Conformity Assessment Scheme

pertaining to the process assessment of process capability and organisational process maturity

Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the Copyright Owner.

© The SPICE User Group.

Contents

Page

Introduction

This document defines the PATHFINDER™[1] conformity assessment scheme pertaining to the process assessment of process capability and organisational process maturity.

The overall framework for conformity assessment follows the approach defined in ISO/IEC 17020:2012, Conformity assessment — Requirements for the operation of various types of bodies performing inspection.

In this document, the following verbal forms are used:

— “shall” indicates a requirement;

— “should” indicates a recommendation;

— “may” indicates a permission;

— “can” indicates a possibility or a capability.

[1] PATHFINDER™ is a trademark of The SPICE User Group.

Conformity assessment scheme pertaining to the process assessment of process capability and organisational process maturity

1. Scope

This document defines the PATHFINDER™ conformity assessment scheme, based on existing published ISO/IEC standards and guides, pertaining to the process assessment of process capability and organisational process maturity, performed according to the ISO/IEC 33002 Requirements for performing an assessment.

The conformity assessment scheme is currently available for organisations that are encompassed by and that wish to be assessed against process assessment models and maturity models defined in this document and in the following international, national or de facto standards:

- ISO/IEC 330xx family:—, Information technology – Process assessment
- ISO/IEC 15504 series:—, Information technology – Process assessment
- ISO/IEC 30105 series:—, Information technology – IT Enabled Services Business process outsourcing lifecycle processes (ITESBPO)
- ISO/IEC 29110 series:—, Software engineering – Lifecycle profiles for Very Small Entities (VSEs)
- ISO/IEC 33071:—, Information technology – Process assessment – An integrated process capability assessment model for Enterprise processes (Enterprise SPICE®[2]) (www.enterprisespice.com)
- Automotive SPICE®[3] Process Assessment Model v2.4, v3.0 & v3.1:— (www.automotivespice.com)
- MDevSPICE®[4] Process Assessment Model:— (www.mdevspice.com)
- SS7740:— Road vehicles – Functional safety Process Assessment Model (www.ss7740.com)

An assessment of process capability is performed within the context of an organizational unit. An organizational unit deploys one or more processes that have a coherent process context and operates within a coherent set of business goals. Organizational process maturity is the extent to which an organization consistently implements processes within a defined scope that contribute to the achievement of its business goals (current or projected).

ISO/IEC 29169 sets out the basis for a conformity assessment scheme through the application of conformity assessment to performing assessments of process quality characteristics and organizational process maturity according the the requirements of the ISO/IEC 330xx family of process assessment standards, in order to support an environment which encourages worldwide recognition of conformity assessment results.

Conformity assessment, also known as compliance assessment, is any activity to determine, directly or indirectly, that a process, product, or service meets relevant standards and fulfils relevant requirements. A conformity assessment scheme ensures that a set of rules are carried out under the same management for assessing conformity with the same set of specified requirements.

---

[2] Enterprise SPICE® is a registered trademark.

[3] Automotive SPICE® is a registered trademark of the Verband der Automobilindustrie e.V. (VDA).

[4] MDevSPICE® is a registered trademark of Dundalk Institute of Technology.

2. Normative references

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

1) ISO/IEC 330xx family:—, Information technology – Process assessment

2) ISO/IEC 33001:2014, Information technology – Process assessment – Concepts and vocabulary

3) ISO/IEC 33002:2014, Information technology – Process assessment – Requirements for performing an assessment

4) ISO/IEC 33003:2014, Information technology – Process assessment – Requirements for process measurement frameworks

5) ISO/IEC 33004:2014, Information technology – Process assessment – Requirements for process reference, process assessment and maturity models

6) ISO/IEC 33020:2014, Information technology – Process assessment – Process measurement framework for assessment of process capability

7) ISO/IEC 29169:2016, Information technology – Process assessment – Application of conformity assessment methodology to the assessment of process quality characteristics and organisational process maturity

8) ISO/IEC 15504 series:—, Information technology – Process assessment

9) ISO/IEC 30105 series:—, Information technology – IT Enabled Services Business process outsourcing lifecycle processes (ITESBPO)

10) ISO/IEC 29110 series:—, Software engineering – Lifecycle profiles for Very Small Entities (VSEs)

11) ISO/IEC 33071:2016, Information technology – Process assessment – An integrated process capability assessment model for Enterprise processes (Enterprise SPICE®) (www.enterprisespice.com)

12) Automotive SPICE® Process Assessment Model v2.4 & v3.0 & v3.1:— (www.automotivespice.com)

13) MDevSPICE® Process Assessment Model:— (www.mdevspice.com)

14) SS7740:—, Road vehicles – Functional safety Process Assessment Model:— (www.ss7740.com)

15) ISO/IEC 17000:2004, Conformity assessment – Vocabulary and general principles

16) ISO/IEC 17020:2012, Conformity assessment — Requirements for the operation of various types of bodies performing inspection

17) ISO/IEC 17030:2003, Conformity assessment – General requirements for third-party marks of conformity

18) ISO/IEC 17050-1:2004, Conformity assessment – Supplier's declaration of conformity – Part 1: General requirements

19) ISO/IEC 17050-2:2004, Conformity assessment – Supplier's declaration of conformity – Part 2: Supporting documentation

20) ISO/IEC 17065:2012, Conformity assessment – Requirements for bodies certifying products, processes and services

21) Common framework for ISO/IEC 330xx assessor training:—, The SPICE User Group

22) PS18 Evaluation of conformity assessment schemes: January 2013 Issue 1, Irish National Accreditation Board

3. Terms and definitions

For the purposes of this document, the definitions in ISO/IEC 33001:—, ISO/IEC 33020:—, ISO/IEC 17000:2004, ISO/IEC 17020:2012, ISO/IEC 17030:2003 and PS18 Issue 1 Evaluation of conformity assessment schemes, January 2013 apply.

3.1 Terms related to process assessment

Wherever the term **assessment** is used without the word **conformity** (e.g. assessment, process assessment, conformant process assessment, assessment body) the relevant ISO/IEC 33001 definitions apply.

For the convenience of use of this document, the following basic and general terms relating to assessment are repeated from ISO/IEC 33001.

3.1.1
assessment body
body, that performs an assessment
NOTE A body may be an organization, or part of an organization, that performs the assessment.
[SOURCE: Adapted from ISO/IEC 17020:2000, 2.2]
[ISO/IEC 33001:2014, 3.2.1]

3.1.2
assessor
individual who participates in the rating of process attributes
[ISO/IEC 33001:2014, 3.2.11]

3.1.3
lead assessor
assessor who has demonstrated the competencies to conduct an assessment and to monitor and verify the conformance of a process assessment
[ISO/IEC 33001:2014, 3.2.12]

3.1.4
organizational unit
identified part of an organization that deploys one or more processes that operate within a coherent set of business goals, and which forms the basis for the scope of an assessment.
NOTE An organizational unit is typically part of a larger organization, although in a small organization the organizational unit may be the whole organization
[ISO/IEC 33001:2014, 3.2.14]

3.1.5
principal assessor
lead assessor who has demonstrated extensive experience and who is qualified as competent to lead 3rd party category A class 1 and class 2 assessments which lead to the issuance of a certificate of conformity.
[This conformity assessment scheme]

3.1.6
process assessment
disciplined evaluation of an organizational unit's processes against a process assessment model
[ISO/IEC 33001:2014, 3.2.15]

3.1.7
process assessment model
model suitable for the purpose of assessing a specified process quality characteristic, based on one or more process reference models
[ISO/IEC 33001:2014, 3.3.9]

3.1.8
process reference model
model comprising definitions of processes in a life cycle described in terms of process purpose and outcomes, together with an architecture describing the relationships between the processes
[ISO/IEC 33001:2014, 3.3.16]

3.2 Terms related to inspection

The term '**inspection**' as used in ISO/IEC 17020 is synonymous with the term '**process assessment'** as defined in ISO/IEC 33001 and used throughout the ISO/IEC 330xx family of process assessment standards.

For the convenience of use of this document, the following basic and general terms relating to inspection are repeated from ISO/IEC 17020.

3.2.1
inspection
examination of a product, process, service, or installation or their design and determination of its conformity with specific requirements or, on the basis of professional judgment, with general requirements
NOTE 1 Inspection of processes can include personnel, facilities, technology or methodology.
NOTE 2 Inspection procedures or schemes can restrict inspection to examination only.
NOTE 3 Adapted from ISO/IEC 17000:2004, definition 4.3.
[ISO/IEC 17020:2012, 3.1]

3.2.2
inspection body
body that performs **inspection** (3.1)
NOTE An inspection body can be an organization, or part of an organization
[ISO/IEC 17020:2012, 3.5]

3.3 Terms related to conformity assessment

Where the term **conformity assessment** is used the definition in ISO/IEC 17000 applies.

For the convenience of use of this document, the following basic and general terms relating to conformity assessment are repeated from ISO/IEC 17000.

3.3.1
conformity assessment
demonstration that specified requirements relating to a product, process, system, person or body are fulfilled
[ISO/IEC 17000:2004, 2.1]

3.3.2
conformity assessment body
body that performs conformity assessment services
[ISO/IEC 17000:2004, 2.5]

3.3.3
conformity assessment system
certification system
rules, procedures and management for carrying out conformity assessment
[ISO/IEC 17000:2004, 2.7]
[ISO/IEC 17065:2012, 3.9 NOTE 2]

3.3.4
conformity assessment scheme
conformity assessment programme
certification scheme

conformity assessment system related to specified objects of conformity assessment, to which the same specified requirements, specified rules and procedures apply
[ISO/IEC 17000:2004, 2.8]
[ISO/IEC 17065:2012, 3.9 adapted]
A system of rules, procedures and controls for the consistent and reliable conformity assessment of specified objects to which the same specific requirements apply. A scheme can be supplemented with requirements that apply to organisations conducting the various activities. This is possible by reference to the accreditation standard applicable to the relevant type of organisation, and where this is found necessary, a specification of supplementary requirements or interpretations.
A scheme contains the following elements:

1. Identification of the conformity assessment object
2. The requirements, including any resulting interpretations, against which the object is compared
3. The method in which conformity assessment body determines conformity
4. If applicable, the method of surveillance
5. The requirements, including any resulting interpretations, that apply to the conformity assessment body relating to their organisation, operating methods, personnel, equipment, reporting, certificates etc. These requirements are generally set out in accreditation standards, but may be defined in more specific detail

A document that exclusively details one of the above-mentioned aspects, such as a standard document or interpretation document, is not considered to constitute a scheme.
[PS18 Issue 1 January 2013, 3.1]

3.3.5
object of conformity assessment
any particular material, product (including services), installation, process, system, person or body to which conformity assessment is applied
[adapted from ISO/IEC 17000:2004, 2.1 Note 2]

3.3.6
scheme owner
the organisation that has established the conformity assessment scheme
[PS18 Issue 1 January 2013, 3.1]

3.3.7
specified requirement
need or expectation that is stated
[ISO/IEC 17000:2004, 3.1]

3.3.8
surveillance
systematic iteration of conformity assessment activities as a basis for maintaining the validity of the statement of conformity
[ISO/IEC 17000:2004, 261]

3.3.9
third-party mark of conformity
protected mark issued by a body performing third-party conformity assessment, indicating that an object of conformity assessment (product, process, person, system or body) is in conformity with specified requirements
[ISO/IEC 17030:2003, 3.1]

3.3.10
owner of a third-party mark of conformity
person or organization that has legal rights to a third-party mark of conformity
[ISO/IEC 17030:2003, 3.2]

4. Concepts of conformity assessment

This clause provides a general introduction to the basic concepts of conformity assessment and their usage and relevance to the scope of this conformity assessment scheme.

