

TMMi Assessor Training Requirements

Release 1.0

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1 Introduction

1.1 Purpose of this Document

This document defines the requirements for a TMMi assessor course and forms the basis for a training provider to become a recognized TMMi assessor training provider. The training course is typically run over three or four days and will include participant evaluation by means of performance grading. The TMMi Foundation provides this document to TMMi training providers world-wide and other stakeholders. Training providers can use it to develop a TMMi assessor training course based on the requirements defined in this document. Training providers will determine appropriate teaching methods and produce courseware.

The TMMi Foundation distinguishes between assessors, and lead assessors. Both can become accredited, subject to meeting the specific qualification criteria for each role. The knowledge and experience criteria are in the areas of software testing, TMMi and assessments. This syllabus deals with the training required to comply with the assessment knowledge and experience criteria for assessors. TMMi assessors shall have successfully completed a recognized TMMi assessor training course.

1.2 Intended Audience

The intended users of this document are (TMMi) training providers, who want to run the TMMi assessor course and become recognized for this. It is expected that recognized TMMi assessor training providers have experience in performing TMMi assessments, e.g., by also being an accredited TMMi Assessment Service Provider and/or having accredited TMMi (lead) assessors running the training course.

This document is also of interest to those who want to become an accredited TMMi assessor. They can use this document to become familiar with what is expected, and what will be the content of a typical TMMi assessor training course.

1.3 TMMi Assessors

TMMi assessors are expected to perform assessments objectively, meeting the highest level of professional integrity. Although assessors formally do not represent the TMMi Foundation, their performance during a TMMi assessment reflects upon the TMMi Foundation, the Assessment Service Provider they represent and themselves. Criteria have been defined [1] to ensure that TMMi assessors are suitably qualified and experienced to perform a TMMi assessment to a consistently high standard ensuring that the assessment findings accurately reflect the performance of the organization being assessed.

TMMi assessors will typically be accredited to perform assessments on behalf of an accredited TMMi Assessment Service Provider using an accredited TMMi assessment method, which is compliant with the Test Maturity Model integration (TMMi) [2], the TMMi Assessment Method Application Requirements (TAMAR) [3] and the TMMi Data Submission Requirements (DSR) [4].

The TMMi Foundation distinguishes between assessors, and lead assessors. Both can become accredited subject to meeting the specific qualification criteria for each role. The knowledge and experience criteria are in the areas of testing, TMMi and assessments. This syllabus deals specifically with the training required for assessors to comply with the knowledge and experience criteria for assessments. TMMi Assessors shall have successfully completed a recognized TMMi assessor training course.

Assessors are formally accredited to perform assessments. They may take part in, or lead informal assessments, and may take part in formal assessments. They are *not* accredited to lead formal assessments. Only lead assessors are formally accredited to lead formal assessments.

The TMMi Foundation publishes a list of all accredited TMMi (lead) assessors on its website in order to maintain transparency of the individual assessor's status for customers of TMMi related services, TMMi Assessment Service Providers and the assessor community.

1.4 Business Outcomes (BO)

Business outcomes provide an overview and statement of what can be expected from a TMMi assessor, who has attended a recognized TMMi assessor training course, in terms of the added value and skills they will bring to the business.

A TMMi assessor is able to perform each of the following tasks:

- B01 Effectively evaluate, analyze and assess an organization's testing process and maturity based on the TMMi model
- B02 Analyze specific problems with the testing process and propose effective solutions (improvements), and show how these are linked to achieving business and test improvement goals
- B03 Lead informal TMMi assessments
- B04 Participate as a co-assessor in a formal TMMi assessment

1.5 Duration

Assessor training shall at a minimum be comprised of at least 21 hours instruction, including at least 8 hours of practical TMMi assessment-based exercises.

1.6 Tutor Criteria

The tutor for the training is expected to be an experienced TMMi assessor or TMMi lead assessor. The tutor *shall* be an accredited TMMi assessor or TMMi lead assessor.

1.7 Entry Criteria for Participants

There are no mandatory entry criteria for participants to a TMMi Assessor training course. However, it is highly recommended that they have successfully attended an ISTQB Foundation in Software Testing (or equivalent) and TMMi Professional course.

1.8 Sources and Level of Detail

The level of detail in this document aims for internationally consistent teaching and evaluation of participants. In order to achieve this goal, the document consists of:

- learning objectives for each TMMi assessor knowledge area
- describing the cognitive learning outcome and mindset to be achieved
- expected course time to be spent
- references to sources.

