TMMi, Accenture Test Assessment Framework and Agile assessments are the same, are they not PoV?

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I've seen the popularity of TMMi grow over the past five years, having been selected to participate at the Experimentus offices in London on a cold January day back in 2013 for a two-day critique of the soon to be launched TMMi Assessor training material. I was then invited back by the TMMi Organisation in February the following year but this time I travelled up to Livingston in Scotland for assessing the TMMi Lead assessor course. This was only three years ago and there was a handful of individuals who were qualified to run assessments. Today there are over 500 individuals who have passed the TMMi Professional examination and I can only assume they are well on their way to become TMMi assessors. There are 20 TMMi Lead Assessor, myself, A. Deo and Matthias Rasking are the three from Accenture and a further 28 who are qualified TMMi assessors. A recent annual report from Experimentus, "The state of Testing Report 2007 (Experimentus annual TMMi Industry Survey Results)" shows the upwards trend in organisations wanting to improve their IT delivery methods. But, there is always a but, what has this got to do with the Accenture's Test Assessment framework. As many will know this framework was loosely based upon the TMMi framework and is run internally thus any Accenture individual does not require to be accredited by the TMMi organisation. There are two types of assessments which can be conducted a rapid assessment focused on areas where it is known the client is experiencing challenges and we need to deep dive further to provide solutions to those challenges. Be careful with this type of assessment because your results will be based on assumptions and limited data points so you need to be very clear when presenting any findings. The second type of assessment is the comprehensive assessment with over 150 questions. For some the TMMi assessment seems to be best fit for organisations who have adopted the waterfall methodology. Despite the onset of the challenges from Bi-Model IT and Agile the assessment is still thriving. When the Accenture Online Test Assessment tool was launched the very first question I asked the team who maintains the tool was why does this tool not cater for agile assessments. It does…really I hear you say…is this a surprise to you? How can the model cover agile assessments, I'll explain…

The typical reasons behind why Accenture's clients asked us to run an assessment are below, this is not meant to be an exhaustive list. This type of work can generally be classified as System Integration, (SI) where we may or may not be the delivery partner with the actual assessment being consultative / advisory. Now I believe the consultative / advisory part is the area where most individuals feel uncomfortable because they are looking for a boiler plate solution. What needs to be done is the delivery stripped to the bones by customising the target areas (be comfortable with not following the Accenture Test Assessment Framework, (ATAF) to the letter, the aim is to identify the most critical pain-points for the client) and questions so they are fit for the client's delivery methodologies. Agile make this much more challenging because the delivery methodology adopted by our clients can be a mixture of waterfall and agile, there are 20 agile methodologies and frameworks which exacerbates any assessor when trying to pin down what the client has adopted.

1. Project has run aground and letting in water fast, the account team Inc. CAL and client want this fixed yesterday
2. Client has asked for an independent view of where the pain-points are or how mature the testing is
3. The client account team sees an opportunity for expansion from the clients' current partner
4. Accenture has won a new deal and there is a lot of unknown, time for an assessment
5. Accenture is the delivery partner and has decided to resolution to stay competitive and stay in the game
6. Transformation, the client wants to transform its business, become more digital & more agile
7. Opex and Capx reductions as part of an overall C-suite focus on the client organisation reducing IT spent

A key point to understand when planning an assessment with the client is to truly collaborate and understand the objectives of the assessment. This is vital in providing the client with the output/results they expect. For example, in an advisory capacity as an expert from the test capability you must know the ATAF areas, understand the client environment, the stakeholders, the context and why the client has requested for such an assessment to be undertaken and what they have planned to do with the output. If you can understand these points at the planning stage, then the assessment will be a success because you will not fall into the trap of running through the ATAF and end up providing the client with output which holds no value or the client already knows about the key pain-points.