4.1 Conformity assessment

ISO/IEC 17000 defines conformity assessment as: demonstration that specified requirements relating to a product, process, system, person, or body are fulfilled.

The term ‘object of conformity assessment’, or sometimes just object, is used in ISO/IEC 17000 to refer to “product, process, system, person or body”.

4.2 Conformity assessment and standards

In the context of conformity assessment there are two major aspects of standardization.

The first aspect is the availability of national, regional and international standards that can be used by suppliers, purchasers, conformity assessment bodies and regulators for setting the requirements for an object and assessing its conformity with them.

The scope of the standard should also be clearly stated in terms both of the type of objects to which it relates and to the characteristics of those objects which it specifies.

The standard used as the basis for conformity assessment in the context of this conformity assessment scheme is the international standard ISO/IEC 33002 which defines the requirements for performing process assessment. ISO/IEC 33002 is part of the ISO/IEC 330xx family of process assessment standards.

The types of objects to which ISO/IEC 33002 relate are the processes defined within the scope of a process assessment model conformant with the requirements of ISO/IEC 33004. ISO/IEC 33004 defines the requirements for process reference, process assessment and maturity models conformant with ISO/IEC 33002.

The relevant characteristic of the objects to be assessed is the process quality characteristic of process capability. ISO/IEC 33020 provides a process measurement framework for assessment of process capability which can be incorporated as-is or adapted into any process assessment model. ISO/IEC 33020 meets the requirements of ISO/IEC 33003 which defines the requirements for process measurement frameworks however; any process measurement framework for assessment of the process quality characteristic of process capability which is conformant with the requirements of ISO/IEC 33003 may be used.

The second aspect of particular relevance to conformity assessment bodies is the availability of standards which set out requirements for best practice of conformity assessment and the bodies which carry it out. These standards are intended to ensure that there are consistent and internationally harmonized practices amongst conformity assessment bodies and the bodies with which they work (such as accreditation bodies). The responsibility for preparation and maintenance of these conformity assessment standards lies with ISO/CASCO.

The relevant standard used as a basis of requirements for best practice of conformity assessment and the bodies which carry it out in the context of this conformity assessment scheme is the international standard ISO/IEC 17020:2012, Conformity assessment — Requirements for the operation of various types of bodies performing inspection.

4.3 Determination of conformity to requirements

The essential features of a standard to be used for conformity assessment are that the standard must be so written in accordance with the neutrality principle such that conformity can be assessed and applied by any of the following:

— A manufacturer or supplier (first party)

— A user or purchaser (second party)

— An independent body (third party).

ISO/IEC 33002 which defines the requirements for performing assessment sets out the basis and requirements for conformity to the requirements of the standard to be verified by either a first, second or third party.

The party performing verification shall ensure that the:

— Process assessment has been performed according to the requirements of ISO/IEC 33002

— Documented assessment process has been used for performing process assessment that conforms to the requirements of ISO/IEC 33002

— Process assessment model(s) employed conform to the requirements of ISO/IEC 33004

— Process reference model(s) employed conform to the requirements of ISO/IEC 33004

— Process measurement framework employed conforms to the requirements of ISO/IEC 33003 and

— If relevant, any maturity model employed conforms to the requirements of ISO/IEC 33004.

A Study Group established by the International Standardisation working group on Process Assessment, tasked with providing guidance on the transition of existing ISO/IEC 15504 Process Assessment Models to the ISO/IEC 330xx family of standards, concludes that the;

1) Existing Process Assessment Models conformant to the requirements of ISO/IEC 15504-2 can be taken as conformant to the requirements of ISO/IEC 33004,
2) Exemplar Organizational Maturity Model in ISO/IEC 15504-7 Annex A can be taken as conformant to the requirements of ISO/IEC 33004, and
3) Measurement framework for process capability in ISO/IEC 15504-2 can be taken as conformant to the requirements of ISO/IEC 33003.

When the full migration of ISO/IEC 15504-5, 15504-6, 15504-8 and 15504-10 to the ISO/IEC 330xx family has been completed, these will incorporate a Process measurement framework for process capability based on ISO/IEC 33020.

Use of the ISO/IEC 15504 series of Process Assessment Models and the exemplar Organizational Maturity Model (in ISO/IEC 15504-7 Annex A) can continue until and beyond publication of the ISO/IEC 330xx family of Process Assessment Models; adoption of the new models is a separate issue from the adoption of the enhanced requirements for performing assessment (ISO/IEC 33002).

4.4 Conformity assessment bodies

ISO/CASCO standards and guides define the characteristics for a number of different types of conformity assessment bodies. ISO/IEC 17020 - Requirements for the operation of various types of bodies performing inspection sets out three types of inspection bodies (Types A, B, and C) with different requirements for independence.

ISO/IEC 33002 Annex A sets out a typology to categorize the independence of different types of body and the make-up of the assessment team performing an assessment (Categories A, B, C and D). The relationship between ISO/IEC 17020 types of inspection bodies and the ISO/IEC 33002 typology used to categorize the independence of types of body and the make-up of the assessment team performing an assessment is defined in clause 6.4 of this document.

Inspection as defined in ISO/IEC 17020 is “The examination of a product, process**,** service or installation or their design and determination of its conformity with specific requirements or, on the basis of professional judgment, with general requirements. “

The term ‘inspection’ as used in ISO/IEC 17020 is synonymous with the term ‘process assessment’ as defined in ISO/IEC 33001 and used throughout the ISO/IEC 330xx family of process assessment standards. A process assessment is performed in accordance with the requirements of ISO/IEC 33002.

One of the key phrases in the definition of inspection is “on the basis of professional judgement”. This underlines the fact that the competence is highly dependent on the knowledge, experience and interpretive skills of the personnel performing inspection activities.

ISO/IEC 33002 requires that an assessment is performed on the basis of general and specific requirements based on assessor professional judgement.

In the conformity assessment field as in any other, the competence of the people managing and carrying out the conformity assessment activities is of paramount importance. Whether the work is being carried out by the supplier, the purchaser or an independent body, there must be a clear understanding of the knowledge, skills and experience necessary for those performing the conformity assessment tasks.

ISO/IEC 33002 requires that assessors shall be competent on the basis of appropriate education, training and experience, including domain experience, to perform the required class of assessment and to make professional judgments.

Clause 8 of this document establishes minimum requirements for assessor qualification with respect to education, training, work experience and assessment experience for assessors that will perform assessments under this conformity assessment scheme.

Accreditation bodies carry out conformity assessment of conformity assessment bodies but accreditation bodies are not themselves regarded as conformity assessment bodies. Accreditation is a conformity assessment technique specifically related to the assessment of the conformity of conformity assessment bodies by a third party body.

The requirements for accreditation bodies are specified in ISO/IEC 17011.

4.5 Conformity assessment schemes

There are many advantages to a systematic approach to conformity assessment. The basic building block is a conformity assessment scheme which relates to a particular group of objects having sufficiently similar characteristics that the same set of rules and procedures can be carried out under the same management for assessing conformity with the same set of specified requirements.

The standard used as the basis for conformity assessment in this conformity assessment scheme is the international standard ISO/IEC 33002 which defines the requirements for performing process assessment.

The standard used as the basis for setting out requirements for best practice of conformity assessment and the bodies which carry it out is ISO/IEC 17020:2012, Conformity assessment — Requirements for the operation of various types of bodies performing inspection.

5. Functional approach to conformity assessment

ISO/IEC 17000 sets out a “functional approach” to conformity assessment. The functional approach involves a number of stages: selection – determination – review and attestation, plus surveillance when required. Each stage involves the performance of certain activities, the output from one stage being the input to the next.

This clause provides a summary in general terms of the activities that are generally carried out in each stage.

5.1 Selection

Selection involves planning and preparation activities in order to collect or produce all the information and input needed for the subsequent determination function.

Key activities in selection include

- Specification of the standard(s) to which conformity is to be assessed
- Selection of the examples of the object which is to be assessed.

5.2 Determination

Determination activities are undertaken to develop complete information regarding fulfilment of the specified requirements by the object of conformity assessment.

The output from the determination activities is represented as “information on fulfilment of specified requirements”. The output is a combination of all the information created through determination activity, as well as all the input to the determination function. The output is usually structured to facilitate review and attestation activities.

A key activity in determination is the inspection of process characteristics of the object of the assessment.

At the completion of every determination activity it is necessary to produce the evidence of conformity which has been gathered. The evidence is usually contained in a report, sometimes referred to as a technical file, which includes:

- A definitive identification of the item which has been assessed
- A statement of the requirements to which conformity has been assessed
- Details of the determination activities which have been carried out, such that it would be possible to repeat the activities in the same manner if it was necessary to verify the evidence
- Details of the resources used, including people, measuring instruments and other evaluation tools, to provide traceability of the results
- The results of the activities in sufficient detail for a person not involved in the activities to verify conformity (or nonconformity) with the specified requirements.

The report is passed to the person or body responsible for review and attestation and should be made available to the person or organization for which the work has been done.

5.3 Review and attestation

In the functional approach, review and attestation are presented as a combined activity. It is possible, though, for different people to carry out each of them. What is important is that neither activity should be carried out by a person who has been involved in the determination activities.

The conclusion of the review stage is a recommendation for a statement of conformity to be issued. The recommendation should make reference to the report and to any other findings from the review which substantiates the conformity of the object with the specified requirements.

Key activities in review and attestation include:

- Reviewing the evidence collected from the determination stage as to the conformity of the object with the specified requirements
- Referring back to the determination stage to resolve nonconformities
- Drawing up and issuing a statement of conformity.

In the case that the evidence of conformity is incomplete and one or more of the specified requirements has been overlooked, the report is returned to the person responsible for the determination activities for remedial action to be taken.

The relevant determination activities will need to be repeated and a further report will be presented for review. By agreement with the reviewer, the report need only deal with the changes which have been made.

