TMMi and ISO/IEC 29119: Friends or Foes?

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Although there is lots of visible opposition to the new ISO testing standard, there is also a large community that is gradually adopting ISO/IEC 29119. Organizations are studying the ISO testing standard and looking at how to use it to standardize and improve their testing process. This has raised the question by many practitioners "How does ISO/IEC 29119 relate to TMMi?". TMMi has been available for many years and has over-time become the de-facto standard for test process improvement around the globe. An analysis has been performed identifying the differences and overlap, e.g., coverage of test practices, between the two models. This paper highlights and describes the main conclusions and some of the findings of the study. Twenty-five volunteers with different background and knowledge from thirteen different countries participated in the analysis and study. Note that this paper does not provide a quality evaluation of ISO/IEC 29119.

Test Maturity Model integration (TMMi)

The TMMi framework has been developed by the TMMi Foundation as a guideline and reference framework for test process improvement and is positioned as a complementary model to CMMI, addressing those issues important to test managers, test engineers and software quality professionals. Note that TMMi is most often used as an independent model, it's not necessary for an organization to also use CMMI when applying TMMi. Testing as defined in the TMMi is applied in its broadest sense to encompass all software product quality-related activities.

Just like the CMMI staged representation, TMMi also uses the concept of maturity levels for process evaluation and improvement. Furthermore process areas, goals and practices are identified. Applying the TMMi maturity criteria will improve the test process and has shown to have a positive impact on product quality, test engineering productivity, and cycle-time effort. TMMi has been developed to support organizations with evaluating and improving their test processes.

TMMi has a staged architecture for process improvement. It contains stages or levels through which an organization passes as its testing process evolves from one that is ad hoc and unmanaged to one that is managed, defined, measured, and optimized. Achieving each stage ensures that all goals of that stage have been achieved and the improvements form the foundation for the next stage.

The internal structure of TMMi is rich in testing practices that can be learned and applied in a systematic way to support a quality testing process that improves in incremental steps. There are five levels in TMMi that prescribe the maturity hierarchy and the evolutionary path to test process improvement. Each level has a set of process areas that an organization must implement to achieve maturity at that level. The process areas for each maturity level of TMMi are shown in Figure 1.

A main underlying principle of the TMMi is that it is a generic model applicable to various life cycle models and environments. Most goals and practices as defined by the TMMi have shown to be applicable with both sequential and iterative life-cycle models, including Agile[1]. However at the lowest level of the model, many of the sub-practices and examples provided are (very) different

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[1] Within the TMMi Foundation a special project has been launched to develop a special derivate that focuses on TMMi in Agile environments. The TMMi Foundation is not developing a new maturity model but will document the way TMMi can be applied in an Agile environment. It will be determined whether each "standard" TMMi improvement goal is also applicable for testing in an Agile life cycle. Some goals may just not be. For each goal that is applicable, typical Agile practices and examples will be identified and defined.

depending on the life cycle model being applied. Note that within TMMi, only the goals are mandatory, the practices are not.

