEEE 610

Computer instructions and data definitions expressed in a programming language or in a form output by an assembler, compiler or other translator.

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### code coverage

An analysis method that determines which parts of the software have been executed (covered) by the test suite and which parts have not been executed, e.g., statement coverage, decision coverage or condition coverage.

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### complexity

**See Also:** cyclomatic complexity

The degree to which a component or system has a design and/or internal structure that is difficult to understand, maintain and verify.

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### compliance

**Ref:** ISO 9126

The capability of the software product to adhere to standards, conventions or regulations in laws and similar prescriptions.

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### component

**Synonyms:** module, unit

A minimal software item that can be tested in isolation.

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### component integration testing

**Synonyms:** link testing

Testing performed to expose defects in the interfaces and interaction between integrated components.

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### component testing

**Ref:** After IEEE 610

**Synonyms:** module testing, program testing, unit testing

The testing of individual software components.

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### condition

**See Also:** condition testing

**Synonyms:** branch condition

A logical expression that can be evaluated as True or False, e.g., A>B.

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### configuration

The composition of a component or system as defined by the number, nature, and interconnections of its constituent parts.

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### configuration control

**Ref:** IEEE 610

**Synonyms:** change control, version control

An element of configuration management, consisting of the evaluation, coordination, approval or disapproval, and implementation of changes to configuration items after formal establishment of their configuration identification.

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### configuration management

**Ref:** IEEE 610

A discipline applying technical and administrative direction and surveillance to identify and document the functional and physical characteristics of a configuration item, control changes to those characteristics, record and report change processing and implementation status, and verify compliance with specified requirements.

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### confirmation testing

**Synonyms:** re-testing

Testing that runs test cases that failed the last time they were run, in order to verify the success of corrective actions.

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### content-based model

**Synonyms:** content reference model

A process model providing a detailed description of good engineering practices, e.g., test practices.

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### cost of quality

The total costs incurred on quality activities and issues and often split into prevention costs, appraisal costs, internal failure costs and external failure costs.

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### coverage

**Synonyms:** test coverage

The degree, expressed as a percentage, to which a specified coverage item has been exercised by a test suite.

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### coverage tool

**Synonyms:** coverage measurement tool

A tool that provides objective measures of what structural elements, e.g., statements, branches have been exercised by a test suite.

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### critical success factor

An element necessary for an organization or project to achieve its mission. Critical success factors are the critical factors or activities required for ensuring the success.

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### Critical Testing Processes (CTP)

**See Also:** content-based model

A content-based model for test process improvement built around twelve critical processes. These include highly visible processes, by which peers and management judge competence and mission-critical processes in which performance affects the company's profits and reputation.

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### custom tool

A software tool developed specifically for a set of users or customers.

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### debugging

The process of finding, analyzing and removing the causes of failures in software.

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### decision

A program point at which the control flow has two or more alternative routes. A node with two or more links to separate branches.

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### decision table

**Synonyms:** cause-effect decision table

A table showing combinations of inputs and/or stimuli (causes) with their associated outputs and/or actions (effects), which can be used to design test cases.

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### defect

**Synonyms:** bug, fault, problem

A flaw in a component or system that can cause the component or system to fail to perform its required function, e.g., an incorrect statement or data definition. A defect, if encountered during execution, may cause a failure of the component or system.

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### defect density

**Synonyms:** fault density

The number of defects identified in a component or system divided by the size of the component or system (expressed in standard measurement terms, e.g., lines-of-code, number of classes or function points).

### defect management

**Ref:** After IEEE 1044

**Synonyms:** problem management

The process of recognizing, investigating, taking action and disposing of defects. It involves recording defects, classifying them and identifying the impact.

### defect management committee

**Synonyms:** defect triage committee

A cross-functional team of stakeholders who manage reported defects from initial detection to ultimate resolution (defect removal, defect deferral, or report cancellation). In some cases, the same team as the configuration control board.

### defect management tool

**See Also:** incident management tool

**Synonyms:** bug tracking tool, defect tracking tool

A tool that facilitates the recording and status tracking of defects and changes. They often have workflow-oriented facilities to track and control the allocation, correction and re-testing of defects and provide reporting facilities.

### defect report

**Ref:** After IEEE 829

**Synonyms:** bug report, problem report

A document reporting on any flaw in a component or system that can cause the component or system to fail to perform its required function.

### defect taxonomy

**Synonyms:** bug taxonomy

A system of (hierarchical) categories designed to be a useful aid for reproducibly classifying defects.