5.4 Surveillance

Conformity assessment can end when attestation is performed, but where there is a need to provide continuing assurance of conformity, surveillance can be used. Surveillance is defined as a systematic iteration of conformity assessment activities as a basis for maintaining the validity of the statement of conformity.

The activities undertaken in surveillance are planned in order to satisfy the need to maintain the validity of an existing statement resulting from attestation.

Selection activities take place for both the initial assessment and for each surveillance cycle, however a complete repeat of the initial assessment scope is usually not necessary for every surveillance cycle to provide continuing assurance of conformity.

Choices about the specified requirements can be different as well. For example, only a subset of the specified requirements might be selected in any given iteration of surveillance. Or, similarly, only a portion of the object of conformity assessment may be selected for determination activities in surveillance.

The review and attestation function is also used in both initial assessment and surveillance. In surveillance, a review of all the inputs and outputs leads to a decision whether the statement resulting from attestation continues to be valid.

6. Conformity assessment scheme

The requirements of this conformity assessment scheme can be used as a requirements document for the purposes of peer assessment or accreditation.

6.1 Scheme ownership, management and acceptance

The conformity assessment scheme owner is The SPICE User Group.

This conformity assessment scheme has been developed by a team of internationally recognised experts competent in the field of conformity assessment and the technical field of process assessment, together with the consultation and engagement of the stakeholder group of interested parties participating in the pilot application and validation of the scheme. It has also been developed in consultation with a number of national Accreditation Bodies, the ISO's policy committee for conformity assessment (CASCO) and an international network of certification experts.

The conformity assessment scheme has been developed according to the relevant ISO/CASCO standards and guides, and in accordance with ISO/IEC 29169 which defines the application of conformity assessment methodology to the assessment of process quality characteristics and organisational process maturity performed according to the requirements of the ISO/IEC 330xx family of process assessment standards. This supports an environment which encourages worldwide recognition of conformity assessment results.

6.2 Specification of the standards and objects to which conformity is to be assessed

The standard used as the basis for the requirements for conformity assessment in this conformity assessment scheme is the international standard ISO/IEC 33002 which defines the requirements for performing process assessment.

The types of objects to which ISO/IEC 33002 relate are the processes defined within the scope of a process assessment model conformant with the requirements of ISO/IEC 33004.

The relevant characteristic of the objects to be assessed is the process quality characteristic of process capability. ISO/IEC 33020 provides a process measurement framework for assessment of process capability which can be incorporated as-is or adapted into any process assessment model. ISO/IEC 33020 meets the requirements of ISO/IEC 33003 which defines the requirements for process measurement frameworks however; any process measurement framework for assessment of the process quality characteristic of process capability which is conformant with the requirements of ISO/IEC 33003 may be used.

The standard used as the basis for setting out requirements for best practice of conformity assessment and the bodies which carry it out is ISO/IEC 17020:2012, Conformity assessment — Requirements for the operation of various types of bodies performing inspection.

6.3 Conformity assessment requirements

To meet the requirements for conformity assessment in this conformity assessment scheme:

- A process assessment shall be planned and performed in accordance with the requirements of ISO/IEC 33002 clause 4 and in accordance with additional requirements as defined in clause 7 of this document

- Review and attestation activities shall be performed in accordance with clause 9 of this document

- Where continuing assurance is needed or desirable to maintain the validity of an assessment result, periodic surveillance activities shall be performed in accordance with clause 10 of this document

— Assessors performing process assessments shall meet minimum requirements for education, training, work experience and assessment experience as set out in the criteria for assessor qualification defined in clause 8 of this document.

6.4 Categorization of bodies

ISO/IEC 17020 defines three types of inspection body (Types A, B and C) whereas ISO/IEC 33002 Annex A sets out a typology to categorize the independence of different types of body and the make-up of the assessment team performing an assessment (Categories A, B, C and D).

A Type A assessment body (as defined in ISO 17020) also meets the criteria for Category A independence of body and personnel performing assessment (as defined in ISO/IEC 33002 Annex A).

A Type B assessment body (as defined in ISO 17020) also meets the criteria for Category C independence of body and personnel performing assessment (as defined in ISO/IEC 33002 Annex A).

A Type C assessment body (as defined in ISO 17020) also meets the criteria for Category D independence of body and personnel performing assessment (as defined in ISO/IEC 33002 Annex A).

A Category B independence of body and personnel performing assessment (as defined in ISO/IEC 33002 Annex A) does NOT meet the requirements for a Type A assessment body (as defined in ISO 17020) as the makeup of the assessment team would include assessors from within the company being assessed.

Category A body and personnel performing an assessment to claim to be independent shall demonstrate that they are not an employee of the parties involved nor are they directly involved in the design, manufacture, supply, installation, purchase, ownership, use or maintenance of the products or services within the scope of assessment.

6.7 Accreditation

Assessment bodies applying this conformity assessment scheme may seek accreditation. Accreditation is the procedure by which an authoritative body, under relevant accreditation guidelines, gives formal recognition that a body or person is competent to carry out a specific conformity assessment. Conformity assessment bodies seek accreditation when they need an independent third party to assess and declare their competence. However, conformity assessment bodies may comply with the relevant requirements without having to be accredited.

Assessment bodies of Types A, B and C (Categories A, B, C and D) (see 6.4) may seek accreditation to ISO/IEC 17020:2012, Conformity assessment — Requirements for the operation of various types of bodies performing inspection. Assessment bodies of Type A (Category A) (see 6.4) may regard this conformity assessment scheme as a certification scheme for the purposes of accreditation to ISO/IEC 17065:2012, Conformity assessment – Requirements for bodies certifying products, processes and services.

ISO/IEC 29169 provides a set of application notes to amplify the clauses of ISO/IEC 17020 in the context of use with the ISO/IEC 330xx family of process assessment standards.

Accreditation is not a requirement but a matter of market confidence. Conformity assessment schemes operate in the market on both an accredited and non-accredited basis.

7. Requirements for performing an assessment

This conformity assessment scheme establishes a number of additional requirements to those defined in ISO/IEC 33002 Requirements for performing an assessment.

Further guidance on planning and performing an assessment is provided in clause 11.

7.1 Products, services and projects pre-dating the deployment of processes

When an organization has legacy products or services that are to be maintained, or development projects that are well advanced in time and which pre-date the deployment of relevant processes, then the organization shall provide a policy statement on the applicability of the processes to these products, services and projects especially in the context of maintenance and any re-qualification that needs to be addressed.

Where legacy products and services are concerned, the organisation shall assess and document the risks associated with the continued use of legacy products and services, specifically a gap analysis shall be performed of available deliverables and where gaps are identified the organisation shall evaluate the potential reduction in risk resulting from the generation of the missing deliverables and associated activities. Based on this evaluation the organisation shall determine the deliverables to be created and associated activities to be performed. At minimum test records shall be made available, and problem resolution and change management shall be applied according to the deployed process.

7.2 Pre-assessment activities

Prior to an assessment a pre-assessment activity may optionally be performed.

A pre-assessment shall be performed according to a defined class of assessment with reference to ISO/IEC 33002 clause 4.6 with the exception that at minimum only one process instance need be identified for each process within the scope of the assessment and the assessment need only be performed by an assessment team comprising a single lead assessor.

A pre-assessment if performed shall result in an assessment report which may contain a reduced content but which shall detail any weaknesses and potential improvements to be considered for implementation by the organization.

Any process attribute ratings up to the highest process capability level achieved may be carried forward from a pre-assessment activity to a subsequent assessment on condition that the assessment shall be of the same class of assessment and shall be performed within 6 months of the pre-assessment activity.

7.3 Period of assessment

If an assessment is to be performed as a continuous or iterative process over a defined period of time, the defined period of time shall not exceed 6 months.

The assessment sample shall not be selected more than 3 months before the performance of the assessment.

7.4 Class 1 and Class 2 assessments

A process assessment shall be performed in accordance with the requirements of ISO/IEC 33002 clause 4 with the exception that for class 1 (clause 4.6.2.1 b) assessments the assessment team shall comprise a team of at least two assessors only where the assessment hours (excluding planning and reporting) are more than 40 hours.

All assessments (with the exception of pre-assessments and surveillance assessment) performed by a 3rd party with Category A independence for a class 1 or class 2 assessment shall be led by a principal assessor or shall have a principal assessor assigned to the assessment team

The representative sample and the target for the assessment shall be made according to clause 7.5 which overrides the requirements of ISO/IEC 33002 clauses 4.6.2.1 c) and 4.6.3.1 c).

7.5 Representative sample

The assessment body shall make the decision on the representative sample and target for the assessment.

Where the scope is not a single project or service, the representative sample shall ensure adequate coverage of applicable environments, such as

- Different lifecycles for development, maintenance, testing and/or support
- Agile development practices
- Safety and security standards recommended practices (e.g. ISO26262 ASIL levels)
- Model Based Development and Model Based System Engineering approaches
- Distributed development across multiple business worksites or locations.
- Included 3rd party software components
- Platform and application development
- Application parameter data (applied to system or software functions, behaviour or properties)

When system and/or software lifecycle management, development and support processes are included within the scope of assessment and the scope of an assessment is targeted as organisational process capability or organisational process maturity, i.e. where the organisational unit is typically a business unit, line of business, department, group, organisation or similar entity and not a single project, then the representative sample of system and/or software lifecycle management, development and support processes shall scope

a) the number of projects selected as the basis for assessment to be at minimum the higher of the number 4 or 20% of projects (rounded down) that are currently in development or maintenance; or that have completed in the last 3 months (or 6 months if needed to achieve the target number of process instances (see (b) below)) prior to the date of the assessment. If there are fewer than 4 projects then all the available projects shall be selected

b) the number of process instances for each system and/or software lifecycle management, development and support process in the scope of the assessment to be the higher of the number 2 or the number representing a minimum of 25% of the number of projects (see (a) above) in the representative sample (rounded down). If there are fewer than 2 process instances available for any given process then a single process instance may be selected. If no single process instance is available for any process then that process shall not be included in the scope of assessment.

7.6 Assessment report

The minimum content of the assessment report as defined in ISO/IEC 33002 clause 4.2.6 shall be extended to include all the relevant example assessment report contents defined in ISO/IEC 33002 Annex B.

8. Requirements for assessor qualification

ISO/IEC 33002 requires that assessors are competent on the basis of appropriate education, training and experience, including domain experience, to perform the required class of assessment and to make professional judgments.

This conformity assessment scheme sets out minimum requirements for assessor qualification that are intended to be met by individual proprietary methods and/or bodies operating certification of persons in the relevant field of application. The requirements are related to education, training, work experience and assessment experience.

The individual proprietary methods and/or bodies operating certification of persons in the relevant field of application may need to provide equivalence mappings to the assessor grades and the minimum requirements for assessor qualification and have these agreed with the conformity assessment scheme.

The individual proprietary methods and/or bodies operating certification of persons may establish additional requirements to the minimum requirements stated in this conformity assessment scheme.