Also as an expert be confident about using the ATAF as a guide, I previously ran a test assessment at Barclays Corporate and Payments in the UK using the areas below which was agreed with the client. These are different to ATAF areas

- Resourcing
- Methodology
- KPI Reporting
- Environments
- Tools
- Automation
- Regression
- Industrialisation
- Test Strategy – Methodology, Environments & Tools, Organization & Communication
- Test Lifecycle – Approach & Planning, Design & Preparation, Execution & Reporting
- Testing Disciplines – Performance Testing, Estimation, Test Metrics, Project Management, Defect Management & Prevention, Test Automation, Test Data Management, Requirements Management and Configuration Management

If you add the recent changes within the SDLC of organisations adopting lean principals, the onset of continuous integration and DevOps and Agile principals you now have some commonality between the ATAF and the start of an agile assessment for SI work. These have a common business value, to deliver bottom-line benefits.

TMMi aids improved efficiencies through product quality, the relentless pursuit of defect detection early resulting in a side-effect of reducing the cost of IT cost.

As the diagram below illustrates the Agile methodology as you will know contains software development methods in which the cross skilled functional teams are empowered to sort things out themselves, requirements and the solution evolve through the sprints using a key ingredient collaboration. The fast feedback loop is embedded within development encouraging failures early to enable the team to adopt to the outcomes and provide solutions. This allows continuous improvements and frequent releases into production. Investment upfront is achieved through reviews, static testing of the specifications and again repeated for the requirements as part of acceptance testing.

Before we dive into the TMMi levels, the TMMi rating criteria shown in the table below can be used to assess the agile areas using the percentage score.

Rating	Achievement Percentage
Fully Achieved	85%-100%
Largely Achieved	50%-85%
Partially Achieved	15%-50%
Not Achieved	0%-15%
Not Rated	Not assessed due to insufficient or inconsistent evidence
Not Applicable	

Let's start to look at **TMMi Level 2 Managed – Test Policy & Strategy**

The areas covered at this level are test policy and strategy, test planning, test monitoring and control, test design and execution, and test environment.

Test Policy and Strategy involves the definition and deployment of the test policy, test strategy, and test levels. Testing is multi-levelled to include component, integration, system and acceptance test levels with the objective of verifying the product satisfied the specified requirements from the business. While agile does not create a separate test policy or goals it does follow an organisation-wide defined test strategy. Within that test strategy effectiveness is measured through lean key performance indicators (KPIs) for example cost of rework, defect rate, testing effectiveness, sprint burndown performance indicator therefore a scoring of **Partially Achieved** (**PA**) can be given.

The Product Owner identifies risks during test planning, the purpose of test planning as described by TMMi is to establish and maintain well-founded plans for performing and managing the testing activities Test planning helps define the best approach based on risks identified by the product owner. Entry-exit criteria for those testing activities verify activity completion and applies adequate process rigor. Test suspension and resumption are not applicable in Agile, however testing can be moved to another iteration under certain circumstances such as unavailability of the test environment. Agile methods adopted such as story points Vs. hours, T-Shirt sizing, relative mass valuation or planning poker facilitate agile estimations. The test planning process is therefore **Fully Achieved** (**FA**).

TMMi defines the purpose of Test Monitoring and Control as providing an understanding of test progress and product quality so that appropriate corrective actions can be taken when test progress deviates significantly from plan or product quality deviates significantly from expectations. Within Agile there are daily team stand-ups, time-boxed review meetings to monitor and control but also manage the progression of testing as well as the product quality. This process area is also **Fully Achieved** (**F**) to Agile.

Test Design and Execution is defined by TMMi as the purpose to improve the test process capability during test design and execution by establishing test design specifications, using test design techniques, performing a structured test execution process and managing test incidents to closure. In Agile user stories facilitates team discussion of requirements instead of writing them. Agile tools like JIRA enable traceability of user stories to requirements. Intake test, test execution, writing logs, defect detection, defect prioritization, defect retest, and closing are all practiced in Agile as well, making the test design and execution process area **Fully Achieved** (**FA**) to Agile.

Test Environment involves establishing and maintaining an adequate environment, including test data, in which it is possible to execute the tests in a manageable and repeatable way. Cross functional teams generally will have testers / QA resources embedded within the agile team. This type of team member will complete environment health checks / smoke tests to validate the fitness of the environment as well as check the basic build information to ensure the tests being conducted are against the correct build version. This process area is **Fully Achieved** (**FA**) to Agile.

