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Software and systems engineering — Software testing

Part 3: Test documentation

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National foreword

This British Standard is the UK implementation of ISO/IEC/IEEE 29119-3:2013.

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29119-3**

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Software and systems engineering — Software testing —

Part 3: Test documentation

*Ingénierie du logiciel et des systèmes — Essais du logiciel —
Partie 3: Documentation des essais*



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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of ISO/IEC JTC 1 is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

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ISO/IEC/IEEE 29119-3 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 7, *Software and systems engineering*, in cooperation with the Software & Systems Engineering Standards Committee of the IEEE Computer Society, under the Partner Standards Development Organization cooperation agreement between ISO and IEEE.

ISO/IEC 29119 consists of the following standards, under the general title *Software and systems engineering — Software testing*:

- *Part 1: Concepts and definitions*
- *Part 2: Test processes*
- *Part 3: Test documentation*
- *Part 4: Test techniques*

Introduction

The purpose of the ISO/IEC/IEEE 29119 series of software testing standards is to define an internationally-agreed set of standards for software testing that can be used by any organization when performing any form of software testing.

This part of ISO/IEC/IEEE 29119, Test Documentation, includes templates and examples of test documentation that are produced during the test process. The templates are arranged within clauses reflecting the overall test process description structure in ISO/IEC/IEEE 29119-2 Test Processes, i.e. by the test process in which they are being produced. Annex A contains outlines of the contents of each document. Annex B contains a list of all the information items identified in Clauses 5, 6 and 7 of this part of ISO/IEC/IEEE 29119 with the corresponding level of conformance (shall/should/may) from ISO/IEC/IEEE 29119-2 Test Processes. Annex C contains an overview of the examples. Annexes D to S contain examples of the application of the templates. Annex T provides mappings to existing standards. The Bibliography for this part of ISO/IEC/IEEE 29119 is at the end of the document.

The concepts and vocabulary relating to the software testing documentation are defined in ISO/IEC/IEEE 29119-1 Concepts and Definitions.

The actual test process model is defined in ISO/IEC/IEEE 29119-2 Test Processes. It comprises test process descriptions that define the software testing processes at the organizational level, test management level and dynamic test level. Supporting informative diagrams describing the processes are also provided.

Software test design techniques that can be used during test design are defined in ISO/IEC/IEEE 29119-4 Test Techniques.

This series of international standards aims to provide stakeholders with the ability to manage and perform software testing in any organization.

Software and systems engineering — Software testing —

Part 3: Test documentation

1 Scope

This part of ISO/IEC/IEEE 29119 specifies software test documentation templates that can be used by any organization, project or smaller testing activity. It describes the test documentation that is an output of the processes specified in ISO/IEC/IEEE 29119-2 Test Processes. An overview of the documents is provided in Figure 1 below. A slightly larger version of this figure is provided in Annex A.

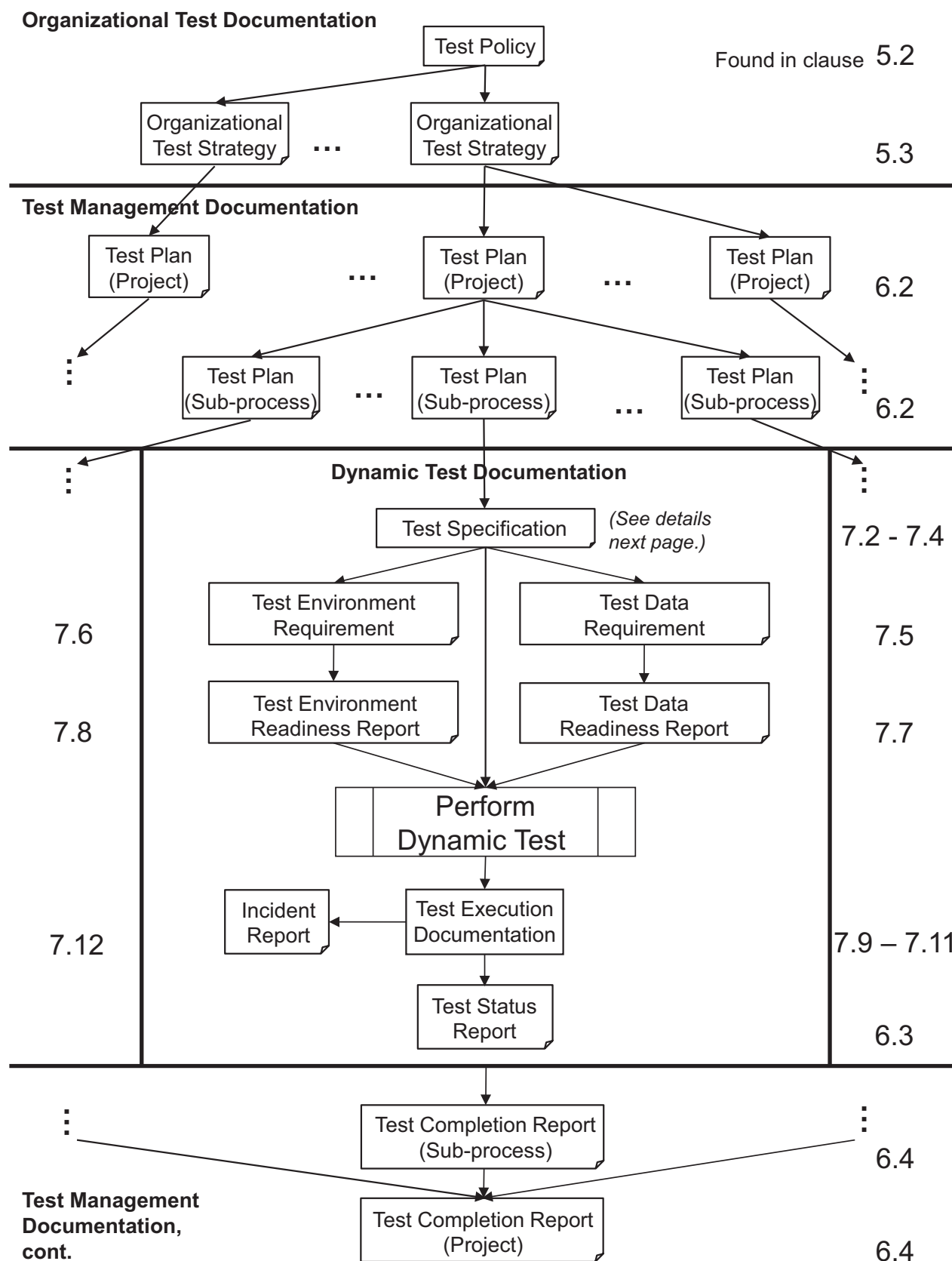


Figure 1 — The hierarchy of test documentation

This part of ISO/IEC/IEEE 29119 is applicable to testing in all software development lifecycle models.

This part of ISO/IEC/IEEE 29119 is intended for, but not limited to, testers, test managers, developers, and project managers, particularly those responsible for governing, managing, and implementing software testing.

The documents described in this part of ISO/IEC/IEEE 29119 may be issued in several versions over time. However, the handling of multiple versions of documents is out of scope of this part of ISO/IEC/IEEE 29119, because this is a configuration management issue.

2 Conformance

2.1 Intended usage

The requirements in this part of ISO/IEC/IEEE 29119 are contained in Clauses 5, 6 and 7. This part of ISO/IEC/IEEE 29119 provides requirements for a number of test documents suitable for use during the complete software lifecycle. It is recognized that particular projects or organizations may not need to use all of the documents defined by this part of ISO/IEC/IEEE 29119. Therefore, implementation of this part of ISO/IEC/IEEE 29119 typically involves selecting a set of documents suitable for the organization or project. There are two ways that an organization can claim to conform to the provisions of this part of ISO/IEC/IEEE 29119; full or tailored conformance. Conformance may be claimed for organizations, projects, multi-supplier projects and services, as identified in the claim of conformance.

The information items identified in Clauses 5, 6, and 7 of this part of ISO/IEC/IEEE 29119 correspond to the outputs of the ISO/IEC/IEEE 29119-2 Test Processes. Annex B is normative and provides an overview of the normative requirements for the clauses in ISO/IEC/IEEE 29119-2 where the creation of the information items defined in Clauses 5, 6, and 7 of this part of ISO/IEC/IEEE 29119 is described.