Compared to other certification and training syllabi (e.g., ISTQB, IREB) this document is much more compact since it does not contain the actual content to support the learning objectives. The learning objectives are based on already existing TMMi documents (see section references) that define the supporting content. These sources should be perceived as being an external part of this document.

1.8.1 Accredited TMMi Assessment Method

The major source for the TMMi assessor course outline is the TMMi Assessment Method Application Requirements (TAMAR) [3]. However, this document only provides the requirements for TMMi assessments. A recognized TMMi assessor training provider will typically also be an TMMi Assessment Service Provider and thereby will have access to an accredited TMMi assessment method. The accredited TMMi assessment method will provide more detail and be comprised of a fully elaborated TMMi assessment process with supporting procedures, guidelines and often a tool. It is therefore expected and highly recommended that the assessor training course is strongly built based on an accredited TMMi assessment method, with TAMAR "only" being used as an important background and reference document.

TMMi Assessor Criteria

Whether or not a TMMi assessor training is based on an accredited TMMi assessment method is not relevant for the possible subsequent TMMi assessor accreditation process. Any recognized TMMi assessor training complies with the criteria to become an accredited TMMi assessor [1].

TMMi Lead Assessor Criteria

However, it is highly relevant for a participant that ultimately wants to become an accredited TMMi lead assessor. A TMMi lead assessor has been specially trained in an accredited TMMi assessment method. Therefore, only a recognized assessor training that is based upon an accredited TMMi assessment method complies with the criteria to ultimately become an accredited TMMi lead assessor [1].

2 Learning Objectives

2.1 Cognitive Levels of Learning

The expected cognitive levels of learning are defined by means of learning objectives. Learning objectives are indicated for each topic and classified as follows:

- K1: Remember
- K2: Understand
- K3: Apply
- K4: Analyze
- K5: Evaluate
- K6: Create

Each topic in the document will be examined according to the learning objective for it.

Level 1: Remember (K1)

The candidate will recognize, remember and recall a term or concept.

Keywords: Remember, retrieve, recall, recognize, know, list, describe

Level 2: Understand (K2)

The candidate can select the reasons or explanations for statements related to the topic, and can summarize, compare, classify, categorize and give examples for the testing concept.

Keywords: Summarize, generalize, abstract, classify, compare, map, contrast, exemplify, interpret, translate, represent, infer, conclude, categorize, construct models

Level 3: Apply (K3)

The candidate can select the correct application of a concept or technique and apply it to a given context.

Keywords: Implement, execute, use, follow a procedure, apply a procedure

Level 4: Analyze (K4)

The candidate can separate information related to a procedure or technique into its constituent parts for better understanding, and can distinguish between facts and inferences. Typical application is to analyze a document, software or project situation and propose appropriate actions to solve a problem or task.

Keywords: Analyze, organize, find coherence, integrate, outline, parse, structure, attribute, deconstruct, differentiate, discriminate, distinguish, focus, select

Level 5: Evaluate (K5)

The candidate may make judgments based on criteria and standards. He detects inconsistencies or fallacies within a process or product, determines whether a process or product has internal consistency and detects the effectiveness of a procedure as it is being implemented (e.g., determine if a scientist's conclusions follow from observed data.)

Keywords: Evaluate, coordinate, detect, monitor, judge, critique

Level 6: Create (K6)

The candidate puts elements together to form a coherent or functional whole. Typical application is to reorganize elements into a new pattern or structure, devise a procedure for accomplishing some task, or invent a product (e.g., build habitats for a specific purpose).

Keywords: Generate, hypothesize, plan, design, construct, produce

Note that whereas the TMMi Professional model training learning objectives are limited to K1 and K2, higher K-levels are addressed during the TMMi assessor training. The TMMi assessor training deals with the application of the model, e.g., during a TMMi assessment. The TMMi assessor training is preparing the participant to be able to successfully perform a TMMi assessment and therefore the training is not limited to a theoretical understanding only.

For each learning objective at K3-level or higher an exercise is required during a TMMi assessor course.

2.2 Learning Objectives

2.2.1 TMMi Model

Total course time: 120 minutes

- LO 1.1 [K2] Understand the TMMi maturity levels, process areas and key concepts
- LO 1.2 [K2] Understand the specific and generic goals of the TMMi model
- LO 1.3 [K2] Understand the structure of the TMMi model
- LO 1.4 [K2] Be able to differentiate between the required, expected and other TMMi components
- LO 1.5 [K2] Summarize and categorize the different TMMi components
- LO 1.6 [K2] Interpret the TMMi model, its process areas and practices in different context, e.g., in an Agile context

Main sources: TMMi model [2], TMMi in the Agile world [5]

Note, that this set of learning objectives should serve mainly as a TMMi model refresher. Participants are expected to already have this knowledge and during this part of the training course build upon the skills and knowledge from the TMMi Professional course. Throughout this course they are expected through practical exercises to also develop an in-depth practical understanding of the TMMi model.