8.1 Assessor grades

This conformity assessment scheme recognises three assessor grades

- Assessor
- Lead assessor
- Principal assessor

A principal assessor is a lead assessor who has demonstrated extensive experience and who is qualified as competent to lead 3rd party category A class 1 and class 2 assessments which lead to the issuance of a certificate of conformity.

8.2 Education

Assessors of all grades shall have completed their secondary education and shall have a degree or equivalent professional qualification to become an assessor of any grade.

8.3 Training

Assessors of all grades shall have completed an approved assessor training course with examination for the relevant assessor grade.

Three training courses are defined

- Foundation (based on the ISO/IEC 330xx family of standards)
- Process Assessment Model (based on a conformant process assessment model)
- Assessor (based on the requirements for performing an assessment and/or a conformant documented assessment process)

Training courses shall meet the minimum recommended set of competencies to be met by assessors and lead assessors as defined in the ‘Common framework for ISO/IEC 330xx assessor training’.

Individual proprietary process assessment models and methods may waive course requirements for assessor and lead assessor courses for those with significant pre-existing work or assessment experience with the process assessment model or method.

Assessor training shall include a practical assessment performance and evaluation which can be met either by a tutor led case study assessment or by performance of a live assessment (minimum 8 hours) supervised by a lead assessor.

8.4 Work experience

The minimum work experience shall be met according to the level of education and the assessor grade.

	Assessor	Lead assessor	Principal assessor
Secondary education	4 years full time experience of which 2 years in relevant process context	6 years full time experience of which 4 years in relevant process context	6 years full time experience in a relevant process context
Degree or equivalent professional qualification	2 years full time experience of which 1 year in relevant process context	4 years full time experience of which 3 years in relevant process context	6 years full time experience in a relevant process context

8.5 Assessment experience

The minimum assessment experience shall be met according to the assessor grade and classification according to the table below.

Assessors shall be authorised to perform assessments based on their grade and classification.

An assessor that has not yet achieved the relevant assessment experience for an assessor grade and classification may be termed a 'provisional' assessor for that assessor grade and classification providing that he/she has met all the criteria for qualification in the preceding grade and classification.

A provisional assessor for an assessor grade and classification is authorized to perform assessments for that grade whilst he/she is gaining assessment experience but a provisional assessor shall not issue a certificate of conformity.

Individual proprietary methods and/or bodies operating certification of persons that implement the assessor qualification requirements may alternatively denote a person with 'provisional' status as being 'registered' for a relevant assessor grade and classification providing that he/she has met all the criteria for qualification in the preceding grade and classification. A person shall only be denoted as 'certified' when all criteria are met for the relevant assessor grade and classification.

The following grades and classifications are defined for assessors with experience requirements:

	Assessor	Lead assessor	Principal assessor
Minimum number of assessments	4	6	8
Minimum number of assessment hours (excluding planning and reporting) NOTE: * The minimum number of as assessment hours may be reduced by 5 hours per assessment performed using the ISO/IEC 29110-4-1 profile specification for the Basic profile applicable to Very Small Entities (VSEs) involved in software development.	60*	90*	120*
Minimum number of process instances assessed in each assessment	2	2	2
Minimum number of assessments performed as assessment team leader		2	4

Minimum number of assessments performed as assessment team leader with assessment team of two or more members NOTE; * For a Principal assessor to have the designation 'Safety Regulatory Domain' at least one assessment (of minimum duration 8 hours) shall be subject to a satisfactory witnessed evaluation by another principal assessor in the safety or regulatory domain unless the assessor has significant practical experience in the safety or regulatory domain.		1	2*

8.6 Assessor experience logs

Assessors of all grades shall maintain an assessor experience log recording the following information:

- Name
- Contact information
- Assessor status (provisional assessor, provisional lead assessor, provisional principal assessor; assessor, lead assessor, principal assessor)
- For each assessment performed
  - Date of issue of the statement of conformity
  - Role in the assessment (assessor, lead assessor, principal assessor) -
  - Number of assessors in the assessment team
  - The category of independence of the body performing the assessment (assessment body);
  - The class of assessment;
  - The process assessment model(s);
  - Number of assessment hours (excluding planning and reporting)

Assessor experience logs shall be made available on request to the conformity assessment scheme.

Individual proprietary methods and/or bodies operating certification of persons for process assessors may require such assessor experience to be maintained in an assessment experience repository.

9. Requirements for review and attestation

9.1 Review and attestation

Review and attestation are presented as a combined activity, but can be carried out by different people. Neither activity shall be carried out by a person who has been involved in the performance of the assessment activities.

Prior to the issuance of the approved assessment report, the assessment report, assessment data and any other findings from the assessment shall be reviewed as to the conformity of the object with the specified requirements.

Based on a positive recommendation a statement of conformity shall be issued. The statement of conformity provides unequivocal identification of the object and of the specified requirements with which it has been found to conform.

In the case that the evidence of conformity is incomplete and one or more of the specified requirements has been overlooked, the report shall be returned to the lead or principal assessor for remedial action to be taken. Relevant assessment activities may need to be repeated and a further report shall be presented for review. By agreement with the reviewer, the report need only deal with the changes which have been made.

9.2 Statement of conformity

A statement of conformity issued by a 1st party or a 2nd party is generally referred to as a "declaration of conformity", whereas a statement of conformity issued by a 3rd party body is generally referred to as a "certificate of conformity".

The following statements of conformity are valid:

- Declaration of conformity pertaining to the assessment of process capability
- Declaration of conformity pertaining to the assessment of organisational process maturity
- Certificate of conformity pertaining to the assessment of process capability
- Certificate of conformity pertaining to the assessment of organisational process maturity.

The term 'organisational process capability' may be used as an alternate to the term 'process capability' with any declaration or certificate of conformance when the scope of the organisational unit being assessed is a business unit, line of business, department , group, organisation or similar entity.

Following the issuance of a statement of conformity the assessors will need to update their assessor experience logs.

9.2.1 Declaration of conformity

A declaration of conformity shall only be issued for process assessments performed by a 1st or 2nd party, or by a 3rd party when the criteria cannot be met for the issuance of a certificate of conformity.

ISO/IEC 17050 provides information on the content of a supplier's declaration of conformity. ISO/IEC 17050 specifies requirements applicable when the organization responsible for fulfilment of specified requirements (supplier) provides a declaration that a product (including service), process, management system, person or body is in conformity with specified requirements. A declaration of conformity can be substantiated by the assessment report issued in accordance with clause 7.6 of this document.

9.2.2 Certificate of conformity

A certificate of conformity shall only be issued for process assessments performed by a 3rd party with Category A independence for a class 1 or class 2 assessment.

Each certificate of conformity issued shall be accompanied by a unique mark of conformity identifier issued in accordance with Clause 9.4 of this document.

It is general practice to issue a certificate of conformity in two parts; one part with the headline content information and one part with the detail content information as an addendum. If a certificate of conformity is issued in multiple parts, each certificate shall reference the other parts.

The certificate of conformity issued shall contain at minimum:

Headline content

- The words ' certificate of conformity';
- The certificate unique identifier;
- The certificate issue date;
- The certificate validity period (or valid until date);
- The words 'subject to annual surveillance' (for certification);

- Identification of the organizational unit (if the organisational unit is a Project/Service then state the Project/Service name);
- The locations (city/country) of the organisational unit covered by the scope of the certificate;
- The scope of supply of the organisational unit (for organisational process capability or organisational process maturity);
- Identification of the body performing the assessment (assessment body);
- The process profile and/or the process quality level (if relevant – may optionally be included in Detail content) for each process and/or the organisational process quality or maturity level achieved (if relevant);
- The name (and optionally signature) of the lead or principal assessor and/or body performing the assessment (assessment body.

Detail content

- The category of independence of the body performing the assessment (assessment body);
- The class of assessment;
- Identification of the applicable standard(s) (requirements);
- Identification of the process assessment model(s);
- Identification of the process measurement framework;
- Identification of the maturity model (if applicable);
- The processes in the scope of the assessment;

9.3 Certificate of conformity validity period

Where the scope of conformity assessment does not include periodic continuing assurance to maintain the validity of an assessment result through periodic surveillance then the certificate validity period (or valid until date) shall state either 'no validity period specified' or a validity period determined by assessment body policy or customer requirements but which shall not exceed two years.

Where continuing assurance is needed or desirable to maintain the validity of an assessment result, the scope of conformity assessment can be extended to include periodic surveillance within a defined cycle (see 10.1). In this case the certificate validity period shall be defined for a three year period. On each third year anniversary a full scope re-assessment shall take place.

A request to extend a certificate validity period may be made to the conformity assessment body under the following conditions

(1) When there is a major revision to the publication of any of the following used as the basis for assessment within six months prior to the full scope of a re-assessment
   - the process assessment model(s);
   - the process measurement framework;
   - the maturity model (if applicable);

then the organisation may request, with the needed justification, a full scope re-assessment to be re-scheduled to be performed within a period of delay up to 6 months from the major revision publication date, or in the case of a continuous or iterative process assessment (see 7.3) within a period of delay up to 9 months from the major revision publication date with the relevant extension to the current certificate validity date.

Where a major revision to the publication occurs within 6 months prior to a surveillance assessment, then no extension of certificate validity will be granted, and assessment to the major revision of the publication shall be performed at any cycle during an 18 month period from the major revision publication date.

(2) When there is a major re-organisational change affecting the scope of a re-assessment or surveillance assessment, then the organisation may request, with the needed justification, a period of delay up to 3 months and an extension to certificate validity date.

9.4 Marks of Conformity

A mark of conformity is a protected mark issued by a body performing conformity assessment, indicating that an object of conformity assessment (product, process, person, system or body) is in conformity with specified requirements.

A number of marks of conformity are defined for use with this conformity assessment scheme. The marks of conformity may only be applied as documented in this conformity assessment scheme.

The marks of conformity may be used on documents or promotional materials however the marks of conformity shall not be displayed on any product, product packaging, or in any way that may be interpreted as denoting product conformity.

ARCS™[5] International[6] is the owner of and has the legal rights to the referenced logo marks of conformity.

9.4.1 Declaration of conformity

The PATHFINDER™ logo mark shall be used with any declaration of conformity issued under this conformity assessment scheme.

PATHFINDER

The ARCS™ International 'declaration of conformity' logo mark of conformity[7] may be used by an assessor certified under the ARCS™ International Assessor Registration and Certification Scheme to accompany any declaration of conformity issued under this conformity assessment scheme.

ARCS INTERNATIONAL DECLARATION OF CONFORMITY

[5] ARCS™ is a trademark of The SPICE User Group.

[6] ARCS™ International is a trading name of The SPICE User Group.

[7] ARCS™ International declaration of conformity logo mark of conformity is a trademark of The SPICE User Group.