In this part of ISO/IEC/IEEE 29119, for simplicity of reference, each document is described as if it were published as a separate hardcopy document. Document titles and contents provided in this part of ISO/IEC/IEEE 29119 may be modified (added to, combined or re-titled) and use of the nomenclature of the specific records in Clauses 5, 6 and 7 is not required to claim conformance. Documents shall be considered as conforming if they are unpublished but available in electronic form, divided into separate documents or volumes, or combined with other documents into one document.

2.2 Types of conformance

The following types of conformance shall be asserted. The selected type shall be identified in the claim of conformance documentation.

2.2.1 Full Conformance

The minimum set of required information items is all of those information items specified in Clauses 5, 6 and 7 of this part of ISO/IEC/IEEE 29119.

NOTE Full conformance could be claimed for selected documents even if full conformance with the entire standard is not claimed.

2.2.2 Tailored Conformance

The content of the test documents defined in Clauses 5, 6 and 7 of this part of ISO/IEC/IEEE 29119 may be tailored based on the tailored conformance to ISO/IEC/IEEE 29119-2 Test Processes and/or based on the specific needs of an organization or project. Where tailoring occurs, justification shall be provided whenever an information item defined in Clauses 5, 6 and 7 of this part of ISO/IEC/IEEE 29119 is not prepared. All tailoring decisions shall be recorded with their rationale, including the consideration of any applicable risks. Tailoring decisions shall be agreed by the relevant stakeholders.

Tailored conformance can be achieved by:

- a) The minimum set of required test documentation is determined by the tailoring of the processes and activities in accordance with Clause 2 of ISO/IEC/IEEE 29119-2 Test Processes; and/or

- b) The minimum set of required test documentation is determined according to specific organization and/or project needs; and/or
- c) The minimum set of required information items within documents is determined according to specific organization and/or project needs.

NOTE 1 In projects, particularly those following an agile approach, tailoring can be applied to all Part 3 documents to allow them to be condensed or presented in an alternate format (e.g. verbal or slide presentation).

NOTE 2 Different document names could be used, but when this is done and conformity needs to be demonstrated, a mapping is often produced between this part of ISO/IEC/IEEE 29119 and local usage to aid conformity assessment.

3 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC/IEEE 15289:2011, *Systems and software engineering — Content of life-cycle information products (documentation)*

ISO/IEC/IEEE 29119-1, *Software and systems engineering — Software testing — Part 1: Concepts and definitions*

ISO/IEC/IEEE 29119-2, *Software and systems engineering — Software testing — Part 2: Test processes*

Other standards useful for the implementation and interpretation of this standard are listed in the Bibliography.

4 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC/IEEE 24765 and the following apply.

NOTE Use of the terminology in this part of ISO/IEC/IEEE 29119 is for ease of reference and is not mandatory for conformance with this part of ISO/IEC/IEEE 29119. The following terms and definitions are provided to assist with the understanding and readability of this part of ISO/IEC/IEEE 29119. Only terms critical to the understanding of this part of ISO/IEC/IEEE 29119 are included. This clause is not intended to provide a complete list of testing terms. The Systems and Software Engineering vocabulary ISO/IEC/IEEE 24765 can be referenced for terms not defined in this clause. All terms defined in this clause are also intentionally included in ISO/IEC/IEEE 29119-1, as that international standard includes all terms that are used in ISO/IEC/IEEE 29119-1, 2, 3 and 4.

4.1 actual results

set of behaviours or conditions of a test item, or set of conditions of associated data or the test environment, observed as a result of test execution

EXAMPLE Output to screen, outputs to hardware, changes to data, reports, and communication messages sent.

4.2 coverage item

see test coverage item (4.15)

4.3 expected results

observable predicted behaviour of the test item under specified conditions based on its specification or another source

4.4

feature set

logical subset of the test item(s) that could be treated independently of other feature sets in the subsequent test design activities

Note 1 to entry: This could be the set of all features for the item (its full feature set), or a subset identified for a specific purpose (the functional feature set, etc.).

4.5

Incident Report

documentation of the occurrence, nature, and status of an incident

Note 1 to entry: Incident reports are also known as anomaly reports, bug reports, defect reports, error reports, issues, problem reports and trouble reports, amongst other terms.

4.6

Organizational Test Specification

document that provides information about testing for an organization, i.e. information that is not project specific

EXAMPLE The most common examples of organizational test specifications are the Organizational Test Policy and Organizational Test Strategy.

4.7

Organizational Test Strategy

document that expresses the generic requirements for the testing to be performed on all the projects run within an organization, providing detail on how the testing is to be performed

Note 1 to entry: The Organizational Test Strategy is aligned with the Organizational Test Policy.

Note 2 to entry: An organization could have more than one Organizational Test Strategy to cover markedly different project contexts.

Note 3 to entry: The Organizational Test Strategy could incorporate the context of the Test Policy where no separate Test Policy is available

4.8

product risk

risk that a product could be defective in some specific aspect of its function, quality, or structure

4.9

project risk

risk related to the management of a project

EXAMPLE Lack of staffing, strict deadlines, changing requirements.

4.10

regression testing

testing following modifications to a test item or to its operational environment, to identify whether regression failures occur

Note 1 to entry: The sufficiency of a set of regression test cases depends on the item under test and on the modifications to that item or its operational environment.

4.11

retesting

re-execution of test cases that previously returned a "fail" result, to evaluate the effectiveness of intervening corrective actions

Note 1 to entry: Also known as confirmation testing.

4.12

test case

set of test case preconditions, inputs (including actions, where applicable), and expected results, developed to drive the execution of a test item to meet test objectives, including correct implementation, error identification, checking quality, and other valued information

Note 1 to entry: A test case is the lowest level of test input (i.e. test cases are not made up of test cases) for the test sub-process for which it is intended.

Note 2 to entry: Test case preconditions include: test environment, existing data (e.g. databases), software under test, hardware, etc.

Note 3 to entry: Inputs are the data information used to drive test execution.

Note 4 to entry: Expected results include success criteria, failures to check for, etc.

4.13

Test Case Specification

documentation of a set of one or more test cases

4.14

Test Completion Report

report that provides a summary of the testing that was performed

Note 1 to entry: Also known as a Test Summary Report.

4.15

test coverage item

attribute or combination of attributes that is derived from one or more test conditions by using a test design technique that enables the measurement of the thoroughness of the test execution

4.16

test data

data created or selected to satisfy the input requirements for executing one or more test cases, which could be defined in the Test Plan, test case or test procedure

Note 1 to entry: Test data could be stored within the product under test (e.g., in arrays, flat files, or a database), or could be available from or supplied by external sources, such as other systems, other system components, hardware devices, or human operators.

4.17

Test Data Readiness Report

document describing the status of each test data requirement

4.18

Test Design Specification

document specifying the features to be tested and their corresponding test conditions

4.19

test design technique

activities, concepts, processes, and patterns used to construct a test model that is used to identify test conditions for a test item, derive corresponding test coverage items, and subsequently derive or select test cases

4.20

test environment

facilities, hardware, software, firmware, procedures, and documentation intended for or used to perform testing of software

Note 1 to entry: A test environment could contain multiple environments to accommodate specific test sub-processes (e.g. a unit test environment, a performance test environment, etc.).

4.21

test environment readiness report

document that describes the fulfillment of each test environment requirement

4.22

Test Environment Requirements

description of the necessary properties of the test environment

Note 1 to entry: All or parts of the test environment requirements could reference where the information can be found, e.g. in the appropriate Organizational Test Strategy, Test Plan, and/or Test Specification.

4.23

Test Execution Log

document that records details of the execution of one or more test procedures

4.24

test item

work product that is an object of testing

EXAMPLE A system, a software item, a requirements document, a design specification, a user guide.

4.25

Test Plan

detailed description of test objectives to be achieved and the means and schedule for achieving them, organized to coordinate testing activities for some test item or set of test items

Note 1 to entry: A project could have more than one Test Plan, for example there could be a Project Test Plan (also known as a Master Test Plan) that encompasses all testing activities on the project; further detail of particular test activities could be defined in one or more test sub-process plans (e.g. a system test plan or a performance test plan).

Note 2 to entry: Typically a Test Plan is a written document, though other formats could be possible as defined locally within an organization or project.

Note 3 to entry: Test Plans could also be written for non-project activities, for example a Maintenance Test Plan.

