QUALITY MATTERS

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TMMI IN A SCALED AGILE ENVIRONMENT

By BOGDAN RAKOČEVIĆ, Serbia

BOGDAN RAKOČEVIĆ
Mozzart, Belgrade

Bogdan Rakočević is a Test Consultant, Test Manager, and Test Process Improver with almost a decade of experience across a spectrum of industries, some highly regulated, such as fintech, gambling, and voting systems industries.

As a holder of the ISTQB Expert Level certification in Improving the Test Process, Bogdan has consistently leveraged his knowledge to elevate his clients' test processes to the highest standards, helping them to deliver software that meets or exceeds their quality expectations.

He is recognised as the first and only TMMi Accredited Assessor in Southeast Europe, highlighting his expertise in test process maturity assessments.

Bogdan holds an MSc in Electrical and Computer Engineering from the University of Belgrade.

In the dynamic realm of software development, Agile methodologies have emerged as the preferred approach for many organizations. However, as these entities expand and their operations scale, the challenge of maintaining software quality intensifies. ISTQB recently released the new Certified Tester, Advanced Level – Agile Test Leadership at Scale (CTAL-ATLaS) certification with its accompanying syllabus and body of knowledge, which focuses on how to transform from the role of a Test Manager to the role of an Agile Test Leader. One of the most essential duties of a Test Manager (and of the Agile Test Leader) is improving the test processes inside the organization. Implementing Test Maturity Model integration (TMMi) as the world's leading test process improvement framework in an Agile environment has always been controversial. Still, it has been proven that TMMi is fully applicable in Agile. In fact, according to the recently released results of the 2nd TMMi World-Wide User Survey, which collected responses from almost 100 organizations, **66%** of respondents claim to be using one of the Agile software development lifecycles. So now is the perfect moment to see how an Agile Test Leader could utilize TMMi, but this time in a scaled Agile environment. We won't describe TMMi's structure, as that has been done numerous times. If you want to know more about that, you can read some previous issues of Quality Matters magazine.