9.4.2 Certificate of conformity

The PATHFINDER™ 'conformity assessment' logo mark shall be used with any certificate of conformity issued under this conformity assessment scheme.

Alternatively, the PATHFINDER™ 'certification' logo mark may be used used with any certificate of conformity issued under this conformity assessment scheme that is valid for three years and which includes annual surveillance.

The ARCS™ International 'conformity assessment' logo mark of conformity[8] may be used by an assessor certified under the ARCS™ International Assessor Registration and Certification Scheme to accompany any certificate of conformity issued under this conformity assessment scheme.

Alternatively, the ARCS™ International 'certification' logo mark of conformity[9] may be used by an assessor certified under the ARCS™ International Assessor Registration and Certification Scheme to accompany any certificate of conformity issued that is valid for three years and which includes annual surveillance.

9.5 Register of conformity assessments

The PATHFINDER™ conformity assessment scheme will maintain a register of conformity assessments[10] with information on the organisational units assessed and the objects of conformity assessment which have been granted use of the third-party conformity assessment and certification marks of conformity in association with the certificates of conformity issued under this conformity assessment scheme.

The list of organisational unit assessed and the objects of conformity assessment which have been granted use of the conformity assessment and certification marks shall be made available upon reasonable request.

The principal assessor shall submit the following data to the PATHFINDER™ conformity assessment scheme prior to the issuance of any certificate of conformity:-

- Date of issue of the statement of conformity

---

[8] ARCS™ International certificate of conformity and conformity assessment logo marks of conformity are a trademark of The SPICE User Group.

[9] ARCS™ International certificate of conformity and conformity assessment logo marks of conformity are a trademark of The SPICE User Group.

[10] PATHFINDER™ International register of conformity assessments will be available during Q3 2018.

- Identification of the assessment body and/or the assessment team in terms of the assessors, the lead or principal assessor leading the assessment;
- The category of independence of the body performing the assessment (assessment body);
- The class of assessment;
- The process assessment model(s);
- The process measurement framework;
- The maturity model (if applicable);
- The processes in the scope of the assessment;
- The process profile or the process quality level (if relevant) for each process and/or the organisational process maturity level achieved (if relevant);
- Whether the assessment is to be published as public or private.

Individual proprietary methods may in addition require such data to be submitted to a proprietary method owner.

Following the receipt of the submitted data, a unique mark of conformity identifier shall be issued and which shall be referenced on the certificate of conformity with the PATHFINDER™ 'conformity assessment' or 'certification' logo mark.

A fee is payable for the issuance of the unique mark of conformity identifier and use of the PATHFINDER™ logo mark.

10 Requirements for surveillance

10.1 Introduction

Where continuing assurance is needed or desirable to maintain the validity of an assessment result, the scope of conformity assessment can be extended to include periodic surveillance within a defined cycle. In this case the certificate validity period shall be defined for a three year period. On each third year anniversary a full scope re-assessment shall take place.

10.2 Surveillance assessments

At annual intervals between the issuance date of the certificate of conformity and its validity date, a surveillance assessment shall be performed by the assessment body. The surveillance assessments shall be termed 'surveillance cycle 1' and 'surveillance cycle 2'.

When system and/or software lifecycle management, development and support processes are in the scope of assessment and where the number of projects that are currently in development or maintenance; or that have completed in the last 3 months prior to the planned date of a 'surveillance cycle 1' is less than or equal to four projects, then 'surveillance cycle 1' may optionally be considered at the discretion of the assessment body to be performed at 18 months from the issuance date of the certificate of conformity with the need for 'surveillance cycle 2' being omitted. Any such consideration will include the review of a number of factors including the whether there are new projects included in scope, the development phase of the projects and the number of staff working on the projects. The decision rests with the assessment body.

If a surveillance assessment is to be performed as a continuous or iterative process over a defined period of time, the defined period of time shall not exceed 6 months.

A surveillance assessment shall be completed at latest within 3 months following any due surveillance cycle date, otherwise the certificate of conformity will be re-issued with a validity period of 2 years from date of issue and with the certification' logo mark of conformity' removed from the certificate of conformity. The organisation will then need to apply for a full scope re-certification assessment at an appropriate timing.

The surveillance assessment shall be performed according to the defined class of assessment with reference to ISO/IEC 33002 clause 4.6 except that a minimum of only one process instance need be identified for each process within the scope of the assessment and the assessment need only be performed by an assessment team comprising at minimum a single lead assessor.

Surveillance assessments shall cover all processes and process quality levels within the scope of the certificate of conformity during the defined cycle, but not necessarily on each surveillance visit.

For organisational process maturity assessments, at minimum the basic process set plus a defined (by the assessment body) subset of the extended process sets shall be included within the scope of any surveillance assessment.

A surveillance assessment shall result in an assessment report with reduced content but which shall detail any weaknesses and potential improvements to be considered for implementation by the organizational unit.

The surveillance assessment result shall not affect the period of validity of the certificate of conformity previously issued.

A response to any weaknesses and potential improvements shall be provided within 4 weeks following the issuance of the assessment report.

The scope of a surveillance assessment shall also include a review of

- Progress on the findings and process improvement opportunities identified during the previous assessment

— Changes made to the process management system with implemented changes sampled to ensure adherence to the continuing process quality characteristic

The outcome of the review shall be documented with an action list (where necessary).

11 Guidance on planning and performing an assessment

11.1 Introduction

ISO/IEC 33010 (when published) will provide general guidance on performing assessments.

The following provides specific guidance on the approach to planning and performing an assessment under this conformity assessment scheme.

11.2 Assessment approach

Assessment approaches are designed to meet a variety of needs. Each will have a designated purpose and approach to the class of assessment to be performed. Factors that affect the scope of an assessment include the products, services, projects and life cycle coverage.

Assessments in general are performed by either verification or discovery approach (or a combination of both).

In a verification approach, during the planning phase, information and artefacts that satisfy the purpose and outcomes of a process and the process attribute outcomes are collected which can be further verified by the assessment team. Such an approach assumes that the organization understands the relevant process assessment model, has mapped their processes to the model, and understands the level of implementation of those processes.

A discovery approach may be a preferable approach when an assessment involves a small sample size or where the required result is a process quality level rating. When assessing organizational process maturity and/or a high maturity organization a combination of approaches is often beneficial.

Overall resources for a verification and discovery approach are generally similar but the balance of resources in the use of external and internal resources may differ. A verification approach will normally require additional planning time but overall on-site assessment time may be reduced.

Internal assessors or process improvement groups may be engaged in both the planning and the performance of an assessment, however, if internal personnel are engaged in **analysis and rating activities** during the course of an assessment, then the assessment may not be considered as independent of the organisation being assessed.

11.3 Assessment scope

The organizational unit should have deployed all of the processes within the scope of the assessment. If all the processes are not deployed in the organizational unit, then the scope of the assessment or the selection of organizational unit should be reconsidered.

The following factors should be used in determining the scope of an assessment:

- The management structure – which may have varying degrees of overlap with executive reporting and project management;
- The impact of shared processes – differences in lifecycle tools and techniques may reduce the amount of commonality;
- Level of organizational responsibilities – for defining policies;
- Geographical dispersion – which may impact the time to perform an assessment and the ease by which the assessment team can maintain continuity;
- Degree of collaboration with other organizations – an organization may be involved with in- and/or out-sourcing;

— Desire to have a common process improvement focus – across the organization;

— Cohesion and coupling of processes – within a recognizable organizational unit;

— The inclusion of all relevant activities – no significant development areas should be excluded.

Any process quality level associated with ‘established’ processes (e.g. process capability level 3 as defined in ISO/IEC 33020) will NOT normally be assessed unless a process is institutionalised and deployed. A process would not normally be considered deployed unless relevant artefacts are available for a minimum period of 3 - 6 months prior to assessment and institutionalized across the scope of the organization.

Any process quality level associated with ‘measured’ or ‘predictable’ processes (e.g. process capability level 4 as defined in ISO/IEC 33020) will NOT normally be assessed unless data from defined process measures are available. Historical data from defined process measures may typically take 6-18 months to collect and analyze.

11.4 Assessment sample

The sample size, type and amount of objective evidence should be sufficient to match the scope and class of the assessment. The representative sample of process instances will be based on a number of factors that include:

— management processes;

— business risks;

— representative life cycles;

— product line coverage;

— site coverage;

— size of operations, projects, programmes or product lines;

— safety, security, or regulatory factors;

— geographic areas;

— value to the business;

— constraints on availability;

— use of internal and/or external suppliers.

For a Class 1 or Class 2 assessment, if the desired target process profile is NOT achieved, the sample of process instances assessed may optionally be increased to the maximum available within the representative sample. The increase in the sample of process instances ensures fair representation of results across the sample. An increase in sample size for process instances will not normally be performed for a Class 3 assessment unless specifically identified within the assessment plan.

11.5 Assessment performance

The assessment team will perform the assessment according to the assessment plan and schedule. The assessment plan and schedule may be revised during performance of assessment.

The level of rigour for which an assessment is to be performed is determined by the class of assessment. The level of rigour applied to the assessment determines the level of confidence in the assessment results and the

reliability desired. The level of rigour required for the class of assessment will also determine the approach taken to data collection.

Data acquired may be on the basis of direct or indirect evidence. Direct evidence can be defined as *evidence that answers a question*, whereas indirect evidence *does not give a definite answer but allows you to draw a conclusion*.

11.6 Assessment data collection

The data collection approach utilized directly influences the reliability of, and level of confidence in the assessment results.

Depending on the level of rigour required by the class of assessment, different quantities of direct and indirect evidence from a combination of sources from various parties may be required to make decisions.

Sources of evidence may comprise:

- affirmations - testimony from personnel that describes their performance within a process;
- observations - any behaviour or infrastructure observed by a member of the assessment team that is relevant to the rating of the process;
- work products – tangible artefacts produced as a direct (e.g. specification) or indirect (e.g. meeting minutes) result of a process.

Dependent on the assessment approach other sources of evidence may also be used such as statistically valid questionnaire-based data. Such questionnaires are considered to be affirmations in the above sources of evidence.

Any evidence collected should be referenced or recorded in the assessor notes.

11.7 Determining organisational process maturity level

A process assessment is performed according to the requirements of ISO/IEC 33002, for the selected process assessment model(s) and process measurement framework for a given process quality characteristic, to obtain a set of process profiles.

Providing the scope of assessment embraces all of the processes in the minimum basic process set and the extended process sets, where relevant, for a given maturity level in a selected organizational process maturity model, then the organizational process maturity level can be derived from the set of process profiles that result from an assessment.

ISO/IEC 33004 defines the requirements for process reference, process assessment and maturity models.