4.26

Test Policy

an executive-level document that describes the purpose, goals, principles and scope of testing within an organization

Note 1 to entry: The Test Policy defines what testing is performed and what it is expected to achieve but does not detail how testing is to be performed.

Note 2 to entry: The Test Policy can provide a framework for establishing, reviewing and continually improving the organisations testing.

4.27

Test Procedure Specification

document specifying one or more test procedures, which are collections of test cases to be executed for a particular objective

Note 1 to entry: The test cases in a test set are listed in their required order in the test procedure.

Note 2 to entry: Also known as a manual test script. A test procedure specification for an automated test run is usually called a test script.

4.28

test result

indication of whether or not a specific test case has passed or failed, i.e. if the actual results correspond to the expected results or if deviations were observed

4.29

test set

collection of test cases for the purpose of testing a specific test objective

Note 1 to entry: The test sets will typically reflect the feature sets, but they could contain test cases for a number of feature sets.

Note 2 to entry: Test cases for a test set could be selected based on the identified risks, test basis, retesting and/or regression testing.

4.30

test specification

complete documentation of the test design, test cases and test procedures for a specific test item

Note 1 to entry: A Test Specification could be detailed in one document, in a set of documents, or in other ways, for example in a mixture of documents and database entries.

4.31

test status report

report that provides information about the status of the testing that is being performed in a specified reporting period

4.32

test strategy

part of the Test Plan that describes the approach to testing for a specific test project or test sub-process or sub-processes

Note 1 to entry: The test strategy is a distinct entity from the Organizational Test Strategy.

Note 2 to entry: The test strategy usually describes some or all of the following: the test practices used; the test sub-processes to be implemented; the retesting and regression testing to be employed; the test design techniques and corresponding test completion criteria to be used; test data; test environment and testing tool requirements; and expectations for test deliverables.

4.33

test traceability matrix

document, spreadsheet, or other automated tool used to identify related items in documentation and software, such as requirements with associated tests

Note 1 to entry: Also known as: verification cross reference matrix, requirements test matrix, requirements verification table, and others.

Note 2 to entry: Different test traceability matrices could have different information, formats, and levels of detail.

4.34

testing

set of activities conducted to facilitate discovery and/or evaluation of properties of one or more test items

Note 1 to entry: Testing activities include planning, preparation, execution, reporting, and management activities, insofar as they are directed towards testing.

5 Organizational Test Process Documentation

5.1 Overview

Organizational test specifications describe information about testing at the organization level, and are not project-dependent. Typical examples of organizational test specifications developed in the organizational test process include:

- Test Policy;
- Organizational Test Strategy.

The full templates with explanatory text for the document follow in sub-clauses 5.2 Test Policy and 5.3 Organizational Test Strategy. Annex A provides an abbreviated overview of each document. Annexes D and E provide examples of a Test Policy and Organizational Test Strategy for example projects.

5.2 Test Policy

5.2.1 Overview

The Test Policy defines the objectives and principles of software testing to be applied within the organization. It defines what should be accomplished by testing, but does not detail how testing is performed. The policy provides a framework for establishing, reviewing, and continually improving the organization's Test Policy.

Annex A.2.2 provides an outline of the Organizational Test Policy, while annexes D.1 and D.2 provide examples that demonstrate how Organizational Test Policies could be developed for two different example projects.

The contents of the Test Policy include:

5.2.2 Document specific information

5.2.2.1 Overview

This information identifies the document and describes its origins and history.

NOTE The information could be placed on an early page in a document, or in a central place, if the contents are kept in electronic form, e.g. in a database.

5.2.2.2 Unique identification of document

Uniquely identifies a version of the document.

EXAMPLE The unique identifier could include the title of the document, the date of issue, version, and/or document status (e.g. draft, reviewed, corrected, final).

5.2.2.3 Issuing organization

Specifies the organization responsible for preparing and releasing the document. It may also include the author(s).

5.2.2.4 Approval authority

Identifies the designated person(s) who have the responsibility for reviewing and signing off on the document (possibly electronically). It may also include the reviewers and pertinent managers.

5.2.2.5 Change history

Includes a log of all of the changes that have occurred to the document since its inception.

EXAMPLE 1 This could include a list including the present version of the document and any predecessor documents containing the unique identification of each document, description of document changes with respect to the previous document in the list, reason for changes, and the name and role of the person making the changes.

EXAMPLE 2 Reasons for changes could include audit comments, team review, and system changes, and person making the change could be document author, project manager, system owner.

5.2.3 Introduction

Provides explanatory information about the context and structure of the document.

5.2.3.1 Scope

Identifies the extent of the coverage of the subject area by the document, and describes any inclusions, exclusions, assumptions and/or limitations.

5.2.3.2 References

Lists referenced documents and identifies repositories for system, software, and test information. The references may be separated into “external” references that are imposed from outside the organization and “internal” references that are imposed from within the organization.

EXAMPLE Referenced documents could be policies, plans, procedures, and other source data.

5.2.3.3 Glossary

Provides a lexicon for the terms, abbreviations, and acronyms, if any, used in the document.

NOTE This section could be an annex, or it could refer to another document providing a general glossary. All or part of the glossary and/or acronym list could be online, as a separate testing specific glossary or incorporated in a larger organizational glossary (including more terms than just those that are testing related).

5.2.4 Test policy statements

5.2.4.1 Objectives of testing

Describes the purpose, goals, and overall scope of the testing within the organization. States the organization’s position on why testing is performed and what they look to achieve.

5.2.4.2 Test process

Identifies the test process that the organization will follow. This may include reference to a specific document providing details of the test process.

EXAMPLE Such a document could be ISO/IEC/IEEE 29119-2 Test Processes. The details of activities in the test process could be described in more detailed test process documentation.

5.2.4.3 Test organization structure

Identifies the roles and structure of the test organization. A diagram to show test organization hierarchy may be used, or the information may be presented in a table.

5.2.4.4 Tester training

States required training and certifications for individuals working in the test organization.

5.2.4.5 Tester ethics

Identifies the organizational ethics code to be upheld by the testers.

5.2.4.6 Standards

States which standards are applicable within the test organization.

5.2.4.7 Other relevant policies

Identifies policies that impact the test organization.

EXAMPLE A policy statement could be that testing will conform to the Quality Policy.

5.2.4.8 Measuring the value of testing

States how the organization determines the return on investment of testing. Identifies the objectives for measuring the value of testing.

5.2.4.9 Test asset archiving and reuse

States the organization's position on the archiving and reuse of test assets.

5.2.4.10 Test process improvement

States the method for ensuring continuous improvement of the test process.

5.3 Organizational Test Strategy

5.3.1 Overview

The Organizational Test Strategy is a technical document that provides guidelines on how testing should be carried out within the organization, i.e. how to achieve the objectives stated in the Test Policy.

The Organizational Test Strategy is a generic document at an organizational level that provides guidelines to projects within its scope; it is not project-specific.

For small or highly homogenous organizations a single Organizational Test Strategy may cover all testing activities. An organization may have more than one Organizational Test Strategy if the organization performs development in a number of significantly different ways, such as both safety-critical products and non-critical products; or if it is using both agile and V-model development models; or if its programmes are large enough to merit their own strategy.

The Organizational Test Strategy may incorporate the content of the Test Policy where no separate Test Policy is available.

An Organizational Test Strategy includes identification of relevant test sub-processes and strategy statements for each of these. The document may be partitioned with a sub-section for each of the identified test sub-process if the test sub-processes strategy statements differ significantly between the test sub-processes; this is illustrated in the figure below.

Annex A.2.3 provides an outline of the Organizational Test Strategy, while annexes E.1 and E.2 provide examples that demonstrate how Organizational Test Strategies could be developed for two different example projects.