### defect-based test design technique

**See Also:** defect taxonomy

**Synonyms:** defect-based technique

A procedure to derive and/or select test cases targeted at one or more defect types, with tests being developed from what is known about the specific defect type.

### deliverable

Any (work) product that must be delivered to someone other than the (work) product's author.

### domain

The set from which valid input and/or output values can be selected.

### dynamic testing

Testing that involves the execution of the software of a component or system.

### effectiveness

**See Also:** efficiency

The capability of producing an intended result.

### efficiency

**Ref:** ISO 9126

(1) The capability of the software product to provide appropriate performance, relative to the amount of resources used under stated conditions. (2) The capability of a process to produce the intended outcome, relative to the amount of resources used.

### entry criteria

**Ref:** Gilb and Graham

The set of generic and specific conditions for permitting a process to go forward with a defined task, e.g., test phase. The purpose of entry criteria is to prevent a task from starting which would entail more (wasted) effort compared to the effort needed to remove the failed entry criteria.

### equivalence partitioning

**Synonyms:** partition testing

A black-box test design technique in which test cases are designed to execute representatives from equivalence partitions. In principle, test cases are designed to cover each partition at least once.

### error

**Ref:** After IEEE 610

**Synonyms:** mistake

A human action that produces an incorrect result.

### escaped defect

**See Also:** Defect Detection Percentage

A defect that was not detected in a previous test level which is supposed to find such type of defects.

### exercised

A program element is said to be exercised by a test case when the input value causes the execution of that element, such as a statement, decision, or other structural element.

### exit criteria

**Ref:** After Gilb and Graham

**Synonyms:** completion criteria, test completion criteria

The set of generic and specific conditions, agreed upon with the stakeholders for permitting a process to be officially completed. The purpose of exit criteria is to prevent a task from being considered completed when there are still outstanding parts of the task which have not been finished. Exit criteria are used to report against and to plan when to stop testing.

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### expected result

**Synonyms:** expected outcome, predicted outcome

The behavior predicted by the specification, or another source, of the component or system under specified conditions.

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### experience-based testing

Testing based on the tester's experience, knowledge and intuition.

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### exploratory testing

**Ref:** After Bach

An informal test design technique where the tester actively controls the design of the tests as those tests are performed and uses information gained while testing to design new and better tests.

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### Extreme Programming (XP)

**See Also:** Agile software development

A software engineering methodology used within Agile software development whereby core practices are programming in pairs, doing extensive code review, unit testing of all code, and simplicity and clarity in code.

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### fail

**Synonyms:** test fail

A test is deemed to fail if its actual result does not match its expected result.

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### failure

**Ref:** After Fenton

Deviation of the component or system from its expected delivery, service or result.

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### Failure Mode and Effect Analysis (FMEA)

**See Also:** Failure Mode, Effect and Criticality Analysis

**Synonyms:** Software Failure Mode and Effect Analysis

A systematic approach to risk identification and analysis of identifying possible modes of failure and attempting to prevent their occurrence.

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### false-negative result

**Synonyms:** false-pass result

A test result which fails to identify the presence of a defect that is actually present in the test object.

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### false-positive result

**Synonyms:** false-fail result

A test result in which a defect is reported although no such defect actually exists in the test object.

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### fault attack

**See Also:** negative testing

**Synonyms:** attack

Directed and focused attempt to evaluate the quality, especially reliability, of a test object by attempting to force specific failures to occur.

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### Fault Tree Analysis (FTA)

**Synonyms:** Software Fault Tree Analysis

A technique used to analyze the causes of faults (defects). The technique visually models how logical relationships between failures, human errors, and external events can combine to cause specific faults to disclose.

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### feature

**Ref:** After IEEE 1008

**Synonyms:** software feature

An attribute of a component or system specified or implied by requirements documentation (for example reliability, usability or design constraints).

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### formal review

A review characterized by documented procedures and requirements, e.g., inspection.

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### functional requirement

**Ref:** IEEE 610

A requirement that specifies a function that a component or system must perform.

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### functionality

**Ref:** ISO 9126

The capability of the software product to provide functions which meet stated and implied needs when the software is used under specified conditions.

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### hardware-software integration testing

**See Also:** integration testing

Testing performed to expose defects in the interfaces and interaction between hardware and software components.

### hazard analysis

**See Also:** risk analysis

A technique used to characterize the elements of risk. The result of a hazard analysis will drive the methods used for development and testing of a system.

### horizontal traceability

The tracing of requirements for a test level through the layers of test documentation (e.g., test plan, test design specification, test case specification and test procedure specification or test script).

