

WORLD-WIDE USER SURVEY

2022/2023



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MESSAGE FROM THE CHIEF EXECUTIVE OFFICER



Drs. Erik van Veenendaal

CEO TMMi Foundation management executive

Proudly I present you the results of the second world-wide TMMi®¹ user survey. In the last few years we have seen a huge growth in TMMi awareness and uptake. Local Chapters play a very important role in the TMMi ecosystem and are largely responsible for this achievement. They do local marketing, and ensure TMMi training and assessment capability is available locally. Today there are no less than 29 TMMi Local Chapters covering more than 60 countries around the globe. The TMMi model is now widely recognized as the world's leading model for test process improvement. In the last few years the number of organizations being certified has shown a high growth. All of this made us decide it was again time to reach out to the market to get feedback on many aspects related to the TMMi.

From January 2022 to February 2023, the TMMi Foundation performed its 2nd world-wide user survey. All organizations assessed in either 2021 or 2022 were invited to contribute based on their practical experiences using TMMi. The survey was performed to establish a more recent and up-to-date view of the cost and benefits associated with the TMMi, reasons for adopting TMMi, but also challenges encountered applying TMMi. New in the 2nd TMMi user survey are the trending topics of Artificial Intelligence and test automation.

Almost 100 organizations contributed to the survey, representing an impressive 79% of the organizations invited to participate. The response rate and population size imply a confidence level of 95% that the real value is within $\pm 5\%$ of the measured/surveyed value. The combination of knowledgeable persons from within TMMi assessed organizations contributing and a high confidence level, making the results of the survey a reliable source for understanding how TMMi is performing in the market.

I would like to thank all who responded to the survey or contributed to the survey in any other capacity. The results of the survey provide the TMMi Foundation and its community with a better view on how to make TMMi more successful in the near future by addressing market needs and understanding the TMMi benefits and its challenges.

¹TMMi is a registered trademark of the TMMi Foundation, UK

Executive Summary

1

High response rate & confidence level

All organizations assessed in 2021 or 2022 were invited to participate in the 2nd world-wide user survey.

With a very high response rate of 79%, a confidence level of 95% was achieved.

2

Confirmation of existing knowledge

There is much confirmation of existing knowledge from the 1st world-wide user survey which is perhaps less exciting but does emphasize things. We are starting to truly understand many things about the TMMi and its users.

3

TMMi users mostly come from finance and IT software delivery domain

Although TMMi users come from a wide range of industries, TMMi remains to be most popular with IT software delivery companies (46%) and organizations that operate within the financial sector (37%).

4

High user satisfaction

With a high 97% of the respondents stating the achieved benefits with TMMi met or exceeded their expectations, the TMMi based test improvements can be considered very successful from a user perspective.

5

Improved product quality and more efficiency

A very high 94% of the TMMi users experience product quality benefits, e.g., reduced risk levels, and a high 78% test efficiency benefits, e.g., increased productivity.

6

Business benefits

A much higher percentage of the organizations experience business benefits and alignment than with the previous survey (2021). 64% of the TMMi users are now reporting business benefits, e.g., improved market competitiveness.

7

People aspect: ISTQB certification

The alliance between ISTQB and TMMi remains to be important. ISTQB is a highly popular scheme (82%) for test training and certification of personnel with TMMi users thereby addressing the people aspect of test improvement.

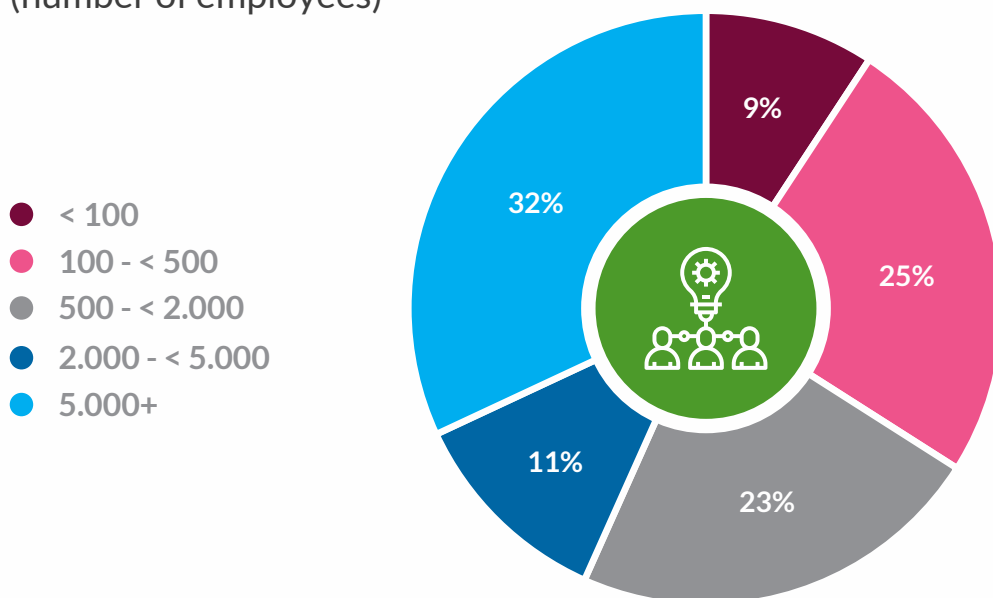
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Technology aspect: Test Automation