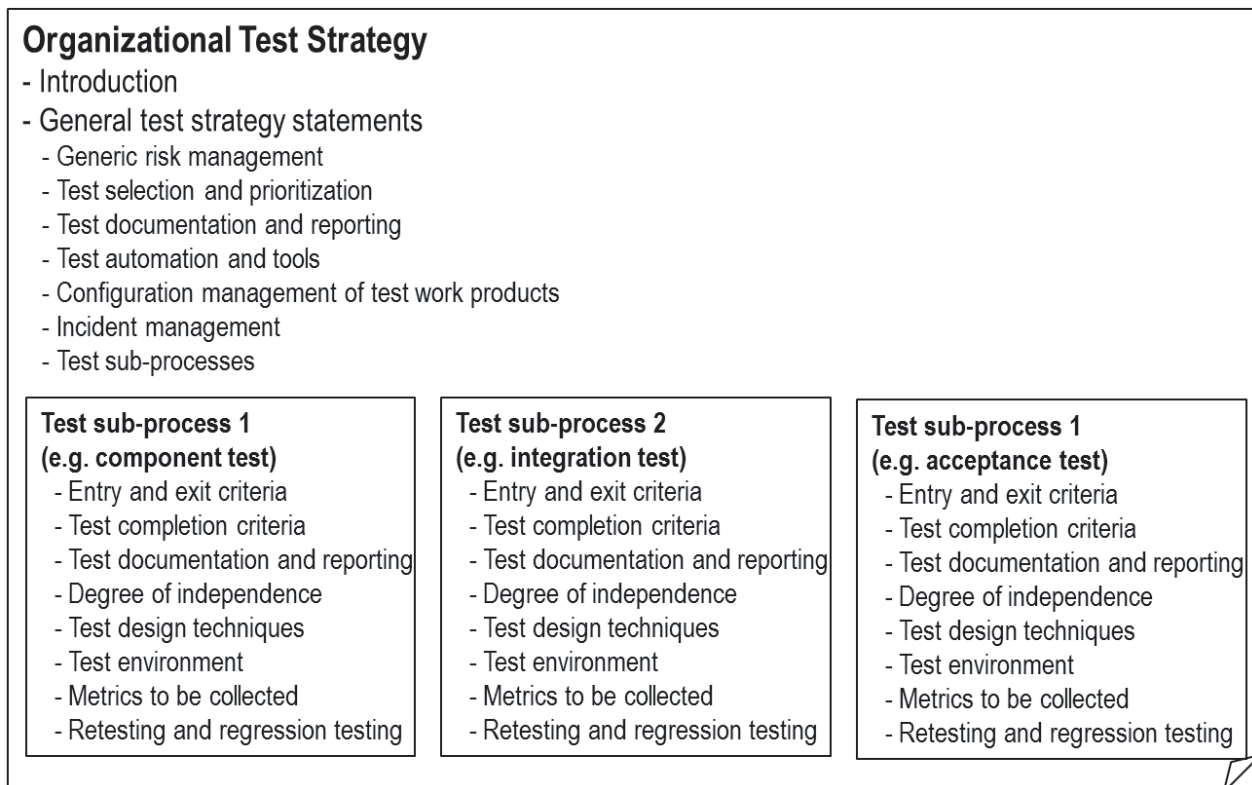


Figure 2 — An example structure of the Organizational Test Strategy

The contents of the Organizational Test Strategy include:

5.3.2 Document specific information

5.3.2.1 Overview

This information identifies the document and describes its origins and history.

NOTE The information could be placed on an early page in a document, or in a central place, if the contents are kept in electronic form, e.g. in a database.

5.3.2.2 Unique identification of document

Uniquely identifies a version of the document.

EXAMPLE The unique identifier could include the title of the document, the date of issue, version, and/or document status (e.g. draft, reviewed, corrected, final).

5.3.2.3 Issuing organization

Specifies the organization responsible for preparing and releasing the document. It may also include the author(s).

5.3.2.4 Approval authority

Identifies the designated person(s) who have the responsibility for reviewing and signing off on the document (possibly electronically). It may also include the reviewers and pertinent managers.

5.3.2.5 Change history

Includes a log of all of the changes that have occurred to the document since its inception.

EXAMPLE 1 This could include a list including the present version of the document and any predecessor documents containing the unique identification of each document, description of document changes with respect to the previous document in the list, reason for changes, and the name and role of the person making the changes.

EXAMPLE 2 Reasons for changes could include audit comments, team review, and system changes, and person making the change could be document author, project manager, system owner.

5.3.3 Introduction

Provides explanatory information about the context and structure of the document.

5.3.3.1 Scope

Identifies the extent of the coverage of the subject area by the document, and describes any inclusions, exclusions, assumptions and/or limitations.

5.3.3.2 References

Lists referenced documents and identifies repositories for system, software, and test information. The references may be separated into “external” references that are imposed from outside the organization and “internal” references that are imposed from within the organization.

EXAMPLE Documents could be policies, plans, procedures, and other source data.

5.3.3.3 Glossary

Provides a lexicon for the terms, abbreviations, and acronyms, if any, used in the document.

NOTE This section could be an annex, or it could refer to another document providing a general glossary. All or part of the glossary and/or acronym list could be online, as a separate testing specific glossary or incorporated in a larger organizational glossary (including more terms than just those that are testing related).

5.3.4 Project-wide organizational test strategy statements

The strategy is defined for the specified scope. This section includes statements that are appropriate for all test sub-processes to be performed in a given project within the scope of the strategy. This section may include subsections from the policy, if needed.

5.3.4.1 Generic risk management

Identifies the generic approach to risk management expected to be used to direct the testing activities.

5.3.4.2 Test selection and prioritization

Describes the organization’s approach to selecting and prioritizing test execution, in the form of prioritized test procedures. Test procedures consist of prioritized test cases, derived from prioritized feature sets via prioritized test conditions and coverage items.

5.3.4.3 Test documentation and reporting

Identifies the documents expected to be produced during testing for the test project as a whole. Describes when each is prepared and the associated approval process. This is tightly connected to the test process that is specified in the policy.

5.3.4.4 Test automation and tools

Describes the approach to test automation within the organization. Identifies the testing tools to be used throughout testing.

EXAMPLE This could include test management tools, test execution tools, performance testing tools, security testing tools, usability testing tools.

5.3.4.5 Configuration management of test work products

Describes the configuration management to be performed for the work products from testing; describes how these work products are to be identified, traced, stored, and made available to stakeholders.

5.3.4.6 Incident management

Describes how incidents should be managed during testing or refers to a description elsewhere.

5.3.4.7 Test sub-processes

Identifies specific test sub-processes to be performed as part of the testing within the scope of the strategy.

5.3.5 Test sub-process-specific organizational test strategy statements

5.3.5.1 Entry and exit criteria

Specifies the criteria used to determine when the test activities for the defined test sub-process should start and stop.

A test sub-process consists of the following processes:

- Test design & implementation;
- Test environment set-up & maintenance;
- Test execution; and
- Test incident reporting.

Different entry and exit criteria may be defined for each of these individually, or for selected ones, or for the entire sub-process as a whole.

5.3.5.2 Test completion criteria

Describes how the organization considers the testing activities for the test sub-process to be complete.

5.3.5.3 Test documentation and reporting

Identifies the test documentation, including reporting, used for testing activities in the test sub-process. Describes when each document or report is prepared and the associated approval process. This is tightly connected to the test process specified in the policy.

5.3.5.4 Degree of independence

Establishes the level of independence of those performing the testing. States how this testing group is technically, managerially, and financially independent.

5.3.5.5 Test design techniques

Identifies specific test design techniques to be used during test design and implementation within the test sub-process.

5.3.5.6 Test environment

Identifies the test environment for the test sub-process; may state where specific types of test should be performed, and identifies groups or organizations responsible for the test environment. May identify the origin of test data, state where particular types of test data are located, and groups or organizations responsible for test data.

5.3.5.7 Metrics to be collected

Describes the metrics for which values are to be collected during the test activities in the test sub-process.

5.3.5.8 Retesting and regression testing

Identifies the strategy, conditions, and activities for retesting and regression testing in the test sub-process.

6 Test Management Processes Documentation

6.1 Overview

The documents developed in the test management processes comprise the following types:

- Test Plan;
- Test Status Report;
- Test Completion Report.

The full templates with explanatory text for the documents are found below. Annex A provides an abbreviated overview of each document. Annexes F, G, and H provide examples of Test Plans, Test Status Reports, and Test Completion Reports for example projects.

6.2 Test Plan

6.2.1 Overview

The Test Plan provides a test planning and test management document. Some projects may have a single test plan, while for larger projects multiple test plans may be produced. Test plans may apply across multiple projects (at the programme level), or to a single project (project test plan/master test plan), or to a specific test sub-process (system test plan, integration software test plan, sub-system test plan, sub-contractor software test plan, unit software test plan, or performance test plan, or to a specific iteration of testing). If more software test plans are created, a mapping tree may be produced to aid documenting relationships and the information contained in each.