TMMi Level 3 is Define; this means testing is no longer confined to a phase that follows coding. Testing is fully integrated into the development lifecycle with key focus on formal reviews. Tailoring of the standard processes is developed for projects.

Test Organization, I can keep this simple because there is no separate test role in Agile. Within Agile the Development role contains testing tasks or what we see with our clients is cross functional teams who have several capabilities within their agile team, e.g. UI developer and a tester. This process area is **Not Applicable** to Agile (**NA**)

Test Training – The ATAF asks if the Test Strategy identifies overall test training needs and to rate the effectiveness of the training and learning. In addition, there is an ask to train the test team on the key processes and techniques to improve testing skills.

TMMi also covers test training program and agile projects will have test training however there is an important distinction agile projects will train the cross functional team on a per needed basis. This process area is **Fully Achieved** (**FA**)

Test Lifecycle and Integration within ATAF there are three main areas, approach & planning, design & preparation and execution & reporting with several sub-section questions. A single development lifecycle with testing integrated specifying standard ways of working across multiple test levels is in place. The standard way of working in agile is either to follow DevOps, continuous integration or continuous development and adopt techniques like Test Driven Development and Model-Driven Development which were evolutionary resulting in testing first before coding and then refactoring. This approach enables testing to be integrated early. Like the TMMi processes the aim here is to develop organisational test processes which is slightly different within agile. In agile the focus as described above in Test Training is focused at the agile project level. This process area is **Partially Achieved** (**PA**).

In ATAF the focus is on Performance Testing however in agile there are functional epics, capabilities, features and user stories, each can deal with non-functional requirements, also known as the abilities….reliability, scalability and usability. These non-functional requirements are often reviewed as part of the definition of done. This process area is **Fully Achieved** (**FA**).

The aim of Peer Reviews is to identify static and functional/non-functional defects as early as possible, e.g. within the requirements and specifications. Within agile peer code review could not be more agile, SmartBear Software wrote a white paper on this, https://support.smartbear.com/support/media/resources/cc/Peer-Code-Review_An-Agile-Process.pdf also include other agile techniques like XP or pair programing which creates feedback loops for the teams. Since the agile team consists of cross functional individuals who are developers, individuals from the business and SME's they are all involved at some stage in reviewing. This process area is **Fully Achieved** (**FA**).

TMMi Level 4 – Measured, this level focuses utilising the technical, managerial and staffing infrastructure implemented as part of the TMMi levels 2 & 3 and building a organisational-wide test improvement programme which is used to evaluate the quality of the testing processes, productivity and to track the improvements.

Test Measurement, within **ATAF** the **Level 4 Managed & Measured** questions ask if the Test Strategy defines how test-related measurements are used to define testing progress and productivity as well as costs and software quality Test Strategy Planning section raising a question about are measurements used to track the progress of testing activities this process area is **Fully Achieved** (**FA**) to agile because the cross functional teams can measure and improve on the team's productivity and

schedule through the creation of burn down or velocity charts. In addition, the team will track and review test coverage and effectiveness using commonly deployed tools like QA Symphony, JIRA and HP ALM.

Product Quality Evaluation, the purpose of this process area as described in the TMMi Framework is to develop a quantitative understanding of the quality of the products and thereby support the achievements of specific projects product quality goals. Within **ATAF Test Strategy Planning** questions asked to rate the extent in which the Test Strategy addresses the quality level and method of verification of use cases / requirements both product and operational and the requirement management process. You also should consider the Performance Testing set of questions because both functional and non-functional quality attributes need to be met if the product quality is satisfactory. The **Product Owner** is typically one of the projects key stakeholder and will be responsible for sharing the release / sprint vision and goals. This role will seek to continuously measure quality throughout the release / sprints during the sprint review meetings. This process area is **Fully Achieved** (**FA**) to agile.