No less than 96% of the TMMi users is applying test automation for test improvement thereby addressing the technology aspect. System testing automation (85%) being most popular with TMMi.

Size of Organizations doing TMMi

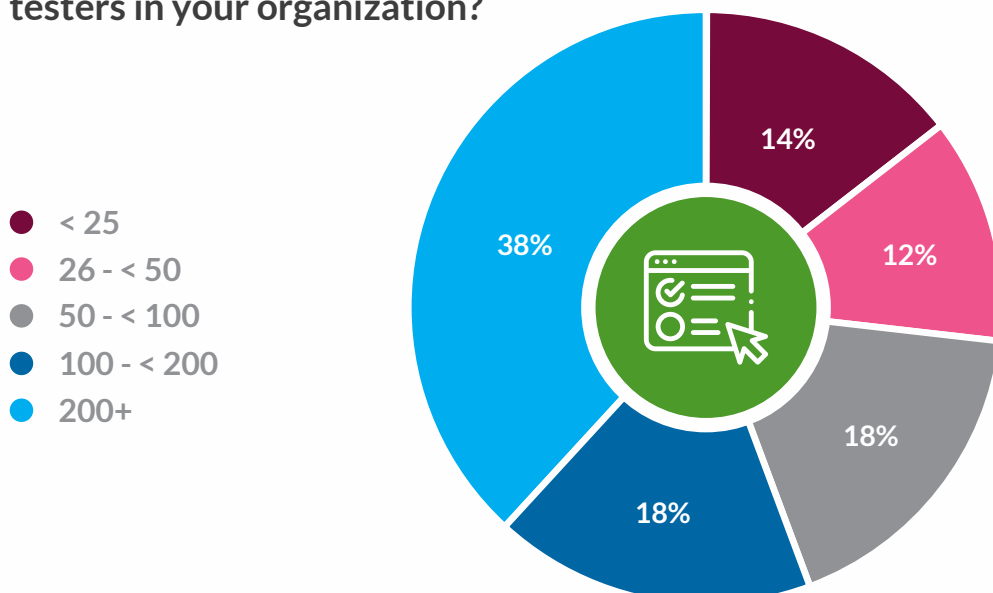
What is the size of your organization?
(number of employees)



The second TMMi world-wide user survey collected responses from a diverse set of organizations in terms of size, geographic locations and industries. The size of the organizations using TMMi shows a large variation with 32% of the organizations being large enterprise organizations with more than 5,000 employees and an almost equal part (34%) of the total number of organizations being much smaller (less than 500 employees).