TMMi is freely available on the web site of the TMMi Foundation. The model has been translated in Spanish, French and Chinese. TMMi is also available in published book format.
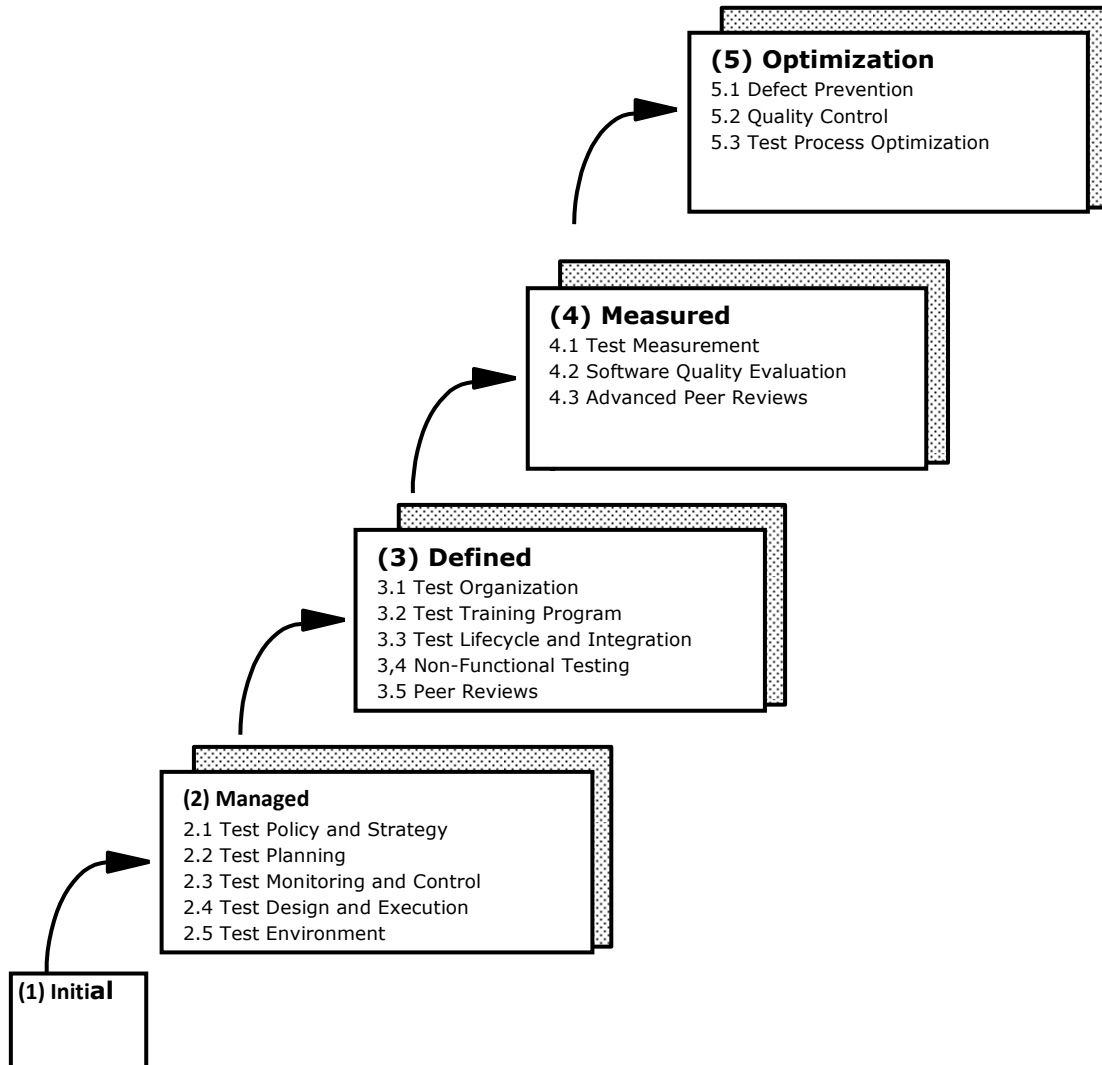
(5) Optimization
5.1 Defect Prevention
5.2 Quality Control
5.3 Test Process Optimization

(4) Measured
4.1 Test Measurement
4.2 Software Quality Evaluation
4.3 Advanced Peer Reviews

(3) Defined
3.1 Test Organization
3.2 Test Training Program
3.3 Test Lifecycle and Integration
3,4 Non-Functional Testing
3.5 Peer Reviews

(2) Managed
2.1 Test Policy and Strategy
2.2 Test Planning
2.3 Test Monitoring and Control
2.4 Test Design and Execution
2.5 Test Environment

(1) Initial

Figure 1: TMMi maturity levels and process areas

ISO/IEC 29119 Software Test Standard

After many years of development by international working groups, the International Organization for Standardization (ISO) and Institute of Electrical and Electronics Engineers (IEEE) approved and jointly published the first three parts of the ISO/IEC/IEEE 29119 software test standard. The standard is segmented into five parts: test definitions and concepts, test processes, test documentation, test techniques, and keyword-driven testing. Part four (test techniques) should be approved sometime this year, and part five (keyword-driven testing) should become available soon thereafter. ISO/IEC 29119 is intended to be used as a baseline. Standards in software may not be for every organization, but there are many companies, organizations, and even countries that seek a reference baseline supported by a standards body. Some organizations need ISO requirements, where strict conformance is a goal, the standard supports this as well. A drawback of the ISO/IEC standard is it's availability; it's not freely available on the web. It needs to be purchased at the ISO web site.

The five parts of ISO/IEC 29119:

- **Part 1: Concepts and Definitions**
  This first part introduces test vocabulary and concepts. Note that both the TMMi model and ISO /IEC 29119 largely re-use the ISTQB Glossary of Terms used in Software Testing as its vocabulary.
- **Part 2: Test processes**
  Part two of the standard defines a generic software test process model, addressing the testing organization, test management, and test execution levels relying on a risk-based testing approach. Major test management stages are defined, including test planning, monitoring and controlling, and completion. In ISO/IEC 29119, each test process is further described with an introduction, a purpose, outcomes, activities and tasks, and informational items.
- **Part 3: Test documentation**
  The third part of the standard aligns test documentation with test processes of part two. Figure 2 shows a summary of the documentation outlined and defined in part three. The standard provides examples of how this documentation can be used in agile and traditional software development projects. This part is intended to also be used to define the documents a testing service provider should be required to create.
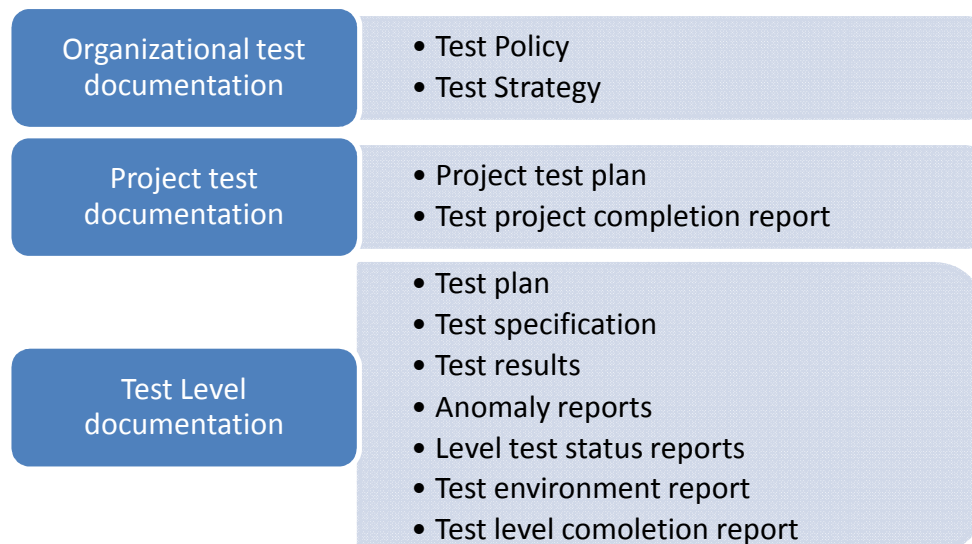
Organizational test documentation	• Test Policy • Test Strategy
Project test documentation	• Project test plan • Test project completion report
Test Level documentation	• Test plan • Test specification • Test results • Anomaly reports • Level test status reports • Test environment report • Test level comoletion report

Figure 2: List of potential test documents

- **Part 4: Test techniques**
  This part provides definitions of structure-based and specification-based test design techniques to aid in the development of test cases. The steps necessary to derive test conditions, coverage items, and test cases are defined for each technique.
- **Part 5: Keyword-driven testing**
  Part five defines software tests using common structures, called keywords. Users of this part will create keyword-driven test specifications, corresponding frameworks, and test automation based on those keywords. Note that this part has been excluded from the study and comparison with TMMI, as TMMi does not cover requirements for automation frameworks.

Test improvement model (TMMi) vs. Content-based model (ISO 29119)
The ISTQB expert level syllabus "Improving the Testing Process" distinguishes two type of models to be used for test process improvement: Test improvement models (also referred to as process

reference models) and content-based models. Test improvement models, e.g., TMMi, in general provide a body of information and testing best practices that form the core of the model. The primary difference between test improvement models and content-based models, e.g., ISO/IEC 29119, lies in the way in which this core of test process information is leveraged by the model. In general content-based models tend to provide more details on the various testing practices.

In the case of test improvement models, a predefined scale of test process maturity is mapped onto the core body of test process information. Different maturity levels are defined, which range from an initial level up to an optimizing maturity level, depending both on the actual testing tasks performed and on how well they are performed. The progression from one maturity level to another is an integral feature of the model, which gives process reference models their predefined "prescribed" character. The Testing Maturity Model integration (TMMi) can clearly be categorized as a test improvement model. Content reference models also have a core body of best testing practices, but they do not implement the concept of different process maturity levels and do not prescribe the path to be taken for improving test processes. The principal emphasis is placed on the judgment of the user to decide on where the test process is and where it should be improved. ISO/IEC 29119 is considered to be a content-based model.

As one can learn from this difference is that both testing models, TMMi and ISO/IEC 29119, have a very different structure, and indeed a different approach to and perhaps a different role in test process improvement. The table herafter provides an overview of the differences in general between test improvement models and content-based models.

Aspect	Test improvement models (e.g., TMMi)	Content-based models (e.g., ISO/IEC 29119)
Approach	Detailed, predefined ("prescribed") improvement approach based on a strong model structure.	Provides general guidance within a basic model structure.
Basic assumption	"Do this and your test process will improve." "A more mature process will result in testing with better results."	"Applying these practices properly and in the right context can benefit a test process."
Identifying improvements	Improvements are proposed in the model. User experience required to formulate context-specific improvement suggestions.	User combines guidance from model with own experience and knowledge of project context.
Sequence of improvement	Follow defined paths within the overall model definition.	Decisions are taken by the test process improver using the content model as a source of knowledge and good practices.