An organizational process profile can be determined from the set of process profiles according to the rating and aggregation method employed. Rating and aggregation methods are defined in the selected process measurement framework. The actual rating and aggregation method employed will be defined as part of the assessment input when performing an assessment. The use of aggregation of ratings may vary according to the class, scope and context of an assessment. ISO/IEC 33020 defines a set of rating and aggregation methods as part of a process measurement framework for the assessment of process capability.

The rules for deriving an organizational process maturity level rating from the set of process profiles resulting from an assessment are specified as part of the maturity model.

Figure 1 illustrates how an organisational process maturity level is determined from the set of process profiles resulting from a process assessment.

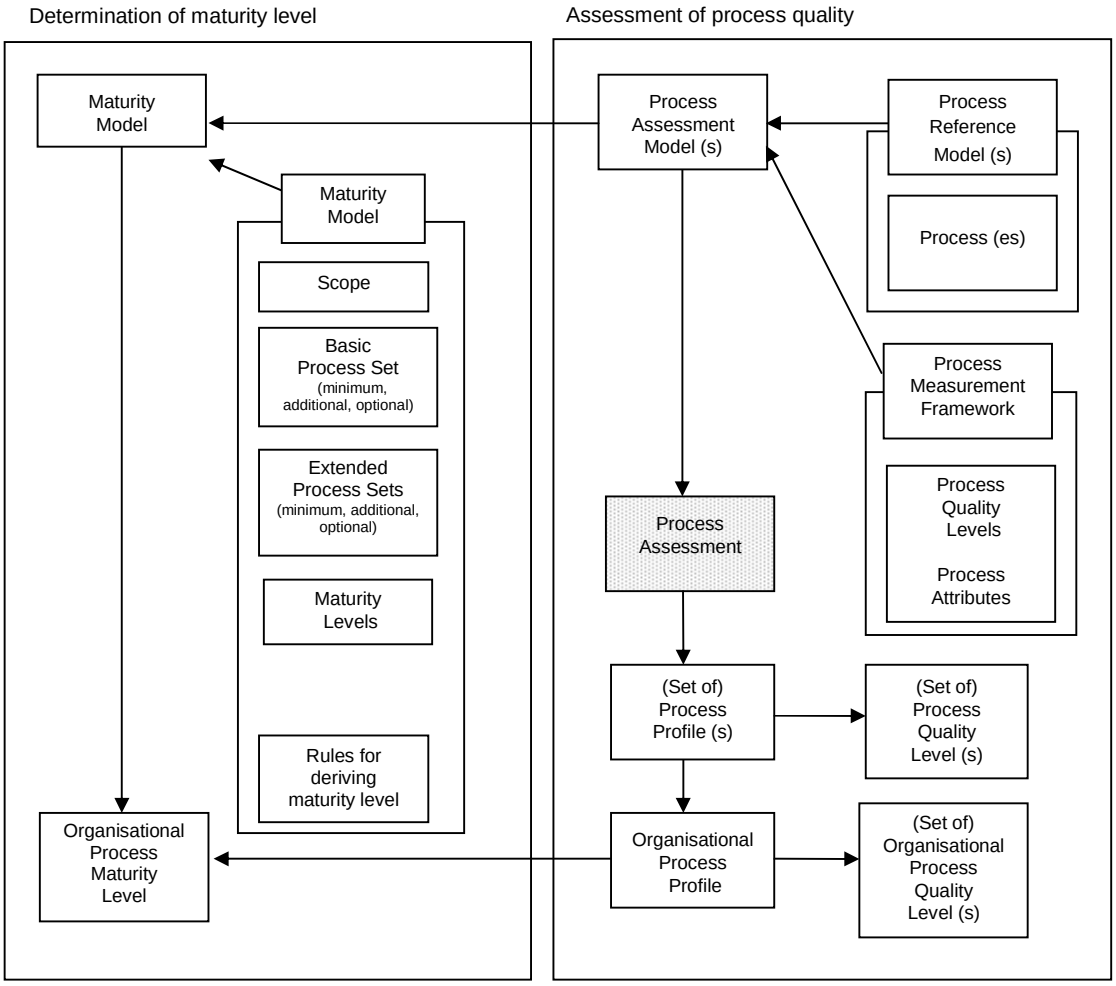

Figure 1 — Deriving a maturity level from the set of process profiles from an assessment

11.8 Assessment reporting

A draft presentation of findings and/or a draft assessment report will normally be delivered on the last day of an assessment. Following a period of review and refinement, the assessment report will be issued.

There are number of scenarios that frequently occur following the issuance of the assessment report:

— Minor gaps in performance affecting ratings are left to be cleared following the assessment usually within 1 month (maximum 3 months)

— Major gaps in performance in performance are left to be cleared following the assessment usually within 3 months (maximum of 6 months) after which a limited scope re-assessment is performed

— Opportunities for improvement are identified which are to be acted upon at the discretion of the client,

A response to any weaknesses and/or potential opportunities for improvements is normally requested to be provided within 4 weeks following the issuance of the assessment report.

Annex A
(informative)

Organizational Process Maturity Models

A.1 Introduction

This Annex defines the content of a set of organizational process maturity models that can be used with associated sets of defined process assessment models.

The process assessment models that form the basis for the maturity models shall adopt a common process measurement framework for the purpose of for assessment of process capability.

ISO/IEC 33020 provides a process measurement framework for assessment of process capability which can be incorporated as-is or adapted into any process assessment model. ISO/IEC 33020 meets the requirements of ISO/IEC 33003 which defines the requirements for process measurement frameworks however; any process measurement framework for assessment of the process quality characteristic of process capability which is conformant with the requirements of ISO/IEC 33003 may be used.

A.2 Scope and application

The organizational process maturity models defined in this Annex are designed for the domain of the software and systems development. Consensus on their content has been achieved through the community of interest of the stakeholder group of this of this conformity assessment scheme.

Organizational Process Maturity Model 0 (OPMM0) replicated from ISO/IEC TR 15504-7:2008 Annex A is also included as a reference for transition and legacy purposes.

A.3 Content

The content of the organizational process maturity models is set out in Table A.1 through A.4; the processes listed are referenced to the process assessment model respective source document (S).

Source (S)
1 ISO/IEC 15504-5:2006, Information technology – Process assessment – Part 5: An exemplar process assessment model (for software lifecycle processes)
2 ISO/IEC TR 15504-7:2008 Assessment of organizational maturity (Annex C – Extensions to Process Assessment Model)
3 Automotive SPICE® Process Assessment Modelv2.4 (for automotive scope) (www.automotivespice.com)
4 Automotive SPICE® Process Assessment Model v3.0/V3.1 (for automotive scope) (www.automotivespice.com)
5 ISO/IEC 15504-5:2012, Information technology – Process assessment – Part 5: An exemplar software life cycle process assessment model

Organisational Process Maturity Model (OPPM)	Source Process Assessment Models
OPMM0	ISO/IEC 15504-5:2006, Information technology – Process assessment – Part 5: An exemplar process assessment model (for software lifecycle processes) ISO/IEC TR 15504-7:2008 Assessment of organizational maturity (Annex C – Extensions to Process Assessment Model)
OPMM1	ISO/IEC 15504-5:2006, Information technology – Process assessment – Part 5: An exemplar process assessment model (for software lifecycle processes) Automotive SPICE® Process Assessment Modelv2.4 (for automotive scope) (www.automotivespice.com) ISO/IEC TR 15504-7:2008 Assessment of organizational maturity (Annex C – Extensions to Process Assessment Model)
OPMM2	ISO/IEC 15504-5:2006, Information technology – Process assessment – Part 5: An exemplar process assessment model (for software lifecycle processes) Automotive SPICE® Process Assessment Model v3.0/v3.1 (for automotive scope) (www.automotivespice.com) ISO/IEC TR 15504-7:2008 Assessment of organizational maturity (Annex C – Extensions to Process Assessment Model)
OPMM3	ISO/IEC 15504-5:2012, Information technology – Process assessment – Part 5: An exemplar software life cycle process assessment model

When a surveillance assessment is performed, the minimum set of basic processes (for the processes within scope) plus the minimum set of extended processes indicated with (*) shall comprise the minimum set of processes to be included within the scope of any surveillance assessment.

Table A.1 - Organizational Process Maturity Model 0 (OPMM0)

	ML	List of Processes	S	Minimum Set	Additional processes	
					ID	Conditions
Basic Process Set	**1**	ENG.1 Requirements elicitation ENG.2 System requirements analysis ENG.3 System architectural design ENG.4 Software requirements analysis ENG.5 Software design ENG.6 Software construction ENG.7 Software integration ENG.8 Software testing ENG.9 System integration ENG.10 System testing ENG.11 Software installation ENG.12 Software and system maintenance SPL.2 Product Release	1 1 1 1 1 1 1 1 1 1 1 1 1	ENG.1 ENG.4 ENG.5 ENG.6 ENG.7 ENG.8 SPL.2	ENG.1	Required where development covers requirements elicitation with the customer.
					ENG.2 ENG.3 ENG.9 ENG.10	Required where development covers system issues and not exclusively software issues.
					ENG.11	Required where the Organizational Unit is responsible for installing the software product in the customer environment.
					ENG.12	Required where the Organization Unit is responsible for ongoing maintenance and evolution of the software and/or system.
Extended Process Sets	**2**	SUP.1 Quality Assurance SUP.2 Verification SUP.3 Validation SUP.4 Joint Review SUP.7 Documentation SUP.8 Configuration Management SUP.9 Problem Resolution Management SUP.10 Change Request Management MAN.3 Project Management MAN.5 Risk Management ACQ.3 Contract Agreement ACQ.4 Supplier Monitoring ACQ.5 Customer Acceptance SPL.3 Product Acceptance Support	1 1 1 1 1 1 1 1 1 1 1 1 1 1	SUP.1 (*) SUP.2 SUP.7 SUP.8 (*) SUP.9 (*) SUP.10 (*) MAN.3 (*) MAN.5 (*)	ACQ.3 ACQ.4 ACQ.5	Required where external or internal suppliers of product components, services or infrastructure are involved in the development projects.
					SUP.3	Optional where confirmation of fitness for use of the work products is the responsibility of the Organization Unit.
					SUP.4	Optional where the work in the Organization Unit involves agreements with stakeholders.
					SPL.3	Optional where the work in the Organization Unit involves product acceptance support.