Potentially it may well be some time since they participated in a TMMi Professional training course, and therefore this is an opportunity to establish a common baseline of understanding regarding the TMMi model before proceeding further.

2.2.2 TMMi Documents and Processes

Total course time: 60 minutes

- LO 2.1 [K2] Summarize the published TMMi assessment related documents, and how they are used and processed
- LO 2.2 [K1] Know the difference between TAMAR and an accredited TMMi assessment method, e.g., TMMi Assessment Method (TAM)
- LO 2.3 [K1] Describe the process for the accreditation of a TMMi assessment method
- LO 2.4 [K1] Recall that TAMAR complies with the requirements for assessment detailed in ISO 15504 part 2 [9]
- LO 2.5 [K1] Know the process for how an organization becomes formally certified with TMMi
- LO 2.6 [K2] Summarize the criteria to become an accredited TMMi (lead) assessor
- LO 2.7 [K2] Understand the procedure to apply for TMMi assessor accreditation
- LO 2.8 [K1] Remember the TMMi career path, including the consultancy-based path and how to become a certified TMMi test process improver

Main sources: TAMAR [3], TMMi Assessor Accreditation Criteria [1], TMMi Data Submission Requirements [4], TMMi career path brochure [6]

2.2.3 Introduction to TMMi assessments

Total course time: 240 minutes

- LO 3.1 [K1] Recall the (business) drivers organizations may have for conducting TMMi assessments
- LO 3.2 [K2] Summarize the potential benefits organizations could gain from having an assessment
- LO 3.3 [K2] Compare the different types of TMMi assessments available and their objectives and benefits: informal assessment and formal assessment
- LO 3.4 [K2] Summarize the implications of the objective of an assessment (e.g., initial step of an improvement program or achieve TMMi certification) on the level of rigor and formality required throughout the assessment
- LO 3.5 [K2] Understand the concept of inheritance; in order to obtain a higher level of TMMi maturity, all process areas and goals at lower levels must also be satisfied
- LO 3.6 [K2] Summarize the stages in a TMMi assessment
- LO 3.7 [K2] Summarize for each assessment stage the main activities and the outputs/results
- LO 3.8 [K2] Understand the different types of instruments, e.g., document reviews and interviews, that can be used to collect evidence throughout an assessment
- LO 3.9 [K2] Understand the different roles in an assessment (sponsor, assessment organizer, interviewees, assessment team leader (lead-assessor or assessor), assessment team members (assessor and others)), their responsibilities and the stages and activities in which they are involved
- LO 3.10 [K2] Understand the specific role of an assessor, for both a formal and informal assessment, and the necessary skills and corresponding responsibilities

Main sources: TAMAR [3], Improving the Testing Process, par. 7.3 [10], The Little TMMi, par 4.2 [8]

2.2.4 Assessment Planning and Preparation

Total course time: 180 minutes

- LO 4.1 [K2] Summarize the activities of the assessment planning and preparation phase
- LO 4.2 [K2] Understand the inputs to the assessment plan: purpose of the assessment, scope, constraints, assessment method and assessor competence criteria
- LO 4.2 [K2] Understand how to define the scope and sample size of an assessment
- LO 4.3 [K2] Understand how to estimate the effort for an assessment
- LO 4.4 [K2] Understand how to set-up an assessment schedule
- LO 4.5 [K4] Outline a plan for an informal TMMi assessment by detailing the various activities, resources, schedule, responsibilities, success criteria and outputs
- LO 4.6 [K3] Execute a review of an assessment plan with an assessment sponsor and other stakeholders
- LO 4.7 [K1] Recall to notify the TMMi Foundation in advance in case of an assessment by informing the accreditation chair
- LO 4.8 [K2] Summarize the role and responsibilities of the user-side assessment organizer, especially the support needed during this and subsequent assessment stages
- LO 4.9 [K2] Understand the process for gathering information to be able to start and perform the TMMi assessment activities hereafter

Main sources: TAMAR, section 3.2 and Annex 1 [3], Improving the Testing Process, par. 6.3.1 and 6.3.2 [10], The Little TMMi, par 4.3.1 and 4.3.2 [8], ISO 15504 part 2, par. 4.2 [9]