The Test Plan describes the decisions made during the initial planning and evolves as re-planning is performed as part of the control activity.

Annex A.2.4 provides an outline of the Test Plan, while annexes F.1 and F.2 provide examples that demonstrate how Test Plans could be developed for two different example projects.

The contents of the Test Plan include:

6.2.2 Document specific information

6.2.2.1 Overview

This information identifies the document and describes its origins and history.

NOTE The information could be placed on an early page in a document, or in a central place if the contents are kept in electronic form, e.g. in a database.

6.2.2.2 Unique identification of document

Uniquely identifies a version of the document.

EXAMPLE The unique identifier could include the title of the document, the date of issue, version, and/or document status (e.g. draft, reviewed, corrected, final).

6.2.2.3 Issuing organization

Specifies the organization responsible for preparing and releasing the document. It may also include the author(s).

6.2.2.4 Approval authority

Identifies the designated person(s) who have the responsibility for reviewing and signing off on the document (possibly electronically). It may also include the reviewers and pertinent managers.

6.2.2.5 Change history

Includes a log of all of the changes that have occurred to the document since its inception.

EXAMPLE 1 This could include a list including the present version of the document and any predecessor documents containing the unique identification of each document, description of document changes with respect to the previous document in the list, reason for changes, and the name and role of the person making the changes.

EXAMPLE 2 Reasons for changes could include audit comments, team review, and system changes, and person making the change could be document author, project manager, system owner.

6.2.3 Introduction

Provides explanatory information about the context and structure of the document.

6.2.3.1 Scope

Identifies the extent of the coverage of the subject area by the document, and describes any inclusions, exclusions, assumptions and/or limitations.

6.2.3.2 References

Lists referenced documents and identifies repositories for system, software, and test information. The references may be separated into “external” references that are imposed from outside the organization and “internal” references that are imposed from within the organization.

EXAMPLE References to test item documentation relevant to an individual test sub-process could include:

- Requirements;
- Design;
- User’s guide;
- Operations guide; and/or
- Installation guide.

6.2.3.3 Glossary

Provides a lexicon for the terms, abbreviations, and acronyms, if any, used in the document.

NOTE This section could be an annex, or it could refer to another document providing a general glossary. All or part of the glossary and/or acronym list could be online, as a separate testing specific glossary or incorporated in a larger organizational glossary (including more terms than just those that are testing related).

6.2.4 Context of the testing

6.2.4.1 Project(s) / test sub-process(es)

Identifies the project(s) or the test sub-process(es) for which the plan is being written and other relevant contextual information.

6.2.4.2 Test item(s)

Identifies the test item(s) for the testing covered by this plan including their version/revision or reference where this information can be found.

This section may describe the mission/business purpose of the test item(s), or reference where this information can be found.

NOTE This information could be defined in a system definition document, such as a concepts of operations.

EXAMPLE The test item could be a software unit, interfaces between units, a subsystem, or a complete system.

It may also identify any procedures for the transfer of the test item(s) from other environments to the test environment.

6.2.4.3 Test scope

Summarizes the features of the test item(s) to be tested. Also identifies any features of the test item(s) that are to be specifically excluded from testing and the rationale for their exclusion.

EXAMPLE Features to be tested could be specific attributes of the software, functions, interfaces, or business processes.

6.2.4.4 Assumptions and constraints

Describes any assumptions and constraints for the test effort covered by this plan. These may include regulatory standards, the requirements in the Test Policy and the Organizational Test Strategy, contractual requirements, project time and cost constraints, and availability of appropriately-skilled staff, tools and/or environments.

6.2.4.5 Stakeholders

Lists the stakeholders and their relevance to the testing. Describes how the communication with each stakeholder is to be performed.

6.2.5 Testing communication

Describes the lines of communication between testing, other lifecycle activities, and within the organization.

EXAMPLE This could include the authority for resolving issues raised as a result of the testing activities and the authority for approving test products and processes.

This information may be represented visually.

NOTE A visual representation could include an organization chart or a figure that illustrates the flow of information and data.

6.2.6 Risk register

Identifies the risks considered by the testing covered by this plan. This should include any relevant risks that may be specified in the Organizational Test Strategy. Provides an exposure level for each risk based on its impact and probability. Provides recommendations to treat the risks. This section may reference where a separate risk register can be found.

EXAMPLE Recommendations to treat risk could include eliminate, reduce, or ignore risk.

NOTE A risk register could be located in a project plan or a risk management plan.

6.2.6.1 Product risks

Identifies test-related product risks and provides recommendations to treat each risk.

EXAMPLE Test-related product risks could include defects in functionality or in non-functional aspects such as performance.

6.2.6.2 Project risks

Identifies test-related project risks and provides recommendations to treat each risk.

EXAMPLE Test-related project risks could include risks related to schedule or resources.

6.2.7 Test strategy

Describes the approach to testing for the specified test project or test sub-process, as outlined in the following sub-clauses. The document may refer to the Organization Test Strategy stating only its differences from it.

6.2.7.1 Test sub-processes

For a project test plan this identifies the sub-processes of testing that will be conducted.

6.2.7.2 Test deliverables

Identifies all documents that are to be delivered from the testing activity or equivalent information to be recorded electronically, for example in databases or dedicated test tools.

EXAMPLE The following documents could be included:

- Test Plan;
- Test Design Specification;
- Test Case Specification;
- Test Procedure Specification;
- Test Data Readiness Report;
- Test Environment Readiness Report;
- Incident Reports;
- Test Status Reports; and
- Test Completion Report.

Test input data and test output data may be identified as deliverables. Test tools created as part of the testing activity may also be included. If documents have been combined or eliminated, then this list will be modified accordingly.

This subsection may include when the document(s) should be delivered, and to/from whom (preferably by position, not name).

6.2.7.3 Test design techniques

Specifies which test design techniques are to be applied.

6.2.7.4 Test completion criteria

Describes the conditions under which the relevant test organization considers test execution activities to be complete.

EXAMPLE This could be when a specific coverage has been reached and the number of outstanding defects is under a specified limit.

6.2.7.5 Metrics to be collected

Describes the metrics for which values are to be collected during the test activities.

6.2.7.6 Test data requirements

Specifies all relevant test data requirements for the project or test sub-process (as appropriate).

EXAMPLE This could identify the origin of the test data and state where specific test data is located, whether data has to be disguised for confidentiality reasons, and/or the role responsible for the test data.

These test data requirements may be deferred to the Test Data Requirements document (see 7.5), as applicable.

6.2.7.7 Test environment requirements

Specifies the necessary and desired properties of the test environment.

EXAMPLE This could include hardware, software, testing tools, databases, and personnel (identifying their organizations, as appropriate).

Includes information regarding selection, evaluation, acquisition and support for each tool. It may include test environment requirements for test preparation, test execution (including data capture), and any post-execution activities.

EXAMPLE A post-execution activity could be data analysis.

These test environment requirements may be deferred to the Test Environment Requirements document (see 7.6), as applicable, but reference to this separate document should be stated in the Test Plan.

6.2.7.8 Retesting and regression testing

Specifies the conditions under which retesting and regression testing will be performed. This could include a description of the estimated number of test cycles.

6.2.7.9 Suspension and resumption criteria

Specifies the criteria used to suspend and resume all or a portion of the testing activities in the Test Plan. Identifies who is responsible for suspending and resuming testing activities. Specifies the testing activities that may have to be repeated when testing is resumed.

6.2.7.10 Deviations from the Organizational Test Strategy

Records any Test Plan content that deviates from the Organizational Test Strategy. Identifies the authorities responsible for approving deviations, where applicable.

6.2.8 Testing activities and estimates

Identifies all necessary testing activities based on the test process to be used. The activity iteration strategy for the re-execution of test activities should be considered as well as any dependencies.

NOTE The testing activities could be described in terms of a work breakdown structure or activities on an activity board in agile projects.

EXAMPLE Activities that could be considered include those concerning retesting and regression testing.

Describes estimates for each of the identified testing activities to be performed as part of the testing activities covered by the test plan. Additionally, where appropriate, describes the allocated testing budget and cost estimates or references where that information can be found.

NOTE Budget and cost estimates could be located in the project plan.

6.2.9 Staffing

Describes the staffing requirements for the testing covered by this plan.