Number of Testers

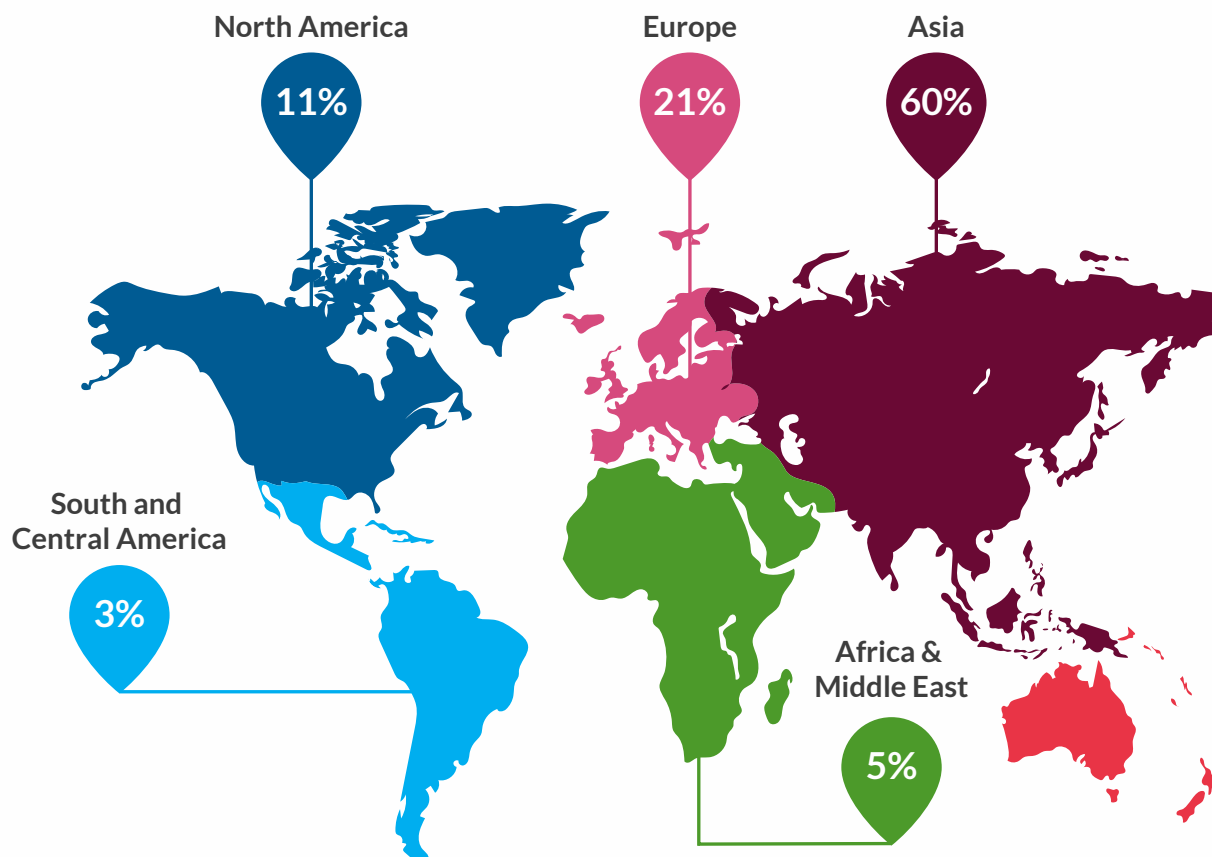
What is the number of testers in your organization?



Survey respondents indicate that 26% of the organizations using TMMi have no more than 50 testers, and 56% have more than 100 testing professionals with 38% having more than 200 testing professionals.

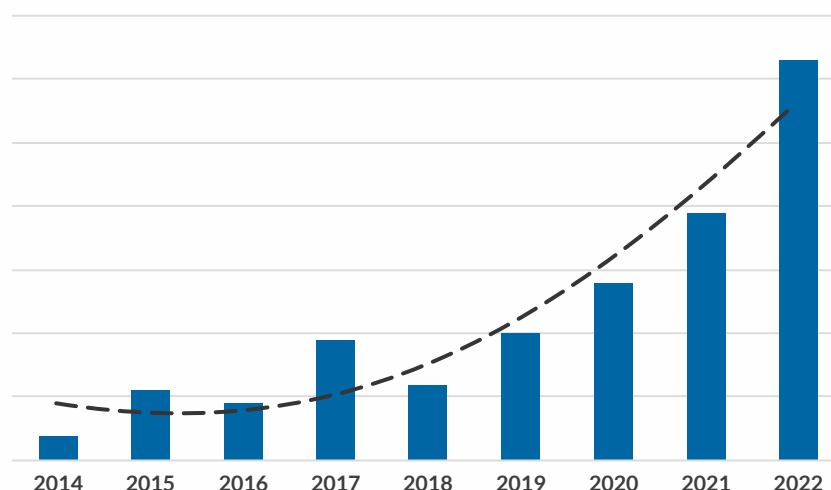
Location

Where is your organization located?