2.2.5 Data Collection (Document study and Assessment interviewing)

Total course time: 240 minutes

- LO 5.1 [K2] Summarize the activities of the assessment data collection phase
- LO 5.2 [K2] Summarize the main techniques for collecting evidence data
- LO 5.3 [K2] Understand the importance and how to capture sufficient data to be able to rate the practices quickly and accurately
- LO 5.4 [K2] Understand that collected assessment data is confidential and should be non-attributable to any individual
- LO 5.5 [K2] Understand the evidence should be recorded with traceability such that it allows later validation of assessment results
- LO 5.6 [K3] Execute a document study to gather evidence data
- LO 5.7 [K2] Understand the different type of interviews, e.g., one on one, teams interview, remotely, and the implications of each
- LO 5.8 [K2] Understand the difference between open and closed questions
- LO 5.9 [K2] Understand how to run and close an interview
- LO 5.10 [K2] Understand the different type of personalities one can expect to meet in an interview situation and how to respond to extract the necessary information
- LO 5.11 [K2] Understand that it is important to ensure that the interviewees are comfortable with the findings and how to achieve this
- LO 5.12 [K3] Apply interviewing skills, listening skills and note taking skills when performing interviews
- LO 5.13 [K2] Understand the importance of, and approach to validating the collected data

Main sources: TAMAR section 3.3 [3], Improving the Testing Process, par. 6.3.3, 6.3.5, 7.3.1, 7.3.2 and 7.3.5 [10], ISO 15504 part 2, par. 4.2 [9]

2.2.6 Process Component Rating

Total course time: 180 minutes

- LO 6.1 [K2] Summarize the activities of the process component rating and assessment analysis phase
- LO 6.2 [K2] Understand the measurement scale, including their rating, to which an organization achieves a particular practice (specific and generic): N (Not Achieved), P (Partially Achieved), L (Largely Achieved), and F (Fully Achieved)
- LO 6.3 [K2] Contrast between the various points on the measurement scale
- LO 6.4 [K2] Understand the rules regarding the applicability of the nominal rating NR (Not Rated) for practices
- LO 6.5 [K3] Follow a procedure to score the practices (specific and generic) based on the evidence gathered according to the TMMi guidelines

- LO 6.6 [K2] Understand the measurement scale to which an organization achieves a particular goal, process area and maturity level: N (Not Achieved), P (Partially Achieved), L (Largely Achieved), and F (Fully Achieved)
- LO 6.7 [K2] Understand the rules regarding the applicability of the nominal ratings NA (Not Applicable) and NR (Not Rated) for goals and process areas
- LO 6.8 [K3] Follow a procedure to score the goals, process areas and maturity level based on the scoring of the practices according to the TMMi guidelines
- LO 6.9 [K4] Analyze the scoring and determine the result of the assessment
- LO 6.10 [K2] Understand that it is important to ensure that consensus on the ratings must be reached by all assessors present
- LO 6.11 [K2] Understand the importance and approach to validate the results

Main sources: TAMAR, section 3.4, Annex 1 and Annex 2 [3], Improving the Testing Process, par. 6.3.5 and 7.3.4 [10], ISO 15504 part 2, par. 4.2 [9]

2.2.7 Assessment reporting

Total course time: 180 minutes

- LO 7.1 [K2] Summarize the activities of the assessment reporting phase
- LO 7.2 [K2] Understand how to identify improvement opportunities and summarize the approach to solution analysis
- LO 7.3 [K5] Recommend test process improvement actions on the basis of the assessment results and the analysis performed
- LO 7.4 [K2] Understand the target audience for the assessment report
- LO 7.5 [K2] Understand presentational and reporting skills required for assessment reporting
- LO 7.6 [K2] Understand persuasion skills during assessment reporting
- LO 7.7 [K4] Outline in depth the strengths and weaknesses of an organization against the TMMi, presenting a full gap analysis
- LO 7.8 [K6] Create an assessment report describing the results of a TMMi assessment
- LO 7.9 [K4] Structure and deliver to the stakeholders a presentation of the assessment results, e.g., a summary of the conclusions, findings from the assessment and recommendations for test process improvement.