6.2.9.1 Roles, activities, and responsibilities

Provides an overview of the primary (they are the activity leader) and secondary (they are not the leader, but providing support) people filling the test-related roles and their corresponding responsibilities and authority for the testing activities. In addition, identifies those responsible for providing the test item(s). They may be participating either full- or part-time.

EXAMPLE The responsible parties could include the project manager, the test manager, the developers, the test analysts and executors, operations staff, user representatives, technical support staff, data administration staff, and quality support staff.

For each testing person, specify the period(s) when the person is required.

6.2.9.2 Hiring needs

Identifies specific requirements for additional testing staff that are necessary for the test project or test sub-process. Specifies when the staff are needed, if they should be temporary, full or part time, and the desired skill set. These may be defined by contract and business needs.

NOTE Staffing could be accomplished by internal transfer, external hiring, consultants, subcontractors, business partners, and/or outsourced resources.

6.2.9.3 Training needs

Specifies test training needs by skill level and identifies training options for providing the necessary skills for the staff needed.

EXAMPLE Training can take a variety of forms, including options such as traditional classroom training, self-paced computer-based training, training over the Internet, visiting the future user site, and mentoring by more knowledgeable staff members.

6.2.10 Schedule

Identifies test milestones defined in the project schedule and from the test strategy. Summarizes the overall schedule of the testing activities, identifying where activity results feed back to the development,

organizational, and supporting processes. Specifies the schedule for each testing activity and test milestones based on the activity estimates, available resources, and other constraints.

EXAMPLE Supporting processes could be quality assurance and configuration management.

6.3 Test Status Report

6.3.1 Overview

The Test Status Report provides information about the status of the testing that is performed in a specific reporting period.

NOTE In an agile project, the Test Status Report might not be a written document. For example, its contents could be discussed at iteration meetings and supplemented by information stored on activity boards and burn-down charts.

Annex A.2.5 provides an outline of the Test Status Report, while Annexes G.1 and G.2 provide examples that demonstrate how Test Status Reports could be developed for two different example projects.

The contents of the Test Status Report include:

6.3.2 Document specific information

6.3.2.1 Overview

This information identifies the document and describes its origins and history.

NOTE The information could be placed on an early page in a document, or in a central place if the contents are kept in electronic form, e.g. in a database.

6.3.2.2 Unique identification of document

Uniquely identifies a version of the document.

EXAMPLE The unique identifier could include the title of the document, the date of issue, version, and/or document status (e.g. draft, reviewed, corrected, final).

6.3.2.3 Issuing organization

Specifies the organization responsible for preparing and releasing the document. It may also include the author(s).

6.3.2.4 Approval authority

Identifies the designated person(s) who have the responsibility for reviewing and signing off on the document (possibly electronically). It may also include the reviewers and pertinent managers.

6.3.2.5 Change history

Includes a log of all of the changes that have occurred to the document since its inception.

EXAMPLE 1 This could include a list including the present version of the document and any predecessor documents containing the unique identification of each document, description of document changes with respect to the previous document in the list, reason for changes, and the name and role of the person making the changes.

EXAMPLE 2 Reasons for changes could include audit comments, team review, and system changes, and person making the change could be document author, project manager, system owner.

6.3.3 Introduction

Provides explanatory information about the context and structure of the document.

6.3.3.1 Scope

Identifies the extent of the coverage of the subject area by the document, and describes any inclusions, exclusions, assumptions and/or limitations.

6.3.3.2 References

Lists referenced documents and identifies repositories for system, software, and test information. The references may be separated into “external” references that are imposed from outside the organization and “internal” references that are imposed from within the organization.

6.3.3.3 Glossary

Provides a lexicon for the terms, abbreviations, and acronyms, if any, used in the document.

NOTE This section could be an annex, or it could refer to another document providing a general glossary. All or part of the glossary and/or acronym list could be online, as a separate testing specific glossary or incorporated in a larger organizational glossary (including more terms than just those that are testing related).

6.3.4 Test status

Provides information on the status of the testing for the reporting period.

6.3.4.1 Reporting period

Specifies the time period covered by the report.

6.3.4.2 Progress against Test Plan

Describes the progress that has been made against the Test Plan. Any notable deviations from the plan should be highlighted, with explanations of the reasons for deviation, description of any remedial actions, an account of the effects, and consideration of the implications with regard to planned project objectives.

6.3.4.3 Factors blocking progress

Identifies those factors that impeded progress during the reporting period and the corresponding solutions that were implemented to remove them. Outstanding (unsolved) issues still impeding progress should be recorded and possible solutions identified.

6.3.4.4 Test measures

Presents the collated test measures related to the end of the reporting period.

EXAMPLE This could include measures on test cases, defects, incidents, test coverage, activity progress and resource consumption.

6.3.4.5 New and changed risks

Lists the new risks that have been identified as a result of monitoring and controlling testing as well as changes to existing risks during the reporting period.

6.3.4.6 Planned testing

Describes the planned testing for the next reporting period.

6.4 Test Completion Report

6.4.1 Overview

The Test Completion Report provides a summary of the testing that was performed. This may be for the project/programme as a whole or for the particular test sub-process.

Annex A.2.6 provides an outline of the Test Completion Report, while Annexes H.1 and H.2 provide examples that demonstrate how Test Completion Reports could be developed for two different example projects.

The contents of the Test Completion Report include:

6.4.2 Document specific information

6.4.2.1 Overview

This information identifies the document and describes its origins and history.

NOTE The information could be placed on an early page in a document, or in a central place if the contents are kept in electronic form, e.g. in a database.

6.4.2.2 Unique identification of document

Uniquely identifies a version of the document.

EXAMPLE The unique identifier could include the title of the document, the date of issue, version, and/or document status (e.g. draft, reviewed, corrected, final).

6.4.2.3 Issuing organization

Specifies the organization responsible for preparing and releasing the document. It may also include the author(s).

6.4.2.4 Approval authority

Identifies the designated person(s) who have the responsibility for reviewing and signing off on the document (possibly electronically). It may also include the reviewers and pertinent managers.

6.4.2.5 Change history

Includes a log of all of the changes that have occurred to the document since its inception.

EXAMPLE 1 This could include a list including the present version of the document and any predecessor documents containing the unique identification of each document, description of document changes with respect to the previous document in the list, reason for changes, and the name and role of the person making the changes.

EXAMPLE 2 Reasons for changes could include audit comments, team review, and system changes, and person making the change could be document author, project manager, system owner.

6.4.3 Introduction

Provides explanatory information about the context and structure of the document.

6.4.3.1 Scope

Identifies the extent of the coverage of the subject area by the document, and describes any inclusions, exclusions, assumptions and/or limitations.

6.4.3.2 References

Lists referenced documents and identifies repositories for system, software, and test information. The references may be separated into “external” references that are imposed from outside the organization and “internal” references that are imposed from within the organization.

6.4.3.3 Glossary

Provides a lexicon for the terms, abbreviations, and acronyms, if any, used in the document.

NOTE This section could be an annex, or it could refer to another document providing a general glossary. All or part of the glossary and/or acronym list could be online, as a separate testing specific glossary or incorporated in a larger organizational glossary (including more terms than just those that are testing related).

6.4.4 Testing performed

Provides a description of the testing performed.

6.4.4.1 Summary of testing performed

Summarizes the testing performed across the project and/or in the test sub-processes that are in scope for this report.

Provides details on what was tested, and describes any constraints on how the testing was performed.

EXAMPLE This could include restrictions on test environment availability.

6.4.4.2 Deviations from planned testing

Describes deviations from the planned testing, if any. This section may also reference the section on residual risks for any risks that the deviations pose to the testing and their relevant risk treatments.

6.4.4.3 Test completion evaluation

Describes the extent to which the testing met the specified test completion criteria, and where necessary, explains why the criteria were not met. This section may also reference the section on residual risks for any risks that any incomplete completion criteria pose to the testing and their relevant risk treatments.

6.4.4.4 Factors that blocked progress

Identifies those factors that impeded progress and the corresponding solutions that were implemented to remove them.

6.4.4.5 Test measures

Presents the collated test measures.

EXAMPLE This could include measures for test cases, defects, incidents, test coverage, activity progress, and resource consumption.

6.4.4.6 Residual risks

Lists the risks that are untreated at the end of the testing; this may be risks that have not been fully treated by the test and /or any new risks identified as a result of the final monitoring and closure of the test.

6.4.4.7 Test deliverables

Lists all the test deliverables produced as a result of the test effort and their location.