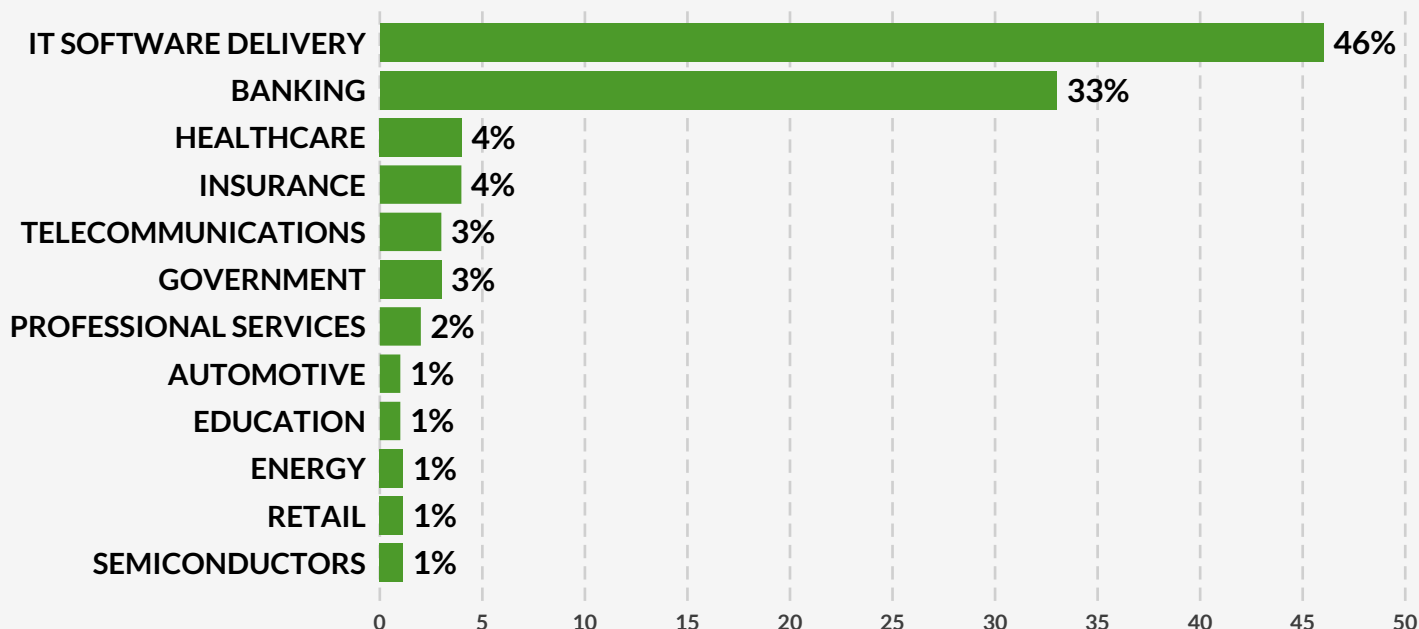
At a time where the volume of assessed and certified organizations shows a high growth rate in absolute numbers (see graph below), Asia continues to represent the relative largest user base with Europe (2nd) and North-America (3rd) following.

Number of annual formal TMMi assessments



Industries

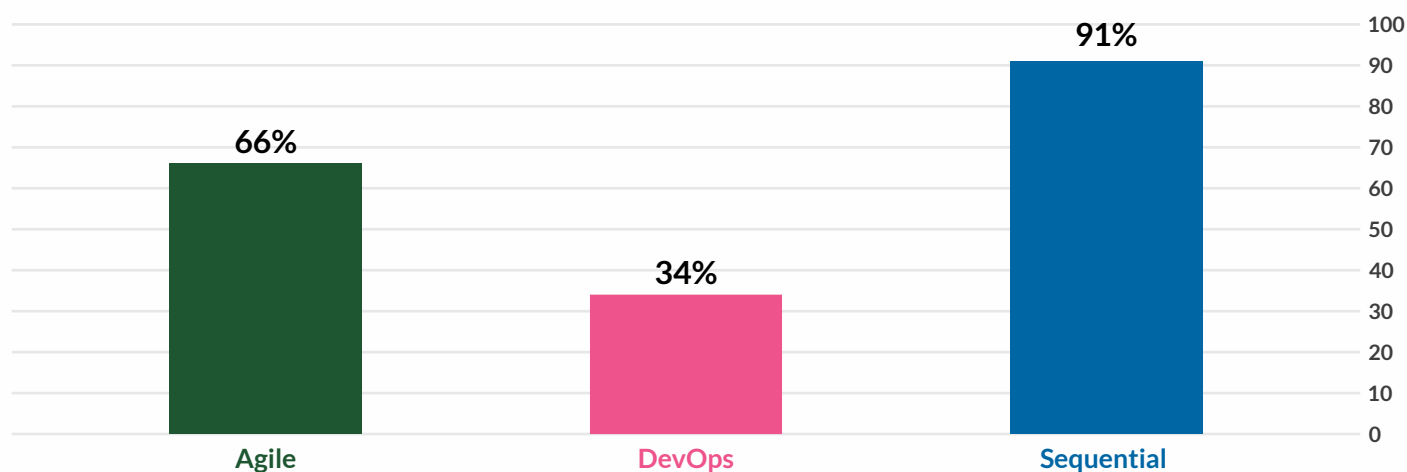
To which industry does your organization belong?



TMMi users continue to come from a wide range of industries, but there are two leading sectors. The largest user base (46%) is in the IT software delivery market which includes companies that provide quality assurance and testing services. The 2nd largest user base (37%) comes from the financial services sector (mostly banking but also insurance).

