Using the Test Maturity Model integration (TMMi) to help improve your software testing process

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As businesses become ever more complex and reliant on IT solutions, the need for faster and more comprehensive solutions grows. In order to exploit these emerging technologies and meet business demand, organisations should turn their attention to internal processes as well as engage with third parties, system integrators, and specialist consultancies to successfully move to DevOps, Agile, and AI techniques.

There has always been a desire to build quality into the application rather than the more costly option of inspecting it at the end of the project. Organisations typically have specialist quality teams in place to help manage the risk.

As organisations prioritise delivering more comprehensive IT-related projects by using different development methodologies and technologies, it has become more challenging for them to step back and evaluate how efficient and effective their current software testing processes are. It has also become harder for them to find the time to analyse how efficient they are and be able to identify, create, and deploy new ways of working that will benefit the whole business.

TMMi - The Test Maturity Model integration

In recent years, a plethora of test maturity models have been developed to help organisations identify and implement software testing process improvements. The Test Maturity Model integration (TMMi®) has become the de facto standard for software test process improvement activity and provides a formal independent process for organisations to be certified against if required.

First introduced in 2005, the TMMi model [1], [2] was based on the original TMM model from the Illinois Institute of Technology [3], incorporating ISTQB, IEEE, CMMI and other software testing models used in the industry. This independent model has been adopted worldwide and has helped organisations improve their software quality testing processes, reduce risk, and adopt a Shift Left approach.

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1 TMMi is a registered trademark of TMMi Foundation (UK)
TMMi is a vital tool for assessing and benchmarking where an organisation is, identifying the process improvements that need to be incorporated and helping develop a process improvement plan to address the issues. Most organisations we have worked with aim for TMMi Level 3, and once this has been achieved, then target TMMi level 5.

**TMMi Roadmap**

A typical roadmap (see figure 2) for this might be an assessment to identify strengths and weaknesses against TMMi Level 3, develop a process improvement plan, define, and implement the process improvements and run some health checks to validate that the benefits are being realised.

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**Figure 1: TMMi Structure and benefits**

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**Figure 2: TMMi Roadmap for Process Improvement**
Once this has been successfully piloted the changes can then be rolled out across other programmes of work. This ensures that all projects benefit from the investment that’s been made in the changes.

Over the years we have seen many organisations using TMMi purely to drive their own internal process improvement activities, but also a number of organisations wanting to achieve their certification as well.

No matter the reason for utilising the TMMi model, our roadmap for using TMMi typically starts with an informal assessment to establish where an organisation is against a specific level of TMMi, and the output of this assessment is used as a baseline and input into the process improvement plan (PIP).

The PIP can be reviewed and prioritised internally to drive the process improvement activity against an agreed timeline. As improvements are implemented, health checks can be conducted to ensure the anticipated benefits are realised, and further work can be conducted on the process improvement activities. This cycle can be repeated to ensure the process improvements are adopted by other projects and institutionalised across the organisation to maximise the benefits.

In our experience, TMMI Level 3 is the most difficult to achieve as it requires the process areas to be defined, documented, and implemented across the organisation. Level 3 also looks for appropriate consistency of approach across the organisation. Once TMMi Level 3 has been achieved, the organisation may look at TMMi level 4 (Measured) and TMMi level 5 (Optimised) as the next goal. However, as mentioned, organisations do not need to be certified but can assess themselves against the TMMi model to demonstrate they are achieving the benefits of the targeted level of maturity.

For organisations targeting or requiring TMMi certification, once the assessment has been conducted and any necessary process improvements made, the organisation can go for formal certification (see figure 3). This needs to be conducted by accredited TMMi assessors, following the guidelines laid down by the TMMi Foundation for conducting certification assessments. The results will be presented to the TMMi Foundation, which will formally issue the relevant certification documentation.

![Figure 3: Roadmap for TMMi certification](image)

The key to success is understanding the TMMi model and how it can support your process improvement activities. Furthermore, it can be achieved reasonably easily as the model is freely
available from the TMMi Foundation. The TMMi Professional qualification can also be obtained if required, and individuals within the organisation can become an accredited TMMi Assessor or Lead Assessor.

Based on recent research, the TMMi Foundation published the following results showing the main reasons organisations adopted TMMi [4]. One of the key considerations was to use an industry-recognised standard that supported modern development approaches.

![Figure 4: Reason for Adopting TMMi [4]](image)

**The benefits of utilising TMMi**

We have seen significant benefits achieved by organisations utilising TMMi for their process improvement and helping to prioritise what they should focus on. The following are just some examples of benefits achieved by various organisations across different Industries at different levels of TMMi:
Using TMMi as the measurement part of a process improvement programme, Experimentus has typically delivered these types of results:

- A UK bank saved 8% of their entire IT budget and improved development output by 12%
- An insurer saved £440k on a £2m project
- A retailer saves at least 12% on every project after the improvements
- A test services company has increased their efficiency by 8%
- A Bank decreased the overall testing estimates for the current release by 32%
- Cost of testing was reduced by 28%.

Using the TMMi model to understand your software test maturity might not be suitable for every organisation, but if it helps people to think about managing the risk and quality of what they do and looking for ways of becoming more effective and efficient within their organisation, then it might be worth looking at.
References

[1] TMMi Reference Model, R1.3 (2022), TMMi Foundation (www.tmmi.org)

Authors

Martin Adcock is the Managing Director and joint founder of Experimentus, a specialist company in software quality management, process improvement, Test Environment Management and the Test Maturity Model integration (TMMi).

Simon Frankish is an accredited TMMi Lead Assessor and currently the UK and Ireland TMMi Local Chapter Lead for the TMMi Foundation. He has been responsible for many TMMi certifications world-wide, including the first in Vietnam, and the Philippines, amongst others. Simon is also an experienced process improvement practitioner with a demonstrable history of helping clients improve their test processes.

Experimentus Ltd. is a leading world-wide TMMi training provider and TMMi assessment service provider. If you're interested in finding out how mature your test process is against the TMMi model, then please feel free to use the Experimentus free TMMi eSurvey. It will only take 15 minutes to complete, and you will receive a report identifying strengths and weaknesses against all levels of the TMMi model and a comparison of how you score against other organisations in your industry sector.