### IDEAL

An organizational improvement model that serves as a roadmap for initiating, planning, and implementing improvement actions. The IDEAL model is named for the five phases it describes: initiating, diagnosing, establishing, acting, and learning.

### independence of testing

**Ref:** After DO-178b

Separation of responsibilities, which encourages the accomplishment of objective testing.

### informal review

A review not based on a formal (documented) procedure.

### input

A variable (whether stored within a component or outside) that is read by a component.

### insourced testing

Testing performed by people who are co-located with the project team but are not fellow employees.

### inspection

**Ref:** After IEEE 610, IEEE 1028 **See Also:** peer review

A type of peer review that relies on visual examination of documents to detect defects, e.g., violations of development standards and non-conformance to higher level documentation. The most formal review technique and therefore always based on a documented procedure.

### integration

The process of combining components or systems into larger assemblies.

### integration testing

**See Also:** component integration testing, system integration testing

Testing performed to expose defects in the interfaces and in the interactions between integrated components or systems.

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### interoperability

**Ref:** After ISO 9126 **See Also:** functionality

The capability of the software product to interact with one or more specified components or systems.

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### interoperability testing

**See Also:** functionality testing

**Synonyms:** compatibility testing

Testing to determine the interoperability of a software product.

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### level test plan

**See Also:** test plan

A test plan that typically addresses one test level.

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### lifecycle model

**Ref:** CMMI **See Also:** software lifecycle

A partitioning of the life of a product or project into phases.

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### low-level test case

**See Also:** high-level test case

**Synonyms:** concrete test case

A test case with concrete (implementation level) values for input data and expected results. Logical operators from high-level test cases are replaced by actual values that correspond to the objectives of the logical operators.

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### maintainability

**Ref:** ISO 9126

The ease with which a software product can be modified to correct defects, modified to meet new requirements, modified to make future maintenance easier, or adapted to a changed environment.

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### maintenance

**Ref:** IEEE 1219

Modification of a software product after delivery to correct defects, to improve performance or other attributes, or to adapt the product to a modified environment.

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### maintenance testing

Testing the changes to an operational system or the impact of a changed environment to an operational system.

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**management review**

**Ref:** After IEEE 610, IEEE 1028

A systematic evaluation of software acquisition, supply, development, operation, or maintenance process, performed by or on behalf of management that monitors progress, determines the status of plans and schedules, confirms requirements and their system allocation, or evaluates the effectiveness of management approaches to achieve fitness for purpose.

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**master test plan**

**See Also:** test plan

A test plan that typically addresses multiple test levels.

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**maturity**

**Ref:** ISO 9126 **See Also:** Capability Maturity Model Integration, Test Maturity Model integration, reliability

(1) The capability of an organization with respect to the effectiveness and efficiency of its processes and work practices. (2) The capability of the software product to avoid failure as a result of defects in the software.

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**maturity level**

**Ref:** TMMi

Degree of process improvement across a predefined set of process areas in which all goals in the set are attained.

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**maturity model**

A structured collection of elements that describe certain aspects of maturity in an organization, and aid in the definition and understanding of an organization's processes. A maturity model often provides a common language, shared vision and framework for prioritizing improvement actions.

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**mean time between failures (MTBF)**

**See Also:** reliability growth model

The arithmetic mean (average) time between failures of a system. The MTBF is typically part of a reliability growth model that assumes the failed system is immediately repaired, as a part of a defect fixing process.

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**measure**

**Ref:** ISO 14598

The number or category assigned to an attribute of an entity by making a measurement.

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**measurement**

**Ref:** ISO 14598

The process of assigning a number or category to an entity to describe an attribute of that entity.

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**metric**

**Ref:** ISO 14598

A measurement scale and the method used for measurement.

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**milestone**

A point in time in a project at which defined (intermediate) deliverables and results should be ready.

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**moderator**

**Synonyms:** inspection leader

The leader and main person responsible for an inspection or other review process.

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**non-functional requirement**

A requirement that does not relate to functionality, but to attributes such as reliability, efficiency, usability, maintainability and portability.

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**non-functional testing**

Testing the attributes of a component or system that do not relate to functionality, e.g., reliability, efficiency, usability, maintainability and portability.

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**open source tool**

A software tool that is available to all potential users in source code form, usually via the internet. Its users are permitted, usually under license, to study, change, improve and, at times, to distribute the software.

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**operational profile**

The representation of a distinct set of tasks performed by the component or system, possibly based on user behavior when interacting with the component or system, and their probabilities of occurrence. A task is logical rather that physical and can be executed over several machines or be executed in non-contiguous time segments.