Table 1: Aspects of process models and content models

Sometimes particular aspects of test improvement models and content-based models are combined. For example, the TMMi improvement model may be used for obtaining an assessment of the test process maturity and the ISO/IEC 29119 content-based model can then be consulted to gain further insights in formulating improvement suggestions. In this way both models can be highly complementary.

Coverage of Testing Practices

As already stated in the introduction a detailed and extensive study has been performed comparing the test processes identified and specified by ISO/IEC 29119 (especially ISO/IEC 29119-2) with the test goals and test practices identified and specified by the TMMi. Since reviews are not covered in the ISO/IEC testing standard, the study has been extended to also include ISO/IEC 20246 Work Product Reviews[2]. ISO/IEC 20246 is the specific and dedicated review standard of ISO and therefore it has been decided during the development of ISO/IEC 29119 not to include reviews but rather reference ISO/IEC 20246 as being the basis for review processes.

ISO/IEC 29119 does largely NOT cover the TMMi goals and practices of levels 4 and 5

The first step in the study was done starting from the test processes defined by ISO/IEC 29119 (see figure 3) and trying to find a corresponding process area within TMMi. Of course finding a corresponding process area does not by any means imply they provide the same level of coverage on test practices, but it's a good first step towards comparing the two models and provides a structure for subsequent studies to be carried out. Figure 3 provides an overview of ISO/IEC 29119 (and ISO/IEC 20246) in relation to the TMMi process areas. The ISO processes e.g., on test management and dynamic testing, are drawn-up in the middle section and the corresponding TMMi process areas are provided (with pointers) in green on the left and right side.
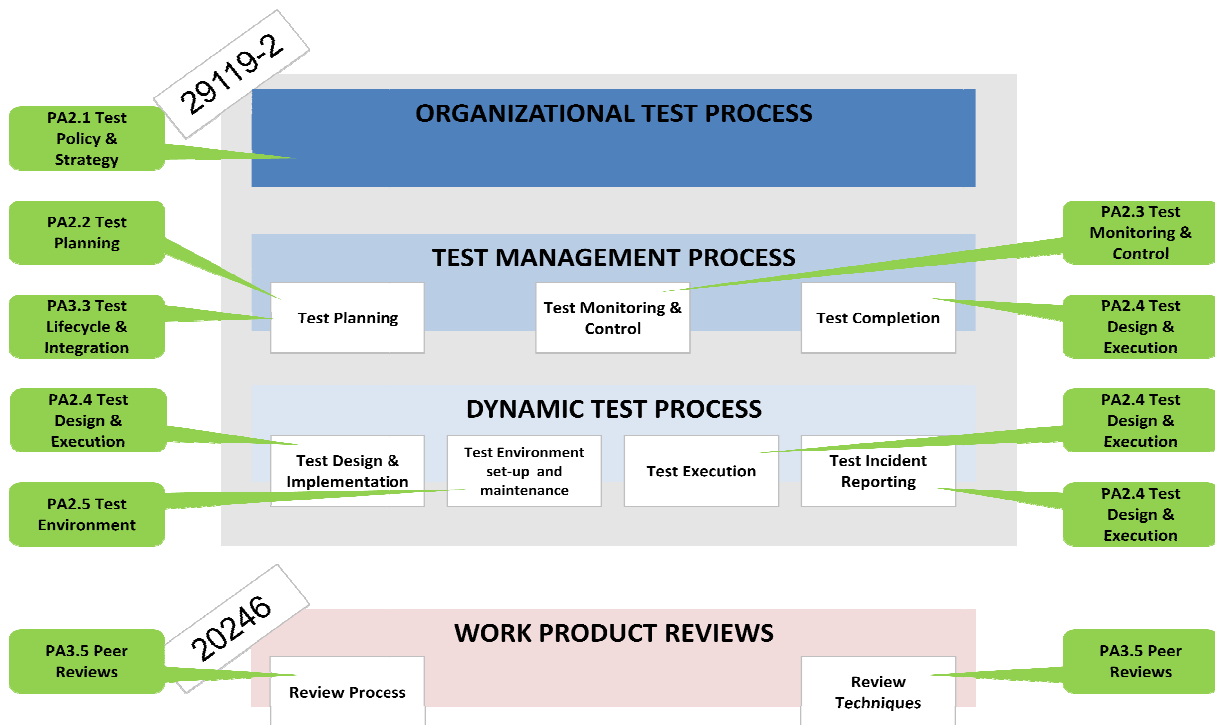

Figure 3: Overview of ISO 29119 (and ISO 20246) in relation to the TMMi process areas

Figure 3 already shows an important finding regarding coverage and relationship. Only the process areas of TMMi levels 2 and 3 are required to provide full coverage of the ISO/IEC 29119 (and ISO/IEC 20246) standard. The goals and practices of the process areas of TMMi levels 4 and 5 are not (fully) dealt with within ISO/IEC 29119. One can therefore conclude that ISO/IEC 29119 does not address test practices at higher test maturity levels. The scope of ISO/IEC 29119 is limited to (parts of) TMMi levels 2 and 3.