Which software development lifecycle are you currently using?
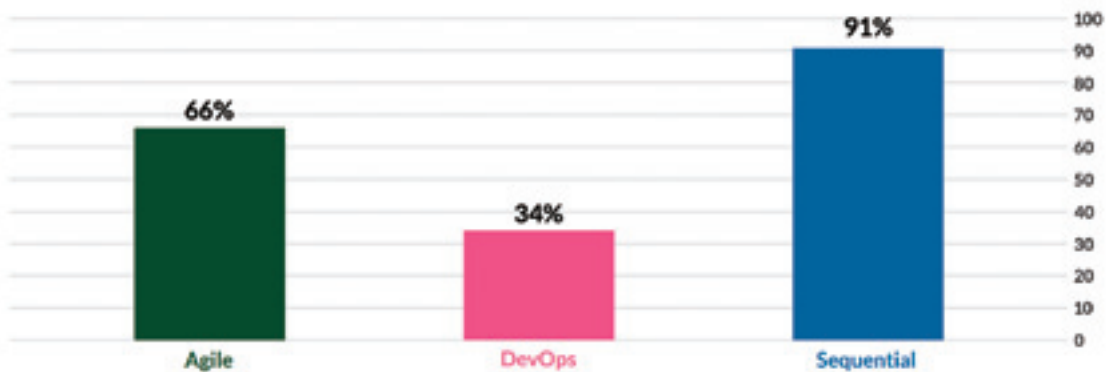
A sequential lifecycle remains to be the most popular type with the TMMi users. 91% of respondents indicated they (also) use a sequential lifecycle (e.g., V-model). 66% of the organizations using TMMi work with an Agile lifecycle and another 34% apply DevOps. No less than 59% of the TMMi users apply multiple types of lifecycle models depending on the type of project and product.
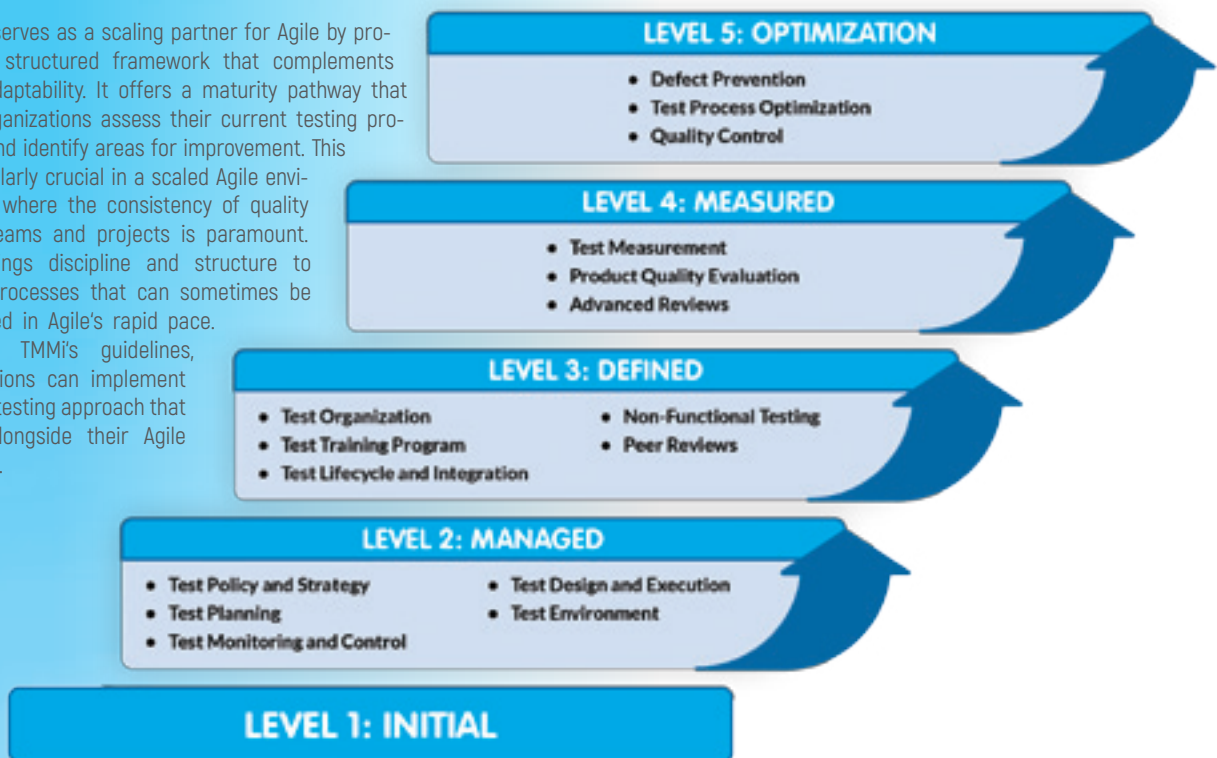
THE CONFLUENCE OF TMMI AND AGILE AT SCALE

Agile methodologies have become synonymous with modern software development, prized for their iterative nature and responsiveness to customer feedback. However, as organizations scale, the simplicity of Agile begins to intertwine with the complexity of managing multiple teams and projects, often spread across various locations. Scaling Agile is not merely about increasing the size of the team or the number of projects. It's about scaling the practices, the culture, and the methodologies that have made Agile successful on a small scale. The risk of losing the essence of Agile—its flexibility and customer-centric approach—looms large. This is where the TMMi becomes invaluable.

TMMi serves as a scaling partner for Agile by providing a structured framework that complements Agile's adaptability. It offers a maturity pathway that helps organizations assess their current testing processes and identify areas for improvement. This is particularly crucial in a scaled Agile environment where the consistency of quality across teams and projects is paramount. TMMi brings discipline and structure to testing processes that can sometimes be overlooked in Agile's rapid pace. Following TMMi's guidelines, organizations can implement a robust testing approach that scales alongside their Agile practices.

QUALITY ASSISTANCE: THE HEARTBEAT OF AGILE TESTING

CTAL-ATLaS introduces the concept of Quality Assistance, which underscores the significance of continuous learning and continuous improvement over traditional Quality Control (QC) activities. In a scaled Agile environment, where multiple teams work together, ensuring consistent quality is most important. TMMi, with its structured framework, complements Quality Assistance by offering a roadmap for organizations to evaluate their testing maturity, spotlighting areas ripe for enhancement.