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**operational profiling**

**See Also:** operational profile

The process of developing and implementing an operational profile.

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**output**

A variable (whether stored within a component or outside) that is written by a component.

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**outsourced testing**

Testing performed by people who are not co-located with the project team and are not fellow employees.

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**pairwise testing**

**See Also:** combinatorial testing, n-wise testing, orthogonal array testing

A black-box test design technique in which test cases are designed to execute all possible discrete combinations of each pair of input parameters.

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**Pareto analysis**

A statistical technique in decision making that is used for selection of a limited number of factors that produce significant overall effect. In terms of quality improvement, a large majority of problems (80%) are produced by a few key causes (20%).

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**pass**

**Synonyms:** test pass

A test is deemed to pass if its actual result matches its expected result.

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**path**

**Synonyms:** control flow path

A sequence of events, e.g., executable statements, of a component or system from an entry point to an exit point.

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**performance**

**Ref:** After IEEE 610 **See Also:** efficiency

**Synonyms:** time behavior

The degree to which a system or component accomplishes its designated functions within given constraints regarding processing time and throughput rate.

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**performance testing**

**See Also:** efficiency testing

Testing to determine the performance of a software product.

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**phase containment**

The percentage of defects that are removed in the same phase of the software lifecycle in which they were introduced.

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**phase test plan**

**See Also:** test plan

A test plan that typically addresses one test phase.

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**predicate**

**See Also:** decision

A statement that can evaluate to true or false and may be used to determine the control flow of subsequent decision logic.

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**priority**

The level of (business) importance assigned to an item, e.g., defect.

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**PRISMA**

A systematic approach to risk-based testing that employs product risk identification and analysis to create a product risk matrix based on likelihood and impact. Term is derived from Product RISk MAnagement.

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**process**

**Ref:** ISO 12207

A set of interrelated activities, which transform inputs into outputs.

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**process assessment**

**Ref:** after ISO 15504

A disciplined evaluation of an organization's software processes against a reference model.

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**process improvement**

**Ref:** CMMI

A program of activities designed to improve the performance and maturity of the organization's processes, and the result of such a program.

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**process model**

A framework wherein processes of the same nature are classified into a overall model, e.g., a test improvement model.

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**process reference model**

A process model providing a generic body of best practices and how to improve a process in a prescribed step-by-step manner.

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**product risk**

**See Also:** risk

A risk directly related to the test object.

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### project

**Ref:** ISO 9000

A project is a unique set of coordinated and controlled activities with start and finish dates undertaken to achieve an objective conforming to specific requirements, including the constraints of time, cost and resources.

### project retrospective

A structured way to capture lessons learned and to create specific action plans for improving on the next project or next project phase.

### project risk

**See Also:** risk

A risk related to management and control of the (test) project, e.g., lack of staffing, strict deadlines, changing requirements, etc.

### qualification

**Ref:** ISO 9000

The process of demonstrating the ability to fulfill specified requirements. Note the term "qualified" is used to designate the corresponding status.

### quality

**Ref:** After IEEE 610

The degree to which a component, system or process meets specified requirements and/or user/customer needs and expectations.

### quality assurance

**Ref:** ISO 9000

Part of quality management focused on providing confidence that quality requirements will be fulfilled.

### quality attribute

**Ref:** IEEE 610

**Synonyms:** quality characteristic, software product characteristic, software quality characteristic

A feature or characteristic that affects an item's quality.

### quality function deployment (QFD)

**Ref:** Akao

A method to transform user demands into design quality, to deploy the functions forming quality, and to deploy methods for achieving the design quality into subsystems and component parts, and ultimately to specific elements of the manufacturing process.

**quality risk**

**See Also:** quality attribute, product risk

A product risk related to a quality attribute.

**Rational Unified Process (RUP)**

A proprietary adaptable iterative software development process framework consisting of four project lifecycle phases: inception, elaboration, construction and transition.

**regression testing**

Testing of a previously tested program following modification to ensure that defects have not been introduced or uncovered in unchanged areas of the software, as a result of the changes made. It is performed when the software or its environment is changed.

**regression-averse testing**

Testing using various techniques to manage the risk of regression, e.g., by designing re-usable testware and by extensive automation of testing at one or more test levels.

**reliability**

**Ref:** ISO 9126

The ability of the software product to perform its required functions under stated conditions for a specified period of time, or for a specified number of operations.