EXAMPLE This could include the Test Plan, Test Case Specifications and Test Procedure Specifications.

6.4.4.8 Reusable test assets

Lists all the reusable test assets and their location.

EXAMPLE This could include test procedures and test data that were produced as a result of the test effort.

6.4.4.9 Lessons learned

Describes the results of the lessons learned meeting.

7 Dynamic Test Processes Documentation

7.1 Overview

The documents developed in the dynamic test processes comprise the following types:

- Test Specification, divided into:
 - Test Design Specification;
 - Test Case Specification;
 - Test Procedure Specification.

NOTE These could be separate documents, could appear as chapters in a test specification document, or could be in the form of charters depending on the size and nature of the test project.

- Test Data Requirements;
- Test Environment Requirements;
- Test Data Readiness Report;
- Test Environment Readiness Report;
- Test Execution Documentation, divided into:
 - Actual Results;
 - Test Results;
 - Test Execution Log.
- Incident Report.

The full templates with explanatory text for the documents are found below. Annex A provides an abbreviated overview of each document. Annexes I to S provide examples of the dynamic test process documentation for example organizations.

NOTE There are many documentation styles and names, e.g. in agile, session sheets and charters with test ideas. It is expected that in the tailoring defined in clause 2.2, other names might be substituted for the names in this part. A mapping could be produced. In the annexes to this standard, examples for two different project types are presented with options for tailoring of names. The annexes are not inclusive of all document names, formats, and test methodologies, but intended to show some possible options.

7.2 Test Design Specification

7.2.1 Overview

The Test Design Specification identifies the features to be tested, and the test conditions derived from the test basis for each of the features as the first step towards the definition of test cases and test procedures to be executed.

Annex A.2.7 provides an outline of the Test Design Specification, while Annexes I.1 and I.2 provide examples that demonstrate how Test Design Specifications could be developed for two different example projects.

The contents of the Test Design Specification include:

7.2.2 Document specific information

7.2.2.1 Overview

This information identifies the document and describes its origins and history.

NOTE The information could be placed on an early page in a document, or in a central place if the contents are kept in electronic form, e.g. in a database.

7.2.2.2 Unique identification of document

Uniquely identifies a version of the document.

EXAMPLE The unique identifier could include the title of the document, the date of issue, version, and/or document status (e.g. draft, reviewed, corrected, final).

7.2.2.3 Issuing organization

Specifies the organization responsible for preparing and releasing the document. It may also include the author(s).

7.2.2.4 Approval authority

Identifies the designated person(s) who have the responsibility for reviewing and signing off on the document (possibly electronically). It may also include the reviewers and pertinent managers.

7.2.2.5 Change history

Includes a log of all of the changes that have occurred to the document since its inception.

EXAMPLE 1 This could include a list including the present version of the document and any predecessor documents containing the unique identification of each document, description of document changes with respect to the previous document in the list, reason for changes, and the name and role of the person making the changes.

EXAMPLE 2 Reasons for changes could include audit comments, team review, and system changes, and person making the change could be document author, project manager, system owner.

7.2.3 Introduction

Provides explanatory information about the context and structure of the document.

7.2.3.1 Scope

Identifies the extent of the coverage of the subject area by the document, and describes any inclusions, exclusions, assumptions and/or limitations.

7.2.3.2 References

Lists referenced documents and identifies repositories for system, software, and test information. The references may be separated into “external” references that are imposed from outside the organization and “internal” references that are imposed from within the organization.

7.2.3.3 Notation convention(s)

Defines and explains any identification or numbering schemes needed for test sets and test conditions, if this is not defined elsewhere.

NOTE This could be found in a Configuration Management Plan.

7.2.3.4 Glossary

Provides a lexicon for the terms, abbreviations, and acronyms, if any, used in the document.

NOTE This section could be an annex, or it could refer to another document providing a general glossary. All or part of the glossary and/or acronym list could be online, as a separate testing specific glossary or incorporated in a larger organizational glossary (including more terms than just those that are testing related).

7.2.4 Feature sets

7.2.4.1 Overview

A feature set is a logical grouping of the features to be tested for the test item(s), which are specified in the Test Plan. The features to be tested may be described by a single feature set or a number of feature sets, possibly arranged in a hierarchy. The feature sets may correspond directly to the architecture of the test item(s), or may be different if this facilitates a more efficient test. A feature set may also be a business process that consists of a series of features. Each feature set may be treated independently of other feature sets in the subsequent test design activities.

The feature sets may be described in lists or in tables in a document or using a tool.

EXAMPLE Feature sets could be stored in a database or a dedicated test tool.

The information for a feature set includes:

7.2.4.2 Unique identifier

Describes the unique identifier for the feature set so that it can be distinguished from all other feature sets. An automated tool may control the generation of the identifiers, or it may be done manually according to the appropriate notation scheme. The unique identifier is not to be changed during the lifetime of the feature set, because it is used for traceability purposes.

7.2.4.3 Objective

Identifies and briefly describes the special focus or objective for the feature set.

7.2.4.4 Priority

Defines the priority for the testing of this particular feature set, if needed.

7.2.4.5 Specific strategy

Specifies the implementation of the strategy for testing the feature set.

EXAMPLE This could include the use of specific test design techniques, defined in the corresponding Test Plan, if needed.

7.2.4.6 Traceability

Lists reference(s) to the associated features in the test basis.

NOTE The traceability could be documented in a Test Traceability Matrix or a tool.

EXAMPLE Features could be requirement(s) and/or design description(s).

7.2.5 Test conditions

7.2.5.1 Overview

Summarizes the test conditions for a feature set. A test condition is an individual item or event specified in the test basis that could be verified by one or more test cases.

NOTE A test condition could simply be a reference to a requirement (if the requirement is expressed in a verifiable way, i.e. if it includes an identifiable acceptance criterion), or to a design description. A test condition could also be a rewording of a requirement, a set of requirements, or a design description created for the purpose of testing, e.g. summarising a number of requirements in a decision table model or as a state model.

This section in the Test Design Specification could be formatted to list test conditions under corresponding feature sets.

NOTE The test conditions could be described in lists or in tables in a document or using a tool, e.g. a database or a dedicated test tool. Test conditions are not always formally documented, as they could be seen as a first draft of test coverage items and/or test cases.

The information for a test condition includes:

7.2.5.2 Unique identifier

Describes the unique identifier for the test condition so that it can be distinguished from all other test conditions. An automated tool may control the generation of the identifiers, or it may be done manually according to the appropriate notation scheme. The unique identifier is not to be changed during the lifetime of the test condition, because it is used for traceability purposes.

When the number or volatility of test conditions is so high that these requirements for unique identifiers become impractical, they may be replaced by the use of other means, generally based on automated tools, to establish traceability between test cases and test conditions.

7.2.5.3 Description

Describes the test condition, i.e. what can be tested. This may be written in natural language, and/or expressed as tabular or graphical models, as appropriate. It may simply reference the requirement that serves as the test condition.

7.2.5.4 Priority

Defines the priority for the testing of this particular test condition within the feature set. The higher priority test conditions will be tested earlier and more extensively than the lower priority test conditions.

7.2.5.5 Traceability

Describes traceability to the feature set or lists reference(s) to the associated requirement(s) and/or design description(s) in the test basis. This could be documented in a Test Traceability Matrix.

7.3 Test Case Specification

7.3.1 Overview

The Test Case Specification identifies the test coverage items and the corresponding test cases derived from the test basis for one or more feature sets.

Annex A.2.8 provides an outline of the Test Case Specification, while Annexes J.1 and J.2 provide examples that demonstrate how Test Case Specification could be developed for two different example projects.

The contents of the Test Case Specification include:

7.3.2 Document specific information

7.3.2.1 Overview

This information identifies the document and describes its origins and history.

NOTE The information could be placed on an early page in a document, or in a central place if the contents are kept in electronic form, e.g. in a database.

7.3.2.2 Unique identification of document

Uniquely identifies a version of the document.

EXAMPLE The unique identifier could include the title of the document, the date of issue, version, and/or document status (e.g. draft, reviewed, corrected, final).

7.3.2.3 Issuing organization

Specifies the organization responsible for preparing and releasing the document. It may also include the author(s).

7.3.2.4 Approval authority

Identifies the designated person(s) who have the responsibility for reviewing and signing off on the document (possibly electronically). It may also include the reviewers and pertinent managers.