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[2] ISO/IEC 20246 is currently in draft state and has not yet been published

ISO/IEC 29119 provides a possible implementation for TMMi level 2

Subsequently a more detailed analysis was performed. The analysis was extended to a study on the level of detailed test practices. Just having a corresponding ISO process does not mean that all goals and practices of a TMMi process area are covered by an ISO process. Table 2 shows the level of coverage of ISO/IEC 29119 per TMMi process area. For example, the TMMi level 2 process area Test Design and Execution has four so-called specific goals:

- SG1 Perform Test Analysis and Design using Test Design Techniques
- SG2 Perform Test Implementation
- SG3 Perform Test Execution
- SG4 Manage Test Incidents to Closure.

From table 2 we can learn that all four specific goals including their specific practices are covered by ISO/IEC 29119. However, the goals of the TMMi level 3 process area Test Organization are only marginally covered by the ISO standard.

Legend: ○ = Not covered … ● = Fully covered
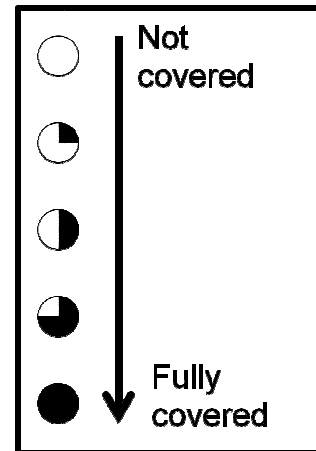
TMMi Process Area	SG1	SG2	SG3	SG4	SG5
2.1 Test Policy & Strategy	●	●	◔	*n/a*	*n/a*
2.2 Test Planning	◑	●	◑	●	●
2.3 Test Monitoring & Control	◕	◔	●	*n/a*	*n/a*
2.4 Test Design & Execution	●	●	●	●	*n/a*
2.5 Test Environment	◑	●	◔	*n/a*	*n/a*
3.1 Test Organisation	◔	◔	○	○	○
3.2 Test Training Program	○	○	*n/a*	*n/a*	*n/a*
3.3 Test Lifecycle & Integration	◑	●	◑	*n/a*	*n/a*
3.4 Non-functional Testing	○	◔	◔	◔	◔
3.5 Peer Reviews	◕	●	*n/a*	*n/a*	*n/a*
4.1 Test Measurement	◑	◔	*n/a*	*n/a*	*n/a*
4.2 Product Quality Evaluation	○	○	*n/a*	*n/a*	*n/a*
4.3 Advanced Reviews	◔	●	◕	*n/a*	*n/a*
5.1 Defect Prevention	◔	○	*n/a*	*n/a*	*n/a*

TMMi Process Area	SG1	SG2	SG3	SG4	SG5
5.2 Quality Control	○	○	n/a	n/a	n/a
5.3 Test Process Optimization	◔	○	◔	○	n/a

Table 2: Detailed analysis of TMMi Specific Goals against ISO/IEC 29119 and ISO/IEC 20246

From table 2 one can deduct a number of relatively straightforward conclusions:

→ At TMMi Maturity Level 2 the corresponding ISO processes and activities cover the TMMi process areas and practices quite well. To turn this around one may state that the "ISO 29119 provide a possible implementation for most of the practices defined at TMMi level 2". This brings us back to the differences in structure and background of both models discussed earlier in this paper. The ISO/IEC 29119 content-based model could be consulted for improvement suggestions, to fill gaps that were identified during an assessment using the TMMi test improvement model. The latter is even more true since the terminology in both models is mainly consistent.

→ TMMi level 3 expands on certain topics not fully covered within the ISO/IEC 29119 series, such as Test Organization, Test Training and Non-Functional Testing. Whereas TMMi level 2 is very much a project-oriented level addressing the basic testing activities within a development life cycle, TMMi level 3 is much more a level where organizational aspects, institutionalization and supporting processes are addressed. The organizational oriented practices of TMMi at level 3 are clearly not addressed in ISO/IEC 29119 (see also table 3 hereafter showing the coverage of the supporting TMMi Generic Goals by the ISO standards). As a result there is little coverage of the TMMi level 3 practices by the ISO/IEC 29119 activities. The only exception to the latter are the goals and practices around project test planning (which is part of the TMMi Test Lifecycle & Integration process area) and the TMMi process area Peer Reviews which is largely covered by ISO/IEC 20246. Of course both project test planning and peer reviews are project-oriented practices which probably explains why specifically these practices are covered by the ISO standards.