**requirement**

**Ref:** After IEEE 610

A condition or capability needed by a user to solve a problem or achieve an objective that must be met or possessed by a system or system component to satisfy a contract, standard, specification, or other formally imposed document.

**requirements phase**

**Ref:** IEEE 610

The period of time in the software lifecycle during which the requirements for a software product are defined and documented.

**requirements-based testing**

An approach to testing in which test cases are designed based on test objectives and test conditions derived from requirements, e.g., tests that exercise specific functions or probe non-functional attributes such as reliability or usability.

**result**

**See Also:** actual result, expected result

**Synonyms:** outcome, test outcome, test result

The consequence/outcome of the execution of a test. It includes outputs to screens, changes to data, reports, and communication messages sent out.

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### retrospective meeting

**Synonyms:** post-project meeting

A meeting at the end of a project during which the project team members evaluate the project and learn lessons that can be applied to the next project.

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### review

**Ref:** After IEEE 1028

An evaluation of a product or project status to ascertain discrepancies from planned results and to recommend improvements. Examples include management review, informal review, technical review, inspection, and walkthrough.

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### review plan

A document describing the approach, resources and schedule of intended review activities. It identifies, amongst others: documents and code to be reviewed, review types to be used, participants, as well as entry and exit criteria to be applied in case of formal reviews, and the rationale for their choice. It is a record of the review planning process.

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### review tool

A tool that provides support to the review process. Typical features include review planning and tracking support, communication support, collaborative reviews and a repository for collecting and reporting of metrics.

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### reviewer

**Synonyms:** checker, inspector

The person involved in the review that identifies and describes anomalies in the product or project under review. Reviewers can be chosen to represent different viewpoints and roles in the review process.

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### risk

A factor that could result in future negative consequences.

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### risk analysis

The process of assessing identified project or product risks to determine their level of risk, typically by estimating their impact and probability of occurrence (likelihood).

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### risk assessment

**See Also:** product risk, project risk, risk, risk impact, risk level, risk likelihood

The process of identifying and subsequently analyzing the identified project or product risk to determine its level of risk, typically by assigning likelihood and impact ratings.

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**risk identification**

The process of identifying risks using techniques such as brainstorming, checklists and failure history.

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**risk level**

The importance of a risk as defined by its characteristics impact and likelihood. The level of risk can be used to determine the intensity of testing to be performed. A risk level can be expressed either qualitatively (e.g., high, medium, low) or quantitatively.

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**risk management**

Systematic application of procedures and practices to the tasks of identifying, analyzing, prioritizing, and controlling risk.

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**risk mitigation**

**Synonyms:** risk control

The process through which decisions are reached and protective measures are implemented for reducing risks to, or maintaining risks within, specified levels.

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**risk type**

**Synonyms:** risk category

A set of risks grouped by one or more common factors such as a quality attribute, cause, location, or potential effect of risk. A specific set of product risk types is related to the type of testing that can mitigate (control) that risk type. For example

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**risk-based testing**

An approach to testing to reduce the level of product risks and inform stakeholders of their status, starting in the initial stages of a project. It involves the identification of product risks and the use of risk levels to guide the test process.

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**root cause**

**Ref:** CMMI

A source of a defect such that if it is removed, the occurrence of the defect type is decreased or removed.

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**root cause analysis**

An analysis technique aimed at identifying the root causes of defects. By directing corrective measures at root causes, it is hoped that the likelihood of defect recurrence will be minimized.

### safety

**Ref:** ISO 9126

The capability of the software product to achieve acceptable levels of risk of harm to people, business, software, property or the environment in a specified context of use.

### scalability

**Ref:** After Gerrard

The capability of the software product to be upgraded to accommodate increased loads.

### scrum

**See Also:** Agile software development

An iterative incremental framework for managing projects commonly used with Agile software development.

### security

**Ref:** ISO 9126 **See Also:** functionality

Attributes of software products that bear on its ability to prevent unauthorized access, whether accidental or deliberate, to programs and data.

### security testing

**See Also:** functionality testing

Testing to determine the security of the software product.

### severity

**Ref:** After IEEE 610

The degree of impact that a defect has on the development or operation of a component or system.

### software

**Ref:** IEEE 610

Computer programs, procedures, and possibly associated documentation and data pertaining to the operation of a computer system.

### software process improvement (SPI)

**Ref:** After CMMI

A program of activities designed to improve the performance and maturity of the organization's software processes and the results of such a program.

### software quality

**Ref:** After ISO 9126 **See Also:** quality

The totality of functionality and features of a software product that bear on its ability to satisfy

stated or implied needs.