Software Lifecycle being Used

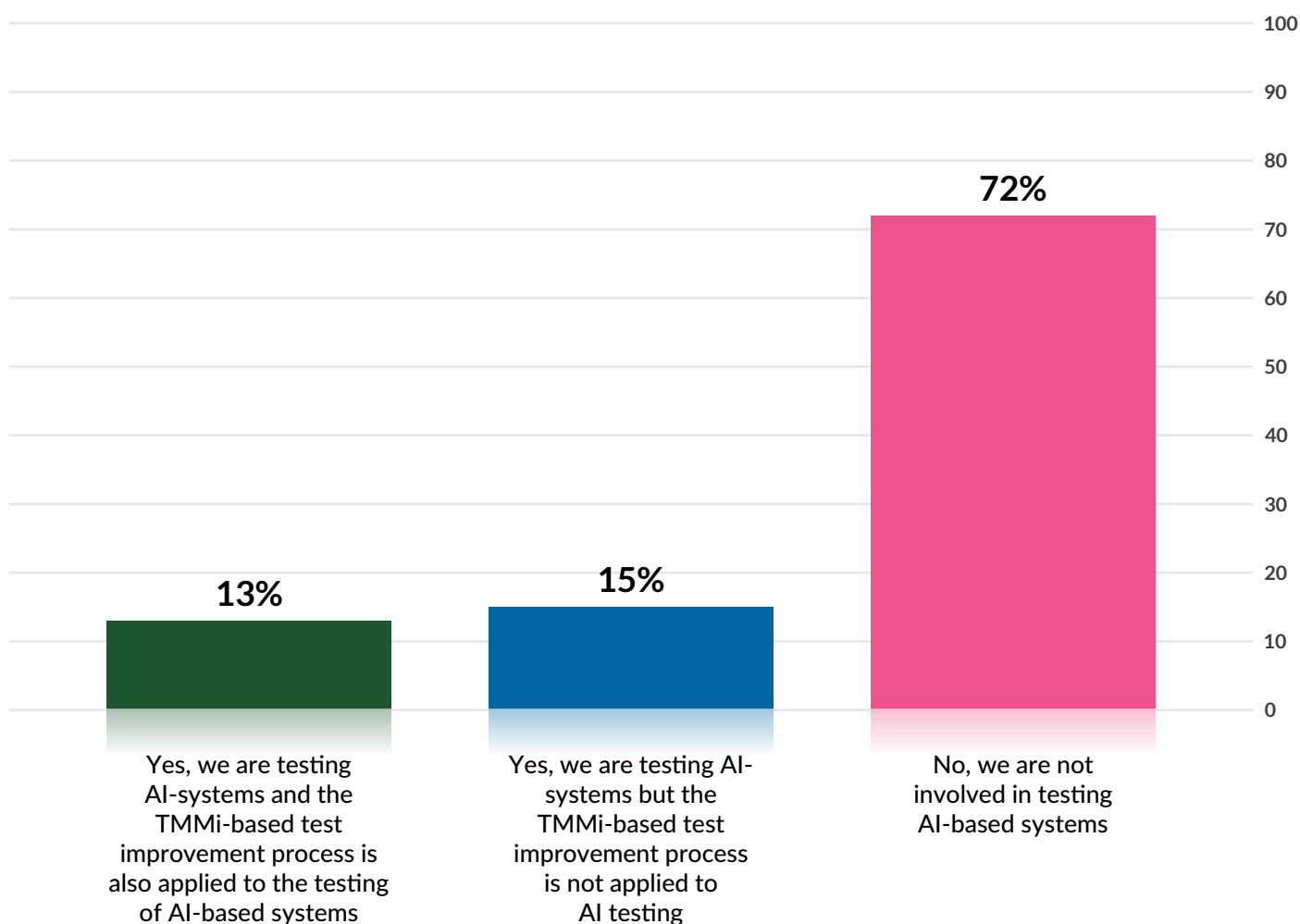
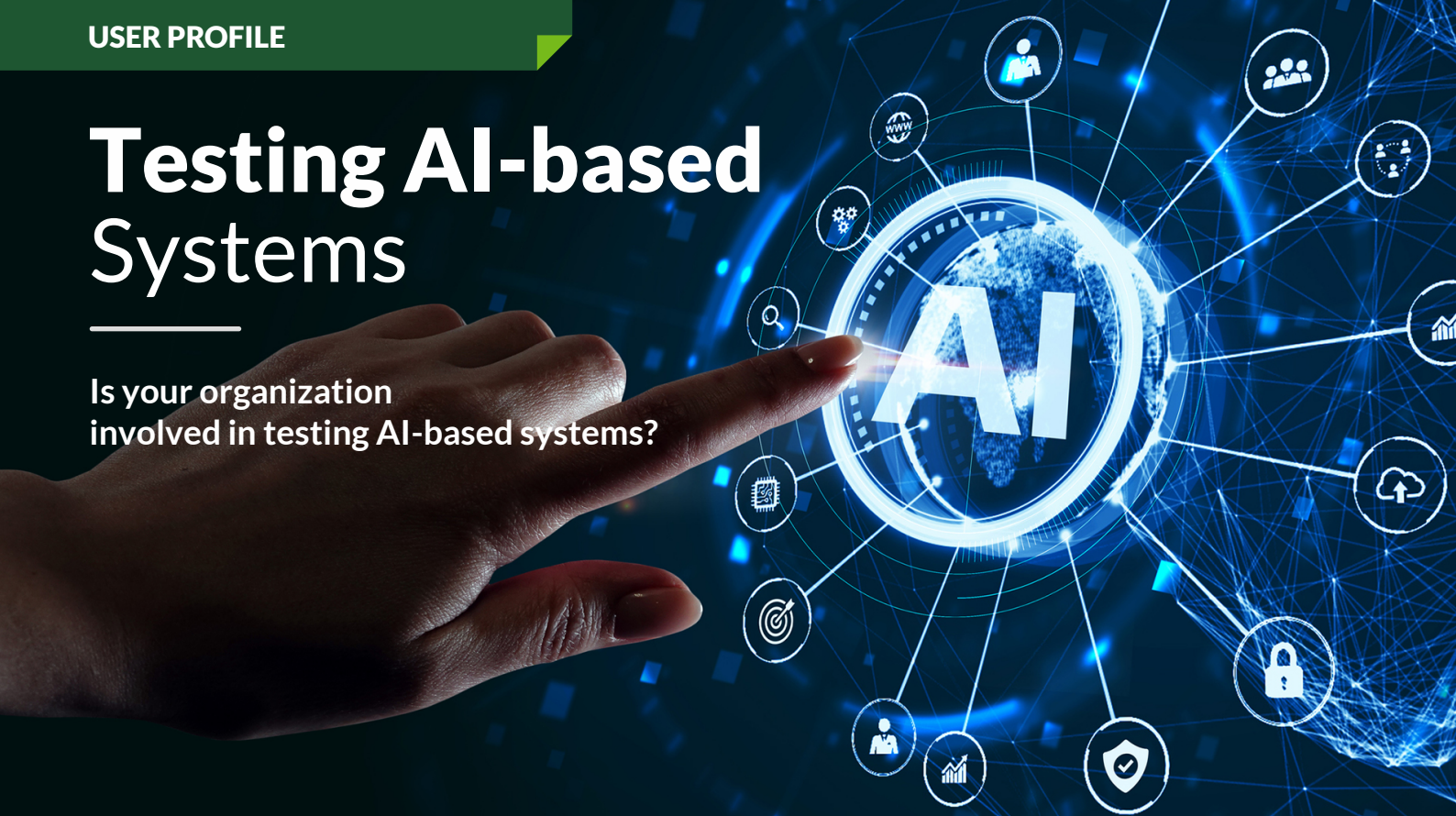
Which software development lifecycle are you currently using?