→ The practices at TMMi Maturity Levels 4 and 5 have few equivalent ISO activities. This is basically a repetition from what was already stated in the previous paragraph and made visual by figure 3. The only exception where there is some coverage is with the TMMi level 4 process area Advanced Reviews, in this case ISO/IEC 20246 has some corresponding activities.

Generic Goals TMMi	ISO 29119	ISO 20246
2.1 Test Policy	●	◔
2.2 Planning	◑	◑
2.3 Resources	◕	◑
2.4 Responsibilities	◔	◔
2.5 Training	◔	◔

Generic Goals TMMi	ISO 29119	ISO 20246
2.6 Configuration management	○	○
2.7 Stakeholder involvement	●	◑
2.8 Monitoring and control	◑	◔
2.9 Objective evaluation	◑	○
2.10 Higher level management	◔	◔
3.1 Defined process	◑	
3.2 Improvement	◑	◑

Table 3: Detailed analysis of TMMi Generic Goals against ISO 29119 and ISO 20246

TMMi provides full coverage for all requirements defined by ISO 29119-2

Whereas the previous analysis took the goals and practices of TMMi as a starting point trying to find corresponding ISO activities, this section looks a things from the other angle. In this section we take the ISO activities and try to find corresponding TMMi practices. The analysis was performed at the level of detailed ISO/IEC 29119-2 activities. This of course is of utmost importance for projects, organizations or industries that have adopted the ISO testing standard. If an organization uses TMMi as its test process improvement model can it still comply with the normative requirements ("shall statements") defined by ISO/IEC 29119-2? Table 4 shows part of the full table that was built to analyze the level of coverage the TMMi process areas, specific practices and generic goals provide for the activities of ISO/IEC 29119-2.

As an example, the ISO activities of Test Process (TP) 1 "Understand Context" are fully covered by the Specific Practices (SPs) 1.2 "Identify product risks", 2.1 "Identify items and features to be tested" and 4.3 "Plan stakeholders involvement" of the TMMi Process Area "Test Planning".

Another example, the ISO activities of the Organizational Test process (OT) 1 "Develop Organizational Test Specification" are fully covered by the Specific Practices (SP's) 1.1 "Define test goals", 2.2 "Define test strategy" and 2.3 "Distribute the test strategy to stakeholders" of the TMMi Process Area "Test Policy and Strategy" and the Generic Practice (GP) "Identify and involve relevant stakeholders".

ISO 29119-2 Activities	TMMi	Process Area	Specific Practice Generic Practice
OT1 Develop Organizational Test Specification	●	Test Policy and Strategy	SP 1.1, 2.2, 2.3, GP 2.7
OT2 Monitor and Control Use of Organizational Test Specification	●	Test Policy and Strategy	SP 3.1, 3.2 GP 2.8

ISO 29119-2 Activities	TMMi	Process Area	Specific Practice Generic Practice
OT3 Update Organizational Test Specification	●	Test Policy and Strategy	GP 2.7, 3.2
TP1 Understand Context	●	Test Planning	SP 1.2, 2.1, 4.3
TP2 Organize Test Plan Development	●	Test Planning	SP 4.2, 4.3, 5.3 GP 2.7, 2.10
TP3 Identify and Analyze Risks	●	Test Planning	SP 1.1, 1.2, 1.3, 4.4
TP4 Identify Risk Mitigation Approaches	●	Test Planning	SP 1.3, 4.4
TP5 Design Test Strategy	●	Test Planning	SP 2.2, 2.3, 2.4, 3.3, 4.5, 5.3
TP6 Determine Staffing and Scheduling	●	Test Planning	SP 3.3, 4.1, 4.2, 5.2
TP7 Record Test Plan	●	Test Planning	SP 4.5
TP8 Gain Consensus on Test Plan	●	Test Planning	SP 5.1, 5.2
TP9 Communicate Test Plan and Make Available	●	Test Planning	SP 5.3 GP 2.7, 2.10
Etc			

Table 4: Detailed analysis of ISO 29119-2 requirements against TMMi

Table 4 shows only part of the result of the analysis but it already shows the main direction. It (partly) shows that for all ISO/IEC 29119-2 processes and activities there are corresponding TMMi process areas, specific and/or generic practices. Indeed this is the overall conclusion as well: TMMi completely covers the processes and activities outlined in ISO/IEC 29119 Part 2 and ISO/IEC 20246. There are no activities within the ISO standard that would not be covered if organization has decided to use TMMi as its test improvement model. In fact achieving TMMi level 2 would already imply very large ISO coverage, but achieving TMMi level 3 would imply having fulfilled all requirements of the standards ISO/IEC 29119-2 and ISO/IEC 20146. This is an important message for organization that are using TMMi but for some reason also need ISO compliance.