Main sources: TAMAR section 3.5 [3], Improving the Testing Process, par. 6.3.6, 6.3.7, 7.3.3 and 7.3.6 [10], The Little TMMi, chapter 4.3.4 [8], ISO 15504 part 2, par. 4.2 [9]

2.2.8 Assessment closure

Total course time: 60 minutes

- LO 8.1 [K2] Summarize the information that needs to be provided to the customer after the assessment
- LO 8.2 [K2] Summarize the information that needs to be provided to the TMMi Foundation after the assessment
- LO 8.3 [K2] Understand the procedure to submit the Data Submission Form in line with the Data Submission Requirements

Main sources: TMMi Data Submission Requirements [4], Data Submission Form [7]

3 Grading and evaluation

3.1 Performance grading

There will not be a formal examination scheme run by the TMMi Foundation to examine the participants that have taken a recognized TMMi assessor course. However, it is allowed and optional for recognized training provider to run a (multiple-choice) exam at the end of the course to enhance their evaluation of the participant.

The tutor is monitoring the progress of the participants and providing help/support/guidance as necessary, so at the end it is clear whether participants are able to perform the tasks and adhere to the responsibilities of a TMMi assessor and can apply for TMMi assessor accreditation. The monitoring is performed through a performance grading process, whereby the course assignments, practical exercises or tests are evaluated by the tutor based on his/her extensive practical assessment experiences, knowledge and skills.

Formally applying performance grading on the practical exercises will provide a huge learning aspect for the participants. The exercises will be as close as possible real-life. This is much preferred to an exam with MC-based questions at the end and also allows for evaluating effectively higher K-levels.

Training providers and tutors shall use it as part of the training and can even use it as a selling point. The review by means of performance grading provides feedback to the participants and will enhance their learning experience.

Performance grading is carried out by using a checklist and evaluation form for the required practical exercises. The performance grading review results are based on the checklist - if sufficient checklist items are ticked off, the participant passes the evaluation for a particular exercise.

3.2 Assessor accreditation

At the end of the training course a participant that has successfully attended and participated in the assessor training course will receive a certificate from the training provider. In case the training course is based on an accredited TMMi assessment method, the name of the method shall be mentioned on the certificate. The participant will also receive the completed performance grading checklist and evaluation form, possibly with some recommendations and attention points.

Upon applying for accreditation as a TMMi assessor, the participant shall provide the certificate, the completed performance grading checklist and evaluation form to the TMMi Foundation.

3.3 Practical exercises

For all learning objectives at K3 level or higher, defined in this syllabus, the assessor course will have an exercise. Typically, learning objectives will be combined into one large practical exercise.

It is expected that throughout the training course the following exercises will be performed by the participant and performance graded by the tutor:

<i>Practical Exercises</i>	<i>Learning Objectives</i>
Assessment Planning	LO's 4.5, 4.6
Data Collection (e.g., interviewing)	LO's 5.6, 5.12
Process Component Rating	LO's 6.5, 6.8, 6.9
Assessment reporting	LO's 7.3, 7.7, 7.8, 7.9

4 Training Providers

The TMMi assessor recognized training providers have committed themselves to provide trainings complying with this document. There is no formal accreditation process for training providers and/or tutors. At recognition, the training providers commit themselves to offering training in line with the TMMi assessor training syllabus. The training provider will agree to devote at least the times defined in this document to the various subject areas during a TMMi assessor training.

The training provider will carry out the training, including the required practical exercises in such a way that after the training course a participant is able to successfully perform informal TMMi assessment and participate in formal TMMi assessments.

The tutor for the training is expected to be an experienced TMMi (lead) assessor and shall be an accredited TMMi assessor or lead assessor. The TMMi assessor course itself is expected to be built based on an accredited TMMi assessment method, with TAMAR being used as an important background and reference document (see paragraph 1.8.1).

The mutual obligations between TMMi Foundation and a training provider will be stipulated by contract. The contract is valid three years at a time. Per contract the TMMi Foundation may conduct on-site audits on the TMMi assessor model training being performed. A fee for the recognition is to be paid to TMMi Foundation. Recognized TMMi assessor training providers will be listed on the TMMi Foundation website.

References

- [1] TMMi Assessor Accreditation Criteria, Assessor and lead-Assessor, Version 2.8 (2021), TMMi Foundation
- [2] TMMi model Test Maturity Model integration (TMMi), Release 1.2 (2018), TMMi Foundation
- [3] TMMi Assessment Method Application Requirements (TAMAR), Release 1.0 (2014), TMMi Foundation
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- [10] Graham Bath and Erik van Veenendaal (2014) Improving the Test Process: Implementing Improvement and Change – A Study Guide for the ISTQB Expert Level Module, Rockynook (USA)