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**specification**

**Ref:** After IEEE 610

A document that specifies, ideally in a complete, precise and verifiable manner, the requirements, design, behavior, or other characteristics of a component or system, and, often, the procedures for determining whether these provisions have been satisfied.

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**stability**

**Ref:** ISO 9126 **See Also:** maintainability

The capability of the software product to avoid unexpected effects from modifications in the software.

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**standard**

**Ref:** After CMMI

Formal, possibly mandatory, set of requirements developed and used to prescribe consistent approaches to the way of working or to provide guidelines (e.g., ISO/IEC standards, IEEE standards, and organizational standards).

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**statement**

**Synonyms:** source statement

An entity in a programming language, which is typically the smallest indivisible unit of execution.

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**static analysis**

Analysis of software development artifacts, e.g., requirements or code, carried out without execution of these software development artifacts. Static analysis is usually carried out by means of a supporting tool.

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**static code analysis**

Analysis of source code carried out without execution of that software.

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**static testing**

Testing of a software development artifact, e.g., requirements, design or code, without execution of these artifacts, e.g., reviews or static analysis.

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**structural coverage**

Coverage measures based on the internal structure of a component or system.

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**suitability**

**Ref:** ISO 9126 **See Also:** functionality

The capability of the software product to provide an appropriate set of functions for specified

tasks and user objectives.

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**system**

**Ref:** IEEE 610

A collection of components organized to accomplish a specific function or set of functions.

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**system integration testing**

Testing the integration of systems and packages; testing interfaces to external organizations (e.g., Electronic Data Interchange, Internet).

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**system of systems**

Multiple heterogeneous, distributed systems that are embedded in networks at multiple levels and in multiple interconnected domains, addressing large-scale inter-disciplinary common problems and purposes, usually without a common management structure.

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**system testing**

**Ref:** Hetzel

Testing an integrated system to verify that it meets specified requirements.

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**system under test (SUT)**

See test object.

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**Systematic Test and Evaluation Process (STEP)**

**See Also:** content-based model

A structured testing methodology, also used as a content-based model for improving the testing process. Systematic Test and Evaluation Process (STEP) does not require that improvements occur in a specific order.

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**technical review**

**Ref:** Gilb and Graham, IEEE 1028 **See Also:** peer review

A peer group discussion activity that focuses on achieving consensus on the technical approach to be taken.

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**test**

**Ref:** IEEE 829

A set of one or more test cases.

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**test analysis**

The process of analyzing the test basis and defining test objectives.

### test approach

The implementation of the test strategy for a specific project. It typically includes the decisions made that follow based on the (test) project's goal and the risk assessment carried out, starting points regarding the test process, the test design techniques to be applied, exit criteria and test types to be performed.

### test automation

The use of software to perform or support test activities, e.g., test management, test design, test execution and results checking.

### test basis

**Ref:** After TMap

All documents from which the requirements of a component or system can be inferred. The documentation on which the test cases are based. If a document can be amended only by way of formal amendment procedure, then the test basis is called a frozen test basis.

### test case

**Ref:** After IEEE 610

A set of input values, execution preconditions, expected results and execution postconditions, developed for a particular objective or test condition, such as to exercise a particular program path or to verify compliance with a specific requirement.

### test case specification

**Ref:** After IEEE 829 **See Also:** test specification

A document specifying a set of test cases (objective, inputs, test actions, expected results, and execution preconditions) for a test item.

### test charter

**See Also:** exploratory testing

**Synonyms:** charter

A statement of test objectives, and possibly test ideas about how to test. Test charters are used in exploratory testing.

### test closure

**See Also:** test process

During the test closure phase of a test process data is collected from completed activities to consolidate experience, testware, facts and numbers. The test closure phase consists of finalizing and archiving the testware and evaluating the test process, including preparation of a test evaluation report.

### test condition

**Synonyms:** test requirement, test situation

An item or event of a component or system that could be verified by one or more test cases, e.g., a function, transaction, feature, quality attribute, or structural element.

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### test control

**See Also:** test management

A test management task that deals with developing and applying a set of corrective actions to get a test project on track when monitoring shows a deviation from what was planned.

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### test cycle

Execution of the test process against a single identifiable release of the test object.

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### test data

Data that exists (for example, in a database) before a test is executed, and that affects or is affected by the component or system under test.

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### test deliverable

**See Also:** deliverable

Any test (work) product that must be delivered to someone other than the test (work) product's author.

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### test design

**See Also:** test design specification

The process of transforming general test objectives into tangible test conditions and test cases.