The above is of course the main conclusion in this section, however a number of other observations need to be mentioned as well. It was noted by those doing the analysis and study that generally TMMi provides a more in-depth description of the testing practices than the ISO standard. This is of course important for those needing guidance on how to improve a certain area that, for example, was indicated as being a weak area in an assessment.

Another observation that is highly worth mentioning is related to the content of parts 3 and 4 of the ISO/IEC 29119 test standard. As stated before part 3 of the ISO standard aligns test documentation with the test processes of part 2. For each of the test documents a template is described and an example is provided. TMMi most often references the IEEE 829 standard on Test Documentation when test work products are expected. TMMi does not in detail describe the test documents; it only identifies them as example test work products for specific test practices. For example the specific

practice "Identify and prioritize test conditions" within the process area Test Design and Execution identifies a test design specification as an example of a test work product. Subsequently TMMi refers to IEEE 829 for more information on the elements of a test design specification. However, with now also ISO/IEC 29119-3 being available, a user of TMMi could also study the ISO standard to find the most suitable solution to a test design specification document within his project or organization. This again is a very concrete example where the ISO/IEC 29119 content-based model can be consulted and used in conjunction with TMMi. When it comes to test documentation one of course always needs to remember the Agile manifesto statement "Working software over comprehensive documentation". Only document that what is needed and has clear added value to document, never document for the sake of documenting. Note that within TMMi work products are indicated as examples, not as being required.

The situation for part 4 is almost the same. ISO/IEC 29119-4 Test Techniques provides definitions of structure-based and specification-based test design techniques. Again TMMi only lists a number of structure-based and specification-based test design techniques as examples. However, TMMi also explicitly states that in addition to these techniques, experienced-based techniques such as exploratory testing can be used which results in documenting a test design specification by means of a test charter. Experience-based techniques and also defect-based techniques are not (or marginally) covered by ISO/IEC 29119-4. To conclude, with now ISO/IEC 29119-4 being (almost) available, a user of TMMi could also study the ISO standard, in addition to other text books, to find the most suitable structure-based and specification-based test techniques to be implemented within his project or organization. Once more an example where ISO/IEC 29119 content-based model can be consulted and used in conjunction with TMMi.

Assessments
The last comparison between the two models is about the way assessments are performed against the models. Let's first look at the ISO standards that are relevant in this context. Within ISO, the ISO/IEC 15504 series have until recently been the standard defining the requirements for assessments. In this context especially ISO/IEC 15504 part 2 - Performing an Assessment is essential. This is the international standard governing assessment of processes within information technology organizations. Currently the ISO/IEC 15504 standard is the process of being replaced by a series of new standards under the umbrella of ISO/IEC 330XX, e.g., ISO/IEC 33002 is new standard that has been published defining the requirements for process assessment. Another standard that is relevant and defined specifically for ISO/IEC 29119-2 is ISO/IEC 33063 Process Assessment Model for Software Testing. ISO/IEC 33063 is an exemplar Process Assessment Model for ISO/IEC 29119-2 and defines a continuous assessment model. ISO/IEC 33063 subsequently depends on other standards like ISO/IEC 33002 to provide normative requirements on how to conduct, document and report. Note that ISO/IEC 33063 is currently still under development and only available in draft. Moreover, an interpretation of the ISO/IEC 33063 levels and how they are applied to ISO/IEC 29119-2 in term of process maturity is missing, leaving this interpretation up to individual assessors which could of course result in assessment results to be less consistent.

TMMi has a robust process assessment model in TAMAR with detailed and normative requirements on how to conduct, document and report assessments using a staged assessment model. The specific requirements for TMMi assessments are stated in the TMMi Assessment Method Accreditation Requirements (TAMAR) document. These requirements are based upon the ISO/IEC 15504-2 standard (TAMAR contains a complete table defining the correlation with this standard and is ISO/IEC 15504-2 compliant.) It's important that the achievement of a specific maturity level must mean the same thing for different assessed organizations. Rules for ensuring this consistency of assessment are contained in the TAMAR. TAMAR also contains guidelines for different classes of assessments. The TMMi Foundation has recently developed and made available a full assessment method compliant with the requirements of TAMAR. Organizations can use this method, called TAM, under license.

Finally, the TMMi Foundation manages a framework for evaluating and accrediting assessors and lead assessors. If an assessment provider intends undertaking formal assessments leading to certification, then the assessment must be led by an accredited lead assessor and the assessment team must include at least one accredited assessor. The requirements for accreditation of both roles can be found at the web site of the TMMi Foundation.