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.

Testing AI-based Systems

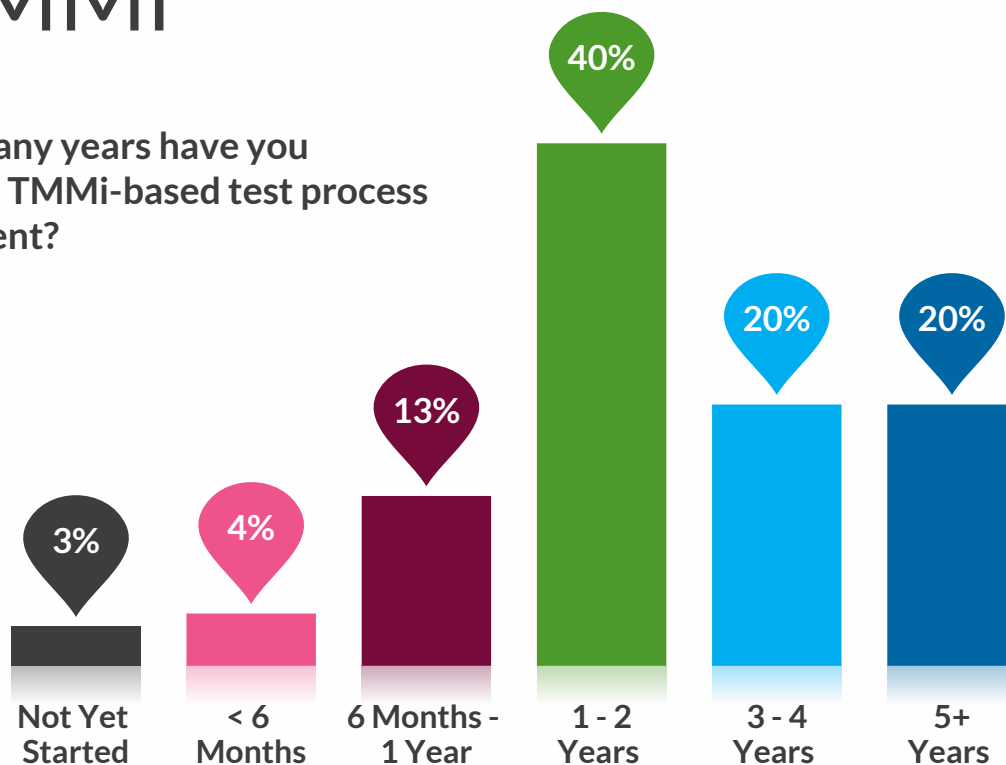
Is your organization involved in testing AI-based systems?