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### test design specification

**Ref:** After IEEE 829 **See Also:** test specification

A document specifying the test conditions (coverage items) for a test item, the detailed test approach and identifying the associated high-level test cases.

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### test design technique

**Synonyms:** test case design technique, test specification technique, test technique

Procedure used to derive and/or select test cases.

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### test design tool

A tool that supports the test design activity by generating test inputs from a specification that may be held in a CASE tool repository, e.g., requirements management tool, from specified test conditions held in the tool itself, or from code.

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### test director

**See Also:** test manager

A senior manager who manages test managers.

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### test environment

**Ref:** After IEEE 610

**Synonyms:** test bed, test rig

An environment containing hardware, instrumentation, simulators, software tools, and other support elements needed to conduct a test.

### test estimation

The calculated approximation of a result related to various aspects of testing (e.g., effort spent, completion date, costs involved, number of test cases, etc.) which is usable even if input data may be incomplete, uncertain, or noisy.

### test execution

The process of running a test on the component or system under test, producing actual result(s).

### test execution automation

The use of software, e.g., capture/playback tools, to control the execution of tests, the comparison of actual results to expected results, the setting up of test preconditions, and other test control and reporting functions.

### test execution schedule

A scheme for the execution of test procedures. Note: The test procedures are included in the test execution schedule in their context and in the order in which they are to be executed.

### test execution tool

A type of test tool that is able to execute other software using an automated test script, e.g., capture/playback.

### test implementation

The process of developing and prioritizing test procedures, creating test data and, optionally, preparing test harnesses and writing automated test scripts.

### test input

The data received from an external source by the test object during test execution. The external source can be hardware, software or human.

### test item

**See Also:** test object

The individual element to be tested. There usually is one test object and many test items.

### test level

**Ref:** After TMap

**Synonyms:** test stage

A group of test activities that are organized and managed together. A test level is linked to the responsibilities in a project. Examples of test levels are component test, integration test, system test and acceptance test.

### test log

**Ref:** IEEE 829

**Synonyms:** test record, test run log

A chronological record of relevant details about the execution of tests.

### test logging

**Synonyms:** test recording

The process of recording information about tests executed into a test log.

### test management

The planning, estimating, monitoring and control of test activities, typically carried out by a test manager.

### test management tool

A tool that provides support to the test management and control part of a test process. It often has several capabilities, such as testware management, scheduling of tests, the logging of results, progress tracking, incident management and test reporting.

### test manager

**Synonyms:** test leader

The person responsible for project management of testing activities and resources, and evaluation of a test object. The individual who directs, controls, administers, plans and regulates the evaluation of a test object.

### Test Maturity Model integration (TMMi)

A five-level staged framework for test process improvement, related to the Capability Maturity Model Integration (CMMI), that describes the key elements of an effective test process.

### test mission

**See Also:** test policy

The purpose of testing for an organization, often documented as part of the test policy.

### test monitoring

**See Also:** test management

A test management task that deals with the activities related to periodically checking the status of a test project. Reports are prepared that compare the actuals to that which was planned.

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### test object

**See Also:** test item

**Synonyms:** system under test

The component or system to be tested.

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### test objective

A reason or purpose for designing and executing a test.

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### test oracle

**Ref:** After Adrion

**Synonyms:** oracle

A source to determine expected results to compare with the actual result of the software under test. An oracle may be the existing system (for a benchmark), other software, a user manual, or an individual's specialized knowledge, but should not be the code.

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### test plan

**Ref:** After IEEE 829

A document describing the scope, approach, resources and schedule of intended test activities. It identifies amongst others test items, the features to be tested, the testing tasks, who will do each task, degree of tester independence, the test environment, the test design techniques and entry and exit criteria to be used, and the rationale for their choice, and any risks requiring contingency planning. It is a record of the test planning process.

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### test planning

The activity of establishing or updating a test plan.

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### test policy

A high-level document describing the principles, approach and major objectives of the organization regarding testing.

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### test procedure specification

**Ref:** After IEEE 829 **See Also:** test specification

**Synonyms:** test procedure, test scenario

A document specifying a sequence of actions for the execution of a test. Also known as test script or manual test script.

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### test process

The fundamental test process comprises test planning and control, test analysis and design, test implementation and execution, evaluating exit criteria and reporting, and test closure activities.

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### test progress report

**Synonyms:** test report

A document summarizing testing activities and results, produced at regular intervals, to report progress of testing activities against a baseline (such as the original test plan) and to communicate risks and alternatives requiring a decision to management.