Advanced Reviews are captured throughout **ATAF**, during **Test Strategy Planning**, **Design & Preparation** for requirements and **Test Disciplines – Requirement Management**. The aim of the advanced reviews is to catch defects as early as possible in the SDLC which results in the measurement of the product quality. The Peer Review approach (Static Testing) aligns to both the Test Strategy and Test Approach ensuring these deliverables do not become out of date and thus shelf-ware. The cross functional teams in agile will continuously hold review meetings as part of the release /sprint and retrospectives to assess the quality of the shippable product. Advanced Peer Reviews is **Fully Achieved** (**FA**)

TMMi Level 5 as described in the TMMi framework this level is all about optimisation of the processes, preventing defects from occurring in the first place and quality control.

Whether **Defect Prevention** is being carried out using a traditional methodology of software delivery or within NewIT, the activity has the same aim, to identify and understand the root causes of the most critical and commonly occurring defects and to put measures in place to prevent those defects from being identified in future releases. NewIT helps to advance the identification of defects and analyse the root causes using Cognitive automation tools like Saffron which basically finds clusters of defects due to similar features/attributes developed.

In **ATAF**, **defect prevention** starts with assessing the proficiency of metrics used to improve the defect prevention effectiveness. The **Test Disciplines – Defect Management & Prevention** questions the effectiveness of how the defect prevention actions are being implemented, measured and tracked.

The cross functional team measures defect prevention through the release /sprints and retrospectives to identified the root causes agreed prioritisation for the backlog and ultimately prevent those defects from re-occurring. This process area is **Fully Achieved** (**FA**).

Quality Control as described by the TMMi framework is supported by statistical techniques and methodologies built on top of the **Test Measurement** process area. The expectation is the performance of the test process is fully predictable and stable within acceptable tolerance ranges. The project will conduct representative samples to help predict project quality and continuously drive the efficiency of testing.

You will not find Statistical methods or quality control within **ATAF** however it does cover continuous improvement and how the effectiveness of the process is governed.

Cross functional teams do not use statistical methodologies to drive the testing improvements however test performance measures, re-base-lining and tracking takes place. This process area is **Partially Achieved** (**PA**)

Summary

To conclude both the TMMi framework and **ATAF** (comprehensive assessment type) can be used to conduct an Agile test assessment with a level of tailoring. The level of tailoring will depend upon the methodologies deployed by the client and how mature the organisation is. To achieve a successful Agile test assessment the individual will require knowledge of the TMMi process areas and how they map to **ATAF** as well as knowledge of Agile activities and how those activities map back to **ATAF**.

Focusing your effort upfront to understand the reason behind the assessment, expected outcome and recommendations with a roadmap of costs is also vital and continual feedback loops with the stakeholders and sponsor to ensure expectations are being met and you deliver against the scope. Scope creep is easily missed as the volume of information and data points to review is enormous so diligently document the scope through version control and negotiate if additional scope is required.

An interesting read the Information Systems Department, Faculty of Computer and Information, Helwan University, Cairo, Egypt wrote a thesis on how to improve the testing process by applying a detailed mapping between TMMi and Scrum practise and verifying this mapping with a study providing empirical evidence of the obtained results.

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About the author

Paul Mowat is a Technology Delivery Lead (Senior Manager) at Accenture UK specializing in Test Consultancy/advisory as well as complex end-to-end delivery. Paul currently leads the UK Test Consultancy Practice and the Marketing for Accenture's UK Practice. Paul has gained a wealth of experience in building high performing managed test services within Financial Services, Products and Communications, Media and High-Tech for global clients, developing and implemented test improvement and innovation programmes. Paul was one of the first globally in Accenture to gain the Accenture Master Test Architect certification through his test delivery experience. Since 2014 Paul has led test assessments across the globe as a TMMi Lead Assessor supporting C-Suite change programmes, training/coaching employees globally to build capability and increasing the maturity levels of the clients testing. Paul's interest in agile testing has led Paul to volunteer to deliver Accenture agile university, the experience gained combined with agile testing, scrum and gaining the leading SAFe Agilist (SA) certification has meant Paul has gone onto implement agile best practices and used his experience to coach his current agile teams.