Artificial Intelligence (AI) is a hot topic in the world today, and indeed also for the TMMi users where already 28% of them are involved in testing AI-systems. Nearly 50% of those users are using TMMi with testing of AI-based systems. Testing of AI-systems is by nature very different than testing traditional systems. There is clear need for more guidance, which is exactly what the TMMi Foundation working party "TMMi in the AI-world" is aiming to deliver shortly.

Experience in TMMi

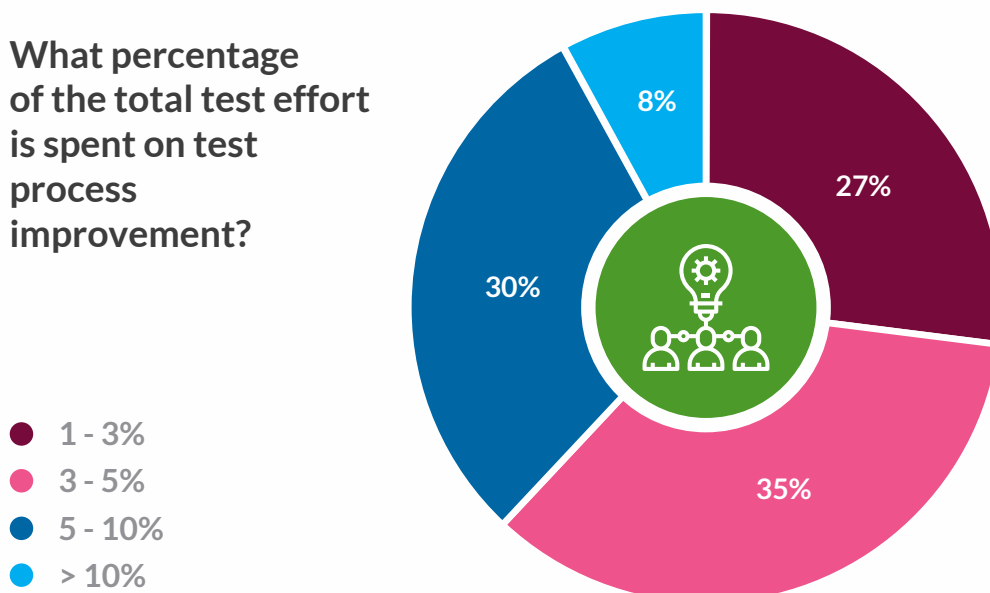
For how many years have you been doing TMMi-based test process improvement?



There is a relatively large group of new TMMi users (less than two years) representing 60% of the respondents. Another 40% of the survey respondents have 3 or more years of experience using TMMi. They can be considered experienced TMMi users. Only a mere 7% have 6 months or less experience using TMMi.