7.3.2.5 Change history

Includes a log of all of the changes that have occurred to the document since its inception.

EXAMPLE 1 This could include a list including the present version of the document and any predecessor documents containing the unique identification of each document, description of document changes with respect to the previous document in the list, reason for changes, and the name and role of the person making the changes.

EXAMPLE 2 Reasons for changes could include audit comments, team review, and system changes, and person making the change may be document author, project manager, system owner.

7.3.3 Introduction

Provides explanatory information about the context and structure of the document.

7.3.3.1 Scope

Identifies the extent of the coverage of the subject area by the document, and describes any inclusions, exclusions, assumptions and/or limitations.

7.3.3.2 References

Lists referenced documents and identifies repositories for system, software, and test information. The references may be separated into “external” references that are imposed from outside the organization and “internal” references that are imposed from within the organization.

7.3.3.3 Notation convention(s)

Defines and explains any identification or numbering schemes needed for test coverage items and test cases, if this is not defined elsewhere.

NOTE This could be found in a Configuration Management Plan.

7.3.3.4 Glossary

Provides a lexicon for the terms, abbreviations, and acronyms, if any, used in the document.

NOTE This section could be an annex, or it could refer to another document providing a general glossary. All or part of the glossary and/or acronym list could be online, as a separate testing specific glossary or incorporated in a larger organizational glossary (including more terms than just those that are testing related).

7.3.4 Test coverage items

7.3.4.1 Overview

Summarizes the test coverage items for the test conditions. Test coverage items are derived by applying a test design technique to the test condition.

EXAMPLE Equivalence partitioning will identify test coverage items in terms of valid and invalid equivalence partitions.

This section in the Test Case Specification could be formatted to list test coverage items under corresponding feature sets and/or test conditions.

NOTE The test coverage items could be described in lists or in tables in a document or using a tool, e.g. a database or a dedicated test tool. Test coverage items are not always formally documented, as they could be seen as a draft of test cases.

The information for a test coverage item includes:

7.3.4.2 Unique identifier

Describes the unique identifier for the test coverage item so that it can be distinguished from all other test coverage items. An automated tool may control the generation of the identifiers, or it may be done manually according to the appropriate notation scheme. The unique identifier is not to be changed during the lifetime of the test coverage item, because it is used for traceability purposes.

When the number or volatility of test conditions is so high that these requirements for unique identifiers become impractical, they may be replaced by the use of other means, generally based on automated tools, to establish traceability between test cases and test conditions.

7.3.4.3 Description

Describes the test coverage item, i.e. what is expected to be covered by a test case according to the test design technique that was used during its derivation. It may also include additional information about the coverage item.

EXAMPLE Whether or not it is a valid or invalid equivalence partition.

7.3.4.4 Priority

Defines the priority for the testing of this particular test coverage item within the test condition, if needed. The higher priority test coverage items will be run before the lower priority test coverage items.

7.3.4.5 Traceability

Describes traceability to the test condition or feature set that the test coverage item belongs to or lists reference(s) to the associated test basis. This may be documented in a Test Traceability Matrix.

EXAMPLE Test basis could be requirements or design.

7.3.5 Test cases

7.3.5.1 Overview

Defines the test cases derived from the test coverage items. A test case specifies how one or more test coverage item(s) are exercised to help determine whether or not that part of the test item has been implemented correctly.

The number of test cases derived from test coverage items will depend on the test coverage criterion defined in the Test Plan.

This section in the Test Case Specification could be formatted to list test cases under corresponding feature sets and/or test conditions.

NOTE The test cases could be described in lists or in tables in a document or using a tool, e.g. a database or a dedicated test tool.

The information for a test case includes:

7.3.5.2 Unique identifier

Describes the unique identifier for the test case so that it can be distinguished from all other test cases. An automated tool may control the generation of the identifiers or it may be done manually according to the appropriate notation scheme. The unique identifier is not to be changed during the lifetime of the test case item, because it is used for traceability purposes.

7.3.5.3 Objective

Identifies and briefly describes the special focus or objective of the test case. This is typically in the form of a title.

7.3.5.4 Priority

Defines the priority for the testing of this particular test case, if needed. The higher priority test cases will be run before the lower priority test cases.

7.3.5.5 Traceability

Describes traceability to the test coverage item that the test case exercises or lists reference(s) to the associated requirement(s) and/or design description(s) in the test basis. This may be documented in a Test Traceability Matrix.

7.3.5.6 Preconditions

Describes the required state of the test environment and any special constraints pertaining to the execution of the test case.

EXAMPLE The state the test item must be in before execution could start, including existence of specific test data and the currently active form or screen.

This could be described explicitly or it could include references to other test cases, whose execution will set the preconditions.

The environment needed may be described collectively for one or more feature sets, or it may not be described in this specification if the description in the Test Plan is sufficient.

7.3.5.7 Inputs

Specifies each action required to bring the test item into a state where the expected result can be compared to the actual results. The detail of the descriptions should be tailored to fit the knowledge of the test executors.

NOTE This could require provision of input data and/or events, e.g. button clicks, to the test item. Some of the input data may be specified by value, while others may be specified by name. Constant tables, transaction files, databases, files, terminal messages, memory resident areas, and values passed by the operating system must be considered.

All required relationships between input events must be described.

EXAMPLE A relationship could be timing.

The actions may be numbered within the test case, if needed.

7.3.5.8 Expected results

Specifies the expected outputs and behaviour required of the test item in response to the inputs that are given to the test item when it is in its precondition state. Provides the expected value(s) (with tolerances where appropriate) for each required output.

EXAMPLE Behaviour required of the test item could be response time.

The actions required to compare the expected results to the actual results may also be specified. For instance, examining the output in a field on a form that is not active when the input is provided, waiting for a batch job to run and a report to be printed out and examined, or closing down the test item and restarting it to examine stored data.

7.3.5.9 Actual results and test result

The description of a test case may include placeholders to record actual results and/or test result during execution of the test case. Alternatively, these may be recorded in the Test Procedure Specification (see clause 7.4), or separately in the Actual Results (see clause 7.9) and/or Test Result (see clause 7.10).

7.4 Test Procedure Specification

7.4.1 Overview

The Test Procedure Specification describes the test cases in the selected test sets in execution order, along with any associated actions that may be required to set up the initial preconditions and any post execution wrap up activities.

NOTE The test procedures could be described in lists or in tables in a document or using a tool, e.g. a database or a dedicated test tool.

Annex A.2.9 provides an outline of the Test Procedure Specification, while Annexes K.1 and K.2 provide examples that demonstrate how Test Procedure Specifications could be developed for two different example projects.

The contents of the Test Procedure Specification include:

7.4.2 Document specific information

7.4.2.1 Overview

This information identifies the document and describes its origins and history.

NOTE The information could be placed on an early page in a document, or in a central place if the contents are kept in electronic form, e.g. in a database.

7.4.2.2 Unique identification of document

Uniquely identifies a version of the document.

EXAMPLE The unique identifier could include the title of the document, the date of issue, version, and/or document status (e.g. draft, reviewed, corrected, final).

7.4.2.3 Issuing organization

Specifies the organization responsible for preparing and releasing the document. It may also include the author(s).

7.4.2.4 Approval authority

Identifies the designated person(s) who have the responsibility for reviewing and signing off on the document (possibly electronically). It may also include the reviewers and pertinent managers.

7.4.2.5 Change history

Includes a log of all of the changes that have occurred to the document since its inception.

EXAMPLE 1 This could include a list including the present version of the document and any predecessor documents containing the unique identification of each document, description of document changes with respect to the previous document in the list, reason for changes, and the name and role of the person making the changes.

EXAMPLE 2 Reasons for changes could include audit comments, team review, and system changes, and person making the change could be document author, project manager, system owner.

7.4.3 Introduction

Provides explanatory information about the context and structure of the document.

7.4.3.1 Scope

Identifies the extent of the coverage of the subject area by the document, and describes any inclusions, exclusions, assumptions and/or limitations.

7.4.3.2 References

Lists referenced documents and identifies repositories for system, software, and test information. The references may be separated into “external” references that are imposed from outside the organization and “internal” references that are imposed from within the organization.

7.4.3.3 Notation convention(s)

Defines and explains any identification or numbering schemes needed for test sets and test procedures, if this is not defined elsewhere.

NOTE This could be found in a configuration management plan.