ML	List of Processes	S	Minimum Set	Additional processes	
				ID	Conditions
3	RIN.1 Human Resource Management RIN.2 Training RIN.3 Knowledge Management RIN.4 Infrastructure PIM.1 Process Establishment PIM.3 Process Improvement MAN.1 Organization alignment MAN.6 Measurement SUP.5 Audit REU.1 Asset Management REU.2 Reuse Program Management REU.3 Domain Engineering	1 1 1 1 1 1 1 1 1 1 1 1	RIN.1 RIN.2 RIN.3 PIM.1 PIM.3 MAN.1 MAN.6 SUP.5	REU.1 REU.2 REU.3	Optional if the Organization Unit has a structured reuse program in force. REU.2 may be included by itself however the three processes are generally mutually reinforcing.
4	QNT.1 Quantitative Performance Management	2			
5	QNT.2 Quantitative Process Improvement	2			

Table A.2 - Organizational Process Maturity Model 1 (OPMM1)

Organizational Process Maturity Model 1 (OPMM1)						
	ML	**List of Processes**	**S**	**Minimum Set**	**Additional processes**	
					ID	**Conditions**
Basic Process Set	**1**	ENG.1 Requirements elicitation ENG.2 System requirements analysis ENG.3 System architectural design ENG.4 Software requirements analysis ENG.5 Software design ENG.6 Software construction ENG.7 Software integration ENG.8 Software testing ENG.9 System integration ENG.10 System testing ENG.11 Software installation SPL.2 Product release	1,3 1,3 1,3 1,3 1,3 1,3 1,3 1,3 1,3 1,3 1 1,3	ENG.4 ENG.5 ENG.6 ENG.7 ENG.8 SPL.2	ENG.1	Required where development covers requirements elicitation with the customer.
					ENG.2 ENG.3 ENG.9 ENG.10	Required where development covers system issues and not exclusively software issues.
					ENG.11	Required where the Organizational Unit is responsible for installing the software product in the customer environment

Extended Process Sets	**2**	SUP.1 Quality assurance SUP.2 Verification SUP.3 Validation SUP.4 Joint review SUP.7 Documentation SUP.8 Configuration management SUP.9 Problem resolution Management SUP.10 Change request management MAN.3 Project management MAN.5 Risk management ACQ.3 Contract agreement ACQ.4 Supplier monitoring ACQ.5 Customer acceptance SPL.1 Supplier tendering SPL.3 Product acceptance support	1,3 1,3 1 1,3 1,3 1,3 1,3 1,3 1,3 1,3 1,3 1 1,3 1	SUP.1 (*) SUP.2 SUP.7 SUP.8 (*) SUP.9 (*) SUP.10 (*) MAN.3 (*) MAN.5 (*)	ACQ.3 ACQ.4 ACQ.5	Required where external or internal suppliers of product components, services or infrastructure are involved in the development projects.
					SUP.3	Optional where confirmation of fitness for use of the work products is the responsibility of the Organization Unit.
					SUP.4	Optional where the work in the Organization Unit involves agreements with stakeholders.
					SPL.1	Optional where the Organizational Unit prepares and submits tenders/proposals to clients
					SPL.3	Optional where the work in the Organization Unit involves product acceptance support.
	3	RIN.1 Human resource management RIN.2 Training RIN.3 Knowledge management RIN.4 Infrastructure PIM.1 Process establishment PIM.3 Process Improvement MAN.1 Organization alignment MAN.6 Measurement SUP.5 Audit REU.1 Asset management REU.2 Reuse program management REU.3 Domain engineering	1 1 1 1 1 1 1,3,4 1 1,3,4 1 1 1,3,4 1	RIN.1 RIN.2 RIN.3 PIM.1 PIM.3 MAN.1 MAN.6 SUP.5	REU.1 REU.2 REU.3	Optional if the Organization Unit has a structured reuse program in force. REU.2 may be included by itself however the three processes are generally mutually reinforcing.
	4	QNT.1 Quantitative performance management	2	QNT.1		
	5	QNT.2 Quantitative process improvement	2	QNT.2		

Table A.2 - Organizational Process Maturity Model 2 (OPMM2)

Organizational Process Maturity Model 2 (OPMM2)						
	ML	**List of Processes**	**S**	**Minimum Set**	**Additional processes**	
					ID	**Conditions**
Basic Process Set	**1**	SYS.1 Requirements elicitation SYS.2 System requirements analysis + SYS.3 System architectural design + SYS 4 System integration and integration test + SYS 5 System qualification test + SWE.1 Software requirements analysis + SWE.2 Software architectural design + SWE.3 Software detailed design and software construction + SWE.4 Software unit verification + SWE.5 Software integration and integration test + SWE.6 Software qualification test + SPL.2 Product release =	4 4 4 4 4 4 4 4 4 4 4 4	SWE.1 SWE.2 SWE.3 SWE.4 SWE.5 SWE.6 SPL.2	SYS.1	Required where development covers requirements elicitation with the customer.
					SYS.2 SYS,3 SYS.4 SYS.5	Required where development covers system issues and not exclusively software issues.

Extended Process Sets	**2**	SUP.1 Quality assurance + SUP.2 Verification = SUP.4 Joint review = SUP.7 Documentation SUP.8 Configuration management + SUP.9 Problem resolution management + SUP.10 Change request management + MAN.3 Project management + MAN.5 Risk management = ACQ.3 Contract agreement ACQ.4 Supplier monitoring + SPL.1 Supplier tendering	4 4 4 4 4 4 4 4 4 4 4 4	SUP.1 (*) SUP.2 SUP.7 SUP.8 (*) SUP.9 (*) SUP.10 (*) MAN.3 (*) MAN.5 (*)	ACQ.4	Required where external or internal suppliers of product components, services or infrastructure are involved in the development projects.
					SUP.4	Optional where the work in the Organization Unit involves agreements with stakeholders.
					SPL.1	Optional where the Organizational Unit prepares and submits tenders/proposals to clients.
	3	RIN.1 Human Resource Management RIN.2 Training RIN.3 Knowledge Management RIN.4 Infrastructure PIM.1 Process Establishment PIM.2 Process Assessment PIM.3 Process Improvement MAN.2 Organization Alignment MAN.6 Measurement SUP.5 Audit REU.1 Asset Management REU.2 Reuse Program Management REU.3 Domain Engineering	1 1 1 1 1 1 1 4 1 4 1 1 4 1	RIN.1 RIN.2 RIN.3 PIM.1 PIM.3 MAN.2 MAN.6 SUP.5	REU.1 REU.2 REU.3	Optional if the Organization Unit has a structured reuse program in force - the three processes are mutually reinforcing.
	4	QNT.1 Quantitative performance management	2	QNT.1		
	5	QNT.2 Quantitative process improvement	2	QNT.2		

Note:
Processes marked with '+' are defined as the VDA Scope based on Automotive SPICE V3.0
- The process set correlates with the former HIS Scope.

Processes marked with '+' and '=' are used as an extended VDA Scope by some OEMs.

Table A.4 - Organizational Process Maturity Model 3 (OPMM3)

Organizational Process Maturity Model 3 (OPMM3)						
	ML	**List of Processes**	**S**	**Minimum Set**	**Additional processes**	
					ID	**Conditions**
Basic Process Set	**1**	ENG.1 Stakeholder requirements definition ENG.2 System requirements analysis ENG.3 System architectural design ENG.5 System integration ENG.6 System qualification testing DEV.1 Software requirements analysis DEV.2 Software architectural design DEV.3 Software detailed design DEV.4 Software construction DEV.5 Software integration DEV.6 Software qualification testing SUP.5 Software validation AGR.2D Product release ENG.7 Software installation ENG.8 Software acceptance support ENG.9 Software operation ENG.9A Operational use ENG.9B Customer support ENG.10 Software maintenance ENG.11 Software disposal AGR.2E Product/service acceptance support	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	DEV.1 DEV.2 DEV.3 DEV.4 DEV.5 DEV.6 AGR.2D	ENG.1	Required where development covers requirements elicitation with the customer.
					ENG.2 ENG.3 ENG.5 ENG.6	Required where development covers system issues and not exclusively software issues.
					ENG.7	Required where the Organizational Unit is responsible for installing the software product in the customer environment

Extended Process Sets	**2**	SUP.1 Software documentation management SUP.2 Software configuration management SUP.3 Software quality assurance SUP.4 Software verification SUP.6 Software review SUP.8 Software problem management SUP.9 Software change request management PRO.1 Project planning PRO.2 Project assessment and control PRO.3 Decision management PRO.4 Risk management PRO.5 Configuration management PRO.6 Information management AGR.1C Agreement monitoring AGR.2A Supplier tendering AGR.2B Contract agreement	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	SUP.1 SUP.2 (*) SUP.3 (*) SUP.4 SUP.6 SUP.8 (*) SUP.9 (*) PRO.1 (*) PRO.2 (*) PRO.4 (*) AGR.1C (*) AGR.2A	AGR.1C	Required where external or internal suppliers of product components, services or infrastructure are involved in the development projects.
	3	ORG.1 Life cycle model management ORG.1A Process establishment ORG.1C Process Improvement ORG.2 Infrastructure management ORG.3 Project portfolio management ORG.4 Human resource management ORG.4A Skill development ORG.4B Skill acquisition and provision ORG.4C Knowledge management ORG.5 Quality management ORG.6 Organization alignment ORG.7 Organization management PRO.7 Measurement SUP.7 Software Audit REU.1 Domain engineering REU.3 Reuse asset management REU.2 Reuse program management	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	ORG.4 ORG.4A ORG.4B ORG.4C ORG.1 ORG.1A ORG.1B ORG.5 ORG.6 PRO.7 SUP.7		
	4	QNT.2 Quantitative performance management	5	QNT.1		
	5	QNT.1 Quantitative process improvement	5	QNT.2		

A.4 Ordinal scale of organisational process maturity

Organizational process maturity is expressed on a scale of maturity from maturity level 0 through maturity level 5 as follows.

Maturity Level 0 organization – Immature

The organization does not demonstrate effective implementation of its processes that are fundamental to support the organization's business.

Maturity level 1 organization – Basic

The organization demonstrates achievement of the purpose of the processes that are fundamental to support the organization's business.

Maturity level 2 organization – Managed

The organization demonstrates management of the processes that are fundamental to support the organization's business.

Maturity level 3 organization – Established

The organization demonstrates effective definition and deployment of the processes that are fundamental to support the organization's business.

Maturity level 4 organization – Predictable

The organization demonstrates a quantitative understanding of relevant processes that are fundamental to support the organization's business goals, in order to establish consistent and predictable performance.

Maturity level 5 organization – Innovating

The organization demonstrates the ability to change and adapt the performance of the processes that are fundamental to support the organization's business goals in a systematically planned and predictable manner.

A.5 Rules for deriving an organizational process maturity level from a set of process profiles

The organizational process maturity level is derived from the set of process profiles that result from an assessment in the following manner:

a) The process scope of the assessment shall embrace at minimum all of the processes in the basic and extended process sets defined in the organizational process maturity model for the maturity level to be assessed;

b) All process attributes up to and including the highest relevant process capability level shall rated for all processes in the scope of the assessment;

c) The organizational process profile shall be determined from the set of process profiles from the assessment according to defined rating method;

d) The maturity level achieved by an organization is determined from the set of organisational process capability level ratings according to the following rules:

    1) To achieve maturity level 1, all processes assigned to maturity level 1 shall achieve organisational process capability level 1 or higher;

2) To achieve maturity level 2, all processes assigned to maturity level 1 and 2 shall achieve organisational process capability level 2 or higher;

3) To achieve maturity level 3, all processes assigned to maturity levels 1, 2 and 3 shall achieve organisational process capability level 3 or higher;

4) To achieve maturity level 4, all processes assigned to maturity levels 1, 2, 3, and 4 shall achieve organisational process capability level 3 or higher.