Quality Assistance principles align perfectly with some TMMi Process Areas, like Peer Reviews, Advanced Reviews, or Test Lifecycle and Integration. Although many Agile organizations who pursue a formal TMMi maturity rating opt to certify up to Level 3 and imple-

LEVEL 5: OPTIMIZATION
- Defect Prevention
- Test Process Optimization
- Quality Control

LEVEL 4: MEASURED
- Test Measurement
- Product Quality Evaluation
- Advanced Reviews

LEVEL 3: DEFINED
- Test Organization
- Test Training Program
- Test Lifecycle and Integration
- Non-Functional Testing
- Peer Reviews

LEVEL 2: MANAGED
- Test Policy and Strategy
- Test Planning
- Test Monitoring and Control
- Test Design and Execution
- Test Environment

LEVEL 1: INITIAL

ment only the Level 4 and 5 Practices that matter to them, Quality Assistance principles go hand-in-hand with defect prevention principles of TMMi Level 5.

THE CONTINUOUS IMPROVEMENT PARADIGM

In scaled Agile environments, the complexity and scope of projects often mean that what worked yesterday may not suffice today. Continuous improvement is not just a nice-to-have; it's an imperative. TMMi provides a structured approach by offering an inherently iterative model, mirroring the Agile philosophy of incremental and continuous development.

Each level of the TMMi model serves as a milestone on the journey to testing excellence. But more than that, they act as signposts for continuous improvement, guiding organizations on where to focus their efforts. From establishing a solid testing policy (Level 2) to preventing defects (Level 5), TMMi ensures that the path to improvement is clear and actionable.

One important Quality Assistance skill of every good Agile Test Leader is change leadership, i.e., the ability to start process improvement. There are many ways to start test process improvement. CTAL-ATLaS mentions Deming's Plan-Do-Check-Act (PDCA) cycle, while the TMMi Reference Model mentions the IDEAL model (Initiating-Diagnosing-Establishing-Acting-Learning). It does not matter which one an Agile Test Leader chooses; both will guide them toward the desired goal.

SYSTEMS THINKING AS THE GLUE IN TMMI IMPLEMENTATION

An essential aspect of a successfully implemented Agile at scale is that systems thinking is embodied in the core of the organization's quality policy and all its employees' working habits. Systems thinking is an approach where a system is examined holistically, understanding its cause-and-effect relationships and interdependencies between subsystems and within an organization. So, it becomes of utmost importance that all of the Agile teams in an organization conform to the same standard. TMMi is particularly useful in this approach because achieving TMMi maturity Level 3 or above assures that all testing practices are uniformly implemented and executed across the company, i.e., across all Agile teams.

Achieving a TMMi level 3 rating implies that all processes are institutionalized across the organization and, only when required, adapted for a specific project based on tailoring guidelines. In our case, a specific

project can be one single Agile team. A successful Agile Test Leader must always ensure that every single Agile team is self-organizing and has its specifics, or otherwise, it wouldn't be agile. So, every team must respect organizational guidelines, but the team can tailor them if required. Contrary to popular belief, this is all acceptable with TMMi, and a described example would satisfy TMMi's criteria during assessment.

NAVIGATING THE CHALLENGES OF SCALED AGILE TESTING

Implementing TMMi in a scaled Agile environment does not come without challenges. All Agile teams must follow the organizational test strategy, and many Agile teams are likely to introduce ad-hoc solutions to their specific problems without notifying anyone outside the team. That's why when using TMMi to improve the test process across the organization, it's beneficial to tailor-up the organizational test strategy so that in the beginning, every Agile team has its approach to testing (Level 2 maturity rating). Still, when aiming to achieve a Level 3 maturity rating (or above), the respective teams agree on a minimal set of mandatory elements to which every team will conform.

In large organizations, many teams may remain non-Agile. For TMMi, it does not matter, as it can be used simultaneously in Agile and non-Agile teams. Still, when achieving a Level 3 maturity rating (or above), the same organizational test strategy is applied to all teams who, as previously described, can adapt them for their purposes.

THE ROAD AHEAD: INTEGRATING TMMI AND AGILE AT SCALE

In this article, you may have only seen a glimpse of the possibilities and challenges you can face when scaling test practices in large organizations striving to be all-Agile. But TMMi can be used as a guiding star with its structured roadmap from defect detection to defect prevention thinking and processes. On top of that, the TMMi reference model is free for everyone and can be downloaded from the TMMi's website. There is also a vast network of TMMi Accredited (Lead) Assessors and TMMi Test Process Improvers who can help you on your path to excellence. Recently, there was a significant breakthrough regarding the TMMi in Southeast Europe because, for the first time, there is a TMMi Accredited Assessor and TMMi Test Process Improver in the region. TMMi is closer than ever; hopefully, we will witness its successful regional launch.