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### test reporting

**See Also:** test process

Collecting and analyzing data from testing activities and subsequently consolidating the data in a report to inform stakeholders.

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### test script

Commonly used to refer to a test procedure specification, especially an automated one.

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### test session

**See Also:** exploratory testing

An uninterrupted period of time spent in executing tests. In exploratory testing, each test session is focused on a charter, but testers can also explore new opportunities or issues during a session. The tester creates and executes on the fly and records their progress.

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### test specification

A document that consists of a test design specification, test case specification and/or test procedure specification.

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### test strategy

A high-level description of the test levels to be performed and the testing within those levels for an organization or programme (one or more projects).

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### test summary report

**Ref:** After IEEE 829

**Synonyms:** test report

A document summarizing testing activities and results. It also contains an evaluation of the corresponding test items against exit criteria.

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### test tool

**Ref:** TMap **See Also:** CAST

A software product that supports one or more test activities, such as planning and control,

specification, building initial files and data, test execution and test analysis.

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**test type**

**Ref:** After TMap

A group of test activities aimed at testing a component or system focused on a specific test objective, i.e. functional test, usability test, regression test etc. A test type may take place on one or more test levels or test phases.

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**test-driven development (TDD)**

A way of developing software where the test cases are developed, and often automated, before the software is developed to run those test cases.

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**testability**

**Ref:** ISO 9126 **See Also:** maintainability

The capability of the software product to enable modified software to be tested.

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**tester**

A skilled professional who is involved in the testing of a component or system.

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**testing**

The process consisting of all lifecycle activities, both static and dynamic, concerned with planning, preparation and evaluation of software products and related work products to determine that they satisfy specified requirements, to demonstrate that they are fit for purpose and to detect defects.

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**testware**

**Ref:** After Fewster and Graham

Artifacts produced during the test process required to plan, design, and execute tests, such as documentation, scripts, inputs, expected results, set-up and clear-up procedures, files, databases, environment, and any additional software or utilities used in testing.

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**TPI Next**

A continuous business-driven framework for test process improvement that describes the key elements of an effective and efficient test process.

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**traceability**

**See Also:** horizontal traceability, vertical traceability

The ability to identify related items in documentation and software, such as requirements with associated tests.

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### traceability matrix

A two-dimensional table, which correlates two entities (e.g., requirements and test cases). The table allows tracing back and forth the links of one entity to the other, thus enabling the determination of coverage achieved and the assessment of impact of proposed changes.

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### understandability

**Ref:** ISO 9126 **See Also:** usability

The capability of the software product to enable the user to understand whether the software is suitable, and how it can be used for particular tasks and conditions of use.

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### usability

**Ref:** ISO 9126

The capability of the software to be understood, learned, used and attractive to the user when used under specified conditions.

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### usability testing

**Ref:** After ISO 9126

Testing to determine the extent to which the software product is understood, easy to learn, easy to operate and attractive to the users under specified conditions.

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### use case

A sequence of transactions in a dialogue between an actor and a component or system with a tangible result, where an actor can be a user or anything that can exchange information with the system.

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### user story

**See Also:** Agile software development, requirement

A high-level user or business requirement commonly used in Agile software development, typically consisting of one or more sentences in the everyday or business language capturing what functionality a user needs, any non-functional criteria, and also includes acceptance criteria.

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### V-model

A framework to describe the software development lifecycle activities from requirements specification to maintenance. The V-model illustrates how testing activities can be integrated into each phase of the software development lifecycle.

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### validation

**Ref:** ISO 9000

Confirmation by examination and through provision of objective evidence that the requirements for a specific intended use or application have been fulfilled.

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### variable

An element of storage in a computer that is accessible by a software program by referring to it by a name.

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### verification

**Ref:** ISO 9000

Confirmation by examination and through provision of objective evidence that specified requirements have been fulfilled.

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### walkthrough

**Ref:** Freedman and Weinberg, IEEE 1028 **See Also:** peer review

**Synonyms:** structured walkthrough

A step-by-step presentation by the author of a document in order to gather information and to establish a common understanding of its content.

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### white-box testing

**Synonyms:** clear-box testing, code-based testing, glass-box testing, logic-coverage testing, logic-driven testing, structural testing, structure-based testing

Testing based on an analysis of the internal structure of the component or system.

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### Wideband Delphi

An expert-based test estimation technique that aims at making an accurate estimation using the collective wisdom of the team members.

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### work breakdown structure (WBS)

**Ref:** CMMI

An arrangement of work elements and their relationship to each other and to the end product.

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