5) To achieve maturity level 5, all processes assigned to maturity levels 1, 2, 3, 4 and 5 shall achieve organisational process capability level 3 or higher.

A.6 Consideration of CMMI® ML4 and ML5 results

Where an organization has an achieved CMMI®[11] ML4 or ML5 for an identical (or similar) scope of assessment, then it shall be possible to consider the CMMI® ML4 or ML5 result achievement level as a basis for the assessment of the Quantitative Performance Management and Quantitative Process Improvement processes for re-certification and/or surveillance assessments. NOTE that for any initial certification assessment this clause shall not apply.

In taking a previously achieved CMMI® ML4 or ML5 result into consideration a number of factors shall be considered by the Assessment Body, including, but not limited to

- When (date) the CMMI® ML4 or ML5 was awarded (Note:– only results obtained in the preceding three years are valid)
- Who (which body) performed the assessment
- The relationship (if any) of the assessment body to the organization
- What surveillance or re-assessments have taken place since the original assessment
- The coverage of selected processes or process elements for quantitative understanding of the performance of the organization's implemented processes in relationship to the required coverage under this conformity assessment scheme
- The currency and scope of projects appraised in relationship to projects to be assessed under this conformity assessment scheme
- The currency of implemented improvements.
- The growth of the organization since the CMMI® ML4 or ML5 was awarded.
- Changes in the management structure
- Changes in business objectives, strategic direction or entry into new markets
- Changes in the ownership or structure of the organization such as mergers, partnerships, or collaborations.

..

The decision on use of CMMI® ML4 or ML5 results shall be made by the Assessment Body and such a decision shall be clearly documented and justified in the assessment report.

[11] ®CMMI is registered in the U.S. Patent and Trademark Office by Carnegie Mellon University.

Annex B
(informative)

Guidance for Assessment Hours

B.1 Introduction

This Annex is provided for GUIDANCE purposes only and SHOULD NOT be taken as a specification for the required hours necessary to perform an assessment.

Each assessment body will have their own basis for calculation of assessment hours that depends on a number of factors including the assessment approach and experience of assessors.

B.2 Guidance

Factors to be considered include

- Scope of business
- Applicable process assessment model
- Sample size
- Category and Class of assessment
- Assessment method and approach (verification/discovery)
- Experience of assessors
- Capability Level and/or Organizational Process Maturity Level being assessed
- Previous CMMI® ML4 and ML5 assessment result (if applicable)

For an on-site assessment performance with the following parameters

- Class 1 assessment
- Category A assessment body
- Single site location
- Organizational Process Maturity Level 3 rating
- Discovery approach with some verification activities performed at the planning stage
- Sample size of 4 projects
- Two external assessors

The following estimate might be used as a base for calculation

- 2 hours per process instance assessed (FIRST instance)
- plus 1 hour per SECOND and SUBSEQUENT process instances assessed (for the same process)
- plus 1 hour for each project in the sample
- plus 20% contingency on hours for extending sample of process instances

This calculation is based on all on-site activity including opening meetings, closing meetings, data collection, data analysis and individual process rating but excludes draft report preparation and final reporting.

To the above should be added

- plus 6 hours for organizational process maturity level 3 rating
- plus 24 hours for assessment planning and final reporting
- plus 16 hours to develop draft assessment report (a total for two assessors)

To extend the above scope to organizational process maturity level 5 rating typically one might expect to add plus 16 hours.

Where a previous CMMI® ML4 and ML5 rating has been achieved within the same scope of assessment and providing all relevant factors have been taken into consideration one might typically expect to add plus 8 hours.

Bibliography

1) ISO/IEC 17007:2009, Conformity assessment – Guidance for drafting normative documents suitable for use for conformity assessment

2) ISO/IEC 17011:2004, Conformity assessment – General requirements for accreditation bodies accrediting conformity assessment bodies

3) ISO/IEC 17024:2012, Conformity assessment – General requirements for bodies operating certification of persons

4) ISO/IEC 17030:2003, Conformity assessment – General requirements for third-party marks of conformity

5) ISO/IEC 17040:2005, Conformity assessment – General requirements for peer assessment of conformity assessment bodies and accreditation bodies

6) ISO/IEC Guide 7: 1994, Guidelines for drafting of standards suitable for use for conformity assessment

7) ISO/IEC Guide 23:1982, Methods of indicating conformity with standards for third-party certification systems

8) ISO/IEC Guide 27:1983, Guidelines for corrective action to be taken by a certification body in the event of misuse of its mark of conformity

9) ISO/IEC Guide 60:2004, Code of good practice for conformity assessment

10) ISO/IEC Guide 68:2002, Arrangements for the recognition and acceptance of conformity assessment results

11) The Conformity Assessment Toolbox, ISO Central Secretariat, ISBN 978-92-67-10511-6

12) Conformity assessment for standards writers:2012 – Do's and don'ts, ISO Central Secretariat

13) Code P7 Guide to INAB Assessment procedures: August 2012 Issue 14, Irish National Accreditation Board

14) EA-1/22 A-AB EA Policy For Conformity Assessment Schemes (Sector schemes): January 2006 rev01, European co-operation for Accreditation (EA)

15) IAF/ILAC-A4:2004 Guidance on the application of ISO/IEC 17020 http://www.ilac.org

16) TPS 61 Key pints to be considered when developing conformity assessment schemes suitable for accredited conformity assessment activities: September 2011 Edition 1, United Kingdom Accreditation Services (UKAS)

17) Guidance for the application of conformity assessment to accessibility requirements for public procurement of ICT products and services in Europe:2012-08, JWG eAcc N49-D4-TR Working Document V2.1 Final, CEN/CENELC/ETSI Joint Working Group (JWG) on eAccessibility

18) ISO/IEC 33010:— (under development), Information technology – Process assessment – Guide for performing process assessment

19) ISO/IEC 33061:— (under development), Information technology – Process assessment – Process capability assessment model for system lifecycle processes

20) ISO/IEC 33062:— (under development), Information technology – Process assessment – Process capability assessment model for IT service management processes

21) ISO/IEC 33063:—, Information technology – Process assessment – Process (capability) assessment model for software testing (processes)

22) ISO/IEC 33064:— (under development), Information technology – Process assessment – Process capability assessment model for safety processes

23) ISO/IEC 12207:2008, Systems and software engineering – Software life cycle processes

24) ISO/IEC 15504-5:2006, Information technology – Process assessment – Part 5: An exemplar process assessment model (for software lifecycle processes)

25) ISO/IEC 15504-5:2012, Information technology – Process assessment – Part 5: An exemplar software life cycle process assessment model

26) ISO/IEC 15504-6:2008, Information technology – Process assessment – Part 6: An exemplar systems life cycle process assessment model

27) ISO/IEC TR 15504-7:2008, Information technology – Process assessment – Part 7: Assessment of organizational maturity

28) CMMI® Capability Maturity Model Integrated www.sei.cmu.edu

International Organisations

1) International Certification Network (IQNet Association) www.iqnet-certification.com
2) International Accreditation Forum (IAF) www.iaf.nu
3) International Laboratory Accreditation Cooperation http://www.ilac.org
4) International Personal Certification Association http://www.ipcaweb.org/
5) European co-operation for Accreditation http://www.european-accreditation.org
6) CASCO http://www.iso.org/iso/en/comms-markets/conformity/iso+conformity-03.html

Revision History

Version	Section	Change summary
1.0 - 5.0a 2006-04-18 - 2014-09-21		Published under the PATHFINDER Scheme
5.0 – 5.4 2015-01-17 - 2015-10-10		Alignment with ISO/IEC 330xx family of process assessments standards Published as PATHFINDER Conformity Assessment Scheme
6.0 2016-05-25		Alignment with stated normative references and the published ISO/IEC 29169:2016. Organizational Process Maturity Model basic and extended process sets redefined
7.0 2016-05-27	4.3 9.4. 9.5 Annex A Annex A.5 d) 4)	Transition arrangements for ISO/IEC 15504 models and measurement frameworks Inclusion of conformity assessment marks, register of conformity assessments and trademark footnotes Organisational Process Maturity Models: OPMM1 split to OPMM1 and OPMM2. OPMM3 added. OPMM0 (from 15504-7) included/added. Rules for deriving an organizational process maturity level 4 revised.
7.1 2016-10-04	9.4 10.2 4.3 General A.6	Clarification on use of conformity assessment marks authorised to be used under this conformity assessment scheme. Clarification on the option to consider surveillance to be performed at 18 months from the issuance date of the certificate of conformity based on the discretion of the assessment body under certain defined criteria. Determination of conformance to requirements added verification check that documented assessment process has been used for performing process assessment that conforms to the requirements of ISO/IEC 33002. Minor editorial changes to enhance readability Editorial changes in consideration of CMMI® ML4 or ML5 results.
7.2 2017-02-12	10.2 6.6 9.4, 9.5 A.3 A.2	Surveillance assessment as continuous or iterative process over a defined period of time shall not exceed 6 months. Clarification added on Category A claims of independence. Clarification on use of ARCS and PATHFINDER logo marks. Informative Table added OPMMs and Source PAMs. Minimum required set of processes for surveillance adjusted Note added regarding VDA Scope.
7.3 2017-07-01	9.2.2 10.2 Table A.2	Editorial (capitalization) Clarification that surveillance assessments shall be performed within 3 months of surveillance cycle otherwise certification withdrawn and certificate validity period amended to two years. Editorial (Organizational alignment)
7.4 2018-02-04	Annex A Normative references	Minor adjustment to OPMM2 to include Contract agreement process References to Automotive SPICE V3.0 changed to V3.0/V3.1 References to Automotive SPICE changed to V2.4/V3.0/V3.1
7.5 2018-03-18	7.5	Representative sample Adequate coverage of the representative lifecycles (e.g. V, iterative. model based, agile) and mandated standards (e.g. for safety and security)
7.6 2018-04-05	7.5	Representative sample Further enhanced to include:- Where the scope is not a single project or service, the

		representative sample shall ensure adequate coverage of applicable environments, such as • Different lifecycles for development, maintenance, testing and/or support • Agile development practices • Safety and security standards recommended practices (e.g. ISO26262 ASIL levels) • Model Based Development and Model Based System Engineering approaches • Distributed development across multiple business worksites or locations. • Included 3rd party software components • Platform and application development • Application parameter data (applied to system or software functions, behaviour or properties)
7.7 2018-05-17	8.5	Assessor experience table revised
7.8 2018-06-18		Editorial corrections