Staged vs. Continuous

The analysis has shown that TAMAR and ISO/IEC 33063 & ISO/IEC 33002 are highly comparable with regards to how assessments should be conducted ("the assessment process"). Of course this comes as no surprise as TAMAR is already ISO/IEC 15504-2 compliant. The assessment approach defined by TAMAR seems to be more prescriptive than ISO/IEC 33063 and accompanying standards. However. the main difference is in the usage of a staged (TMMi) vs. a continuous (ISO/IEC 33063) model. ISO/IEC 33063 proposes that assessments for ISO/IEC 29119-2 are performed using a continuous assessment model.

With a staged representation, the model describes successive maturity levels. The Test Maturity Model integration (TMMi) defines five such maturity levels. Achieving a given maturity level (stage) requires that specific testing activities are performed as prescribed by the model. Test process improvement is represented by progressing from one maturity level to the next highest level (assuming there is one). Staged representations are easy to understand and show a clear step-by-step path towards achieving a given level of test process maturity. This simplicity can also be beneficial when discussing test process maturity with senior management or where a simple demonstration of achieved test process maturity is required, such as with tendering for testing projects. It is probably this simplicity that makes staged models popular. A recent survey showed that 90% of the CMMI implementations were staged-based, and only 10% were using the continuous representation. Continuous representations of process maturity are generally more flexible and finer-grained than staged representations. Unlike the staged approach, there are no prescribed maturity levels which the entire test process is required to proceed through, which makes it easier to target the particular areas for improvement needed to achieve particular business goals. Clearly, the continuous representation provides a more detailed and differentiated view of test process maturity compared to the staged representation, but the simplicity offered by a staged approach cannot be easily matched.

Other differences between the TMMi/TAMAR assessment approach vs. ISO include the use of accredited (lead) assessors with formal TMMi assessments. Also with TMMi there is a possibility for an organization to become formally certified at a specific TMMi level. (An overview of TMMi certified organizations is available on the website of the TMMi Foundation.)

Summary

Where the TMMi has been available for a number of years now and is well accepted in the market, the ISO/IEC 29119 standard is relatively new and still "fighting" for it's recognition. A main difference is already their structure and type of testing model. TMMi is a categorized as a test improvement model, and ISO/IEC 29119 a content-based model each with their typical characteristics.

Based on the coverage analysis on test practices that was carried out the following main conclusion were derived:

- TMMi provides full coverage for the processes outlined in ISO/IEC 29119-2 and ISO/IEC 20246

- ISO/IEC 29119 provides good coverage of TMMi level 2 process areas and goals.

- TMMi level 3 expands on certain topics not fully covered within the ISO/IEC 29119 series, such as Test Organization, Test Training and Non-Functional Testing

- TMMi Maturity Levels 4 and 5 have few equivalent ISO activities.

ISO/IEC 29119 is basically a test standard / test model highly related to TMMi level 2. It provides a possible implementation for the improvement goals of TMMi level 2 in a traditional sequential life cycle environment. TMMi in turn provide provides full coverage for all normative requirements defined by ISO/IEC 29119-2.

The assessment approach to both models is largely the same, with a main difference in the usage of a staged (TAMAR) vs a continuous (ISO/IEC 33063) process assessment model

In the end both models have the same mission: to support the improvement of testing processes. TMMi users can benefit from the fact that organizations can now adopt a formal testing standard giving testing a more professional image. Moreover, typical work products have been defined in ISO/IEC 29119-3 and testing techniques in ISO/IEC 29119-4, making these interesting standards for TMMi practitioners. In this paper a number of examples have been provided where the models can be used in conjunction.

Also always remember a model is just a model. Just trying to get to TMMi level 2 or 3 without understanding the business context will always fail in the short or long term. The improvement team must understand the business problem in order to determine how to address the improvements and which fits best. Whatever you do, make sure you know why you are doing it. What is the business problem you are trying to address? What is the test policy supported by management? Test process improvement must business-driven and not model driven, although a good model will surely be helpful.

About the author
Erik van Veenendaal (www.erikvanveenendaal.nl) is leading international consultant, trainer, and recognized expert in software testing and quality. Erik is the founder of Improve Quality Services BV, a company that specializes in testing, requirements engineering, and quality management. Erik is the author of a number of books and papers, one of the core developers of the TMap testing methodology and the TMMi improvement model, a participant in working parties of the International Software Testing Qualification Board (ISTQB), and currently on the TMMi Foundation board. For almost 10 years Erik was a senior lecturer at the Eindhoven University of Technology. On behalf of the university he was on the Dutch standards committee (related to ISO) for software quality. He is a frequent keynote and tutorial speaker at international testing conferences. For his major contributions to the field of testing, Erik received the European Testing Excellence Award (2007) and the ISTQB International Software Testing Excellence Award (2015).

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