% Test Effort spent on Test Process Improvement

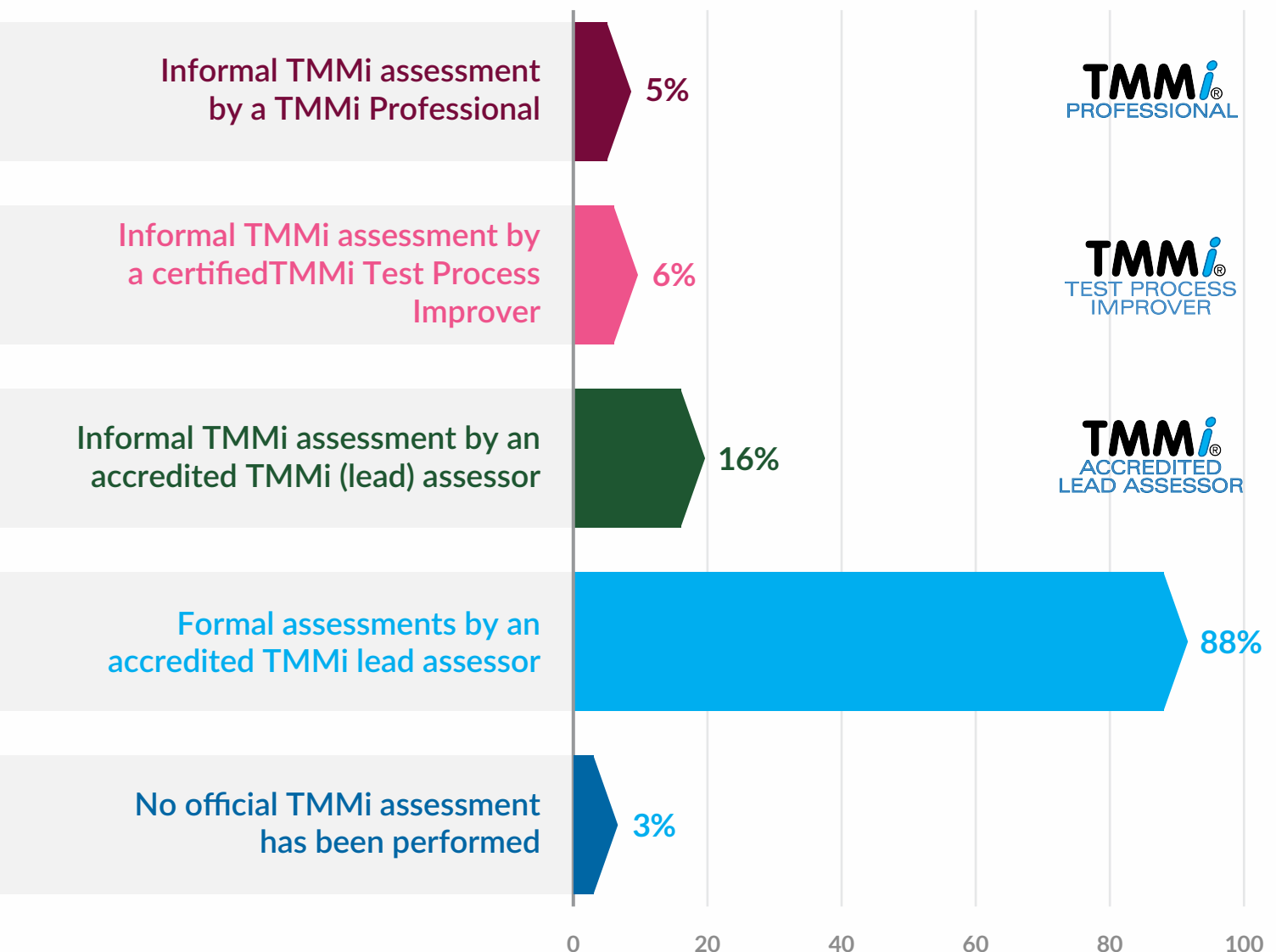
What percentage of the total test effort is spent on test process improvement?



To achieve the results reported hereafter, 35% of the TMMi users surveyed spent 3 to 5% of their total test effort on test process improvement. No less than 38% of the TMMi users spent more than 5% of their total test effort on test process improvement.

Assessments Performed

Have you had a TMMi assessment performed on your test processes?

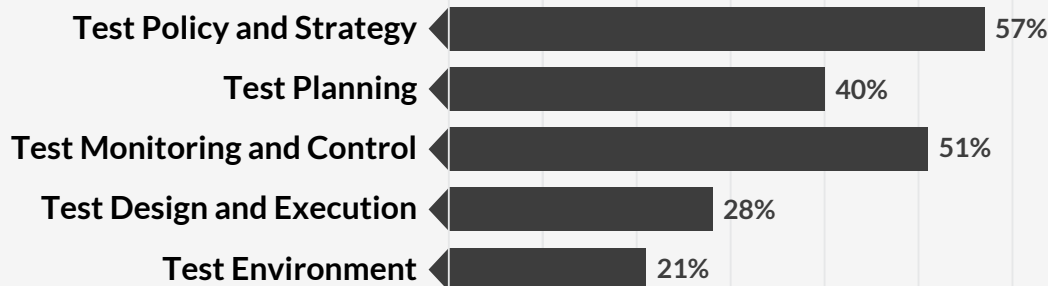


Since most survey participants are TMMi certified, it's no surprise that 88% of the respondents indicate that they have been assessed by means of a formal assessment, which is a requirement to become certified. However, only 27% have been informally assessed (before). Interestingly the assessor with informal assessments comes from various roles: TMMi professional, certified TMMi test process improver and certified TMMi (lead) assessor.

Most important Process Areas

Which areas were identified as being most important for improving at the start of a TMMi-based test process improvement project?

TMMi level 2 process areas



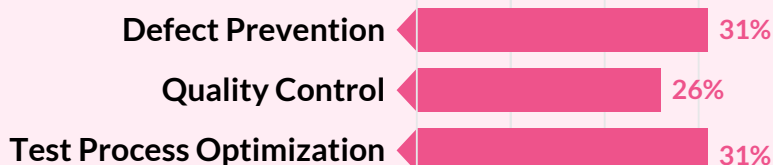
TMMi level 3 process areas



TMMi level 4 process areas



TMMi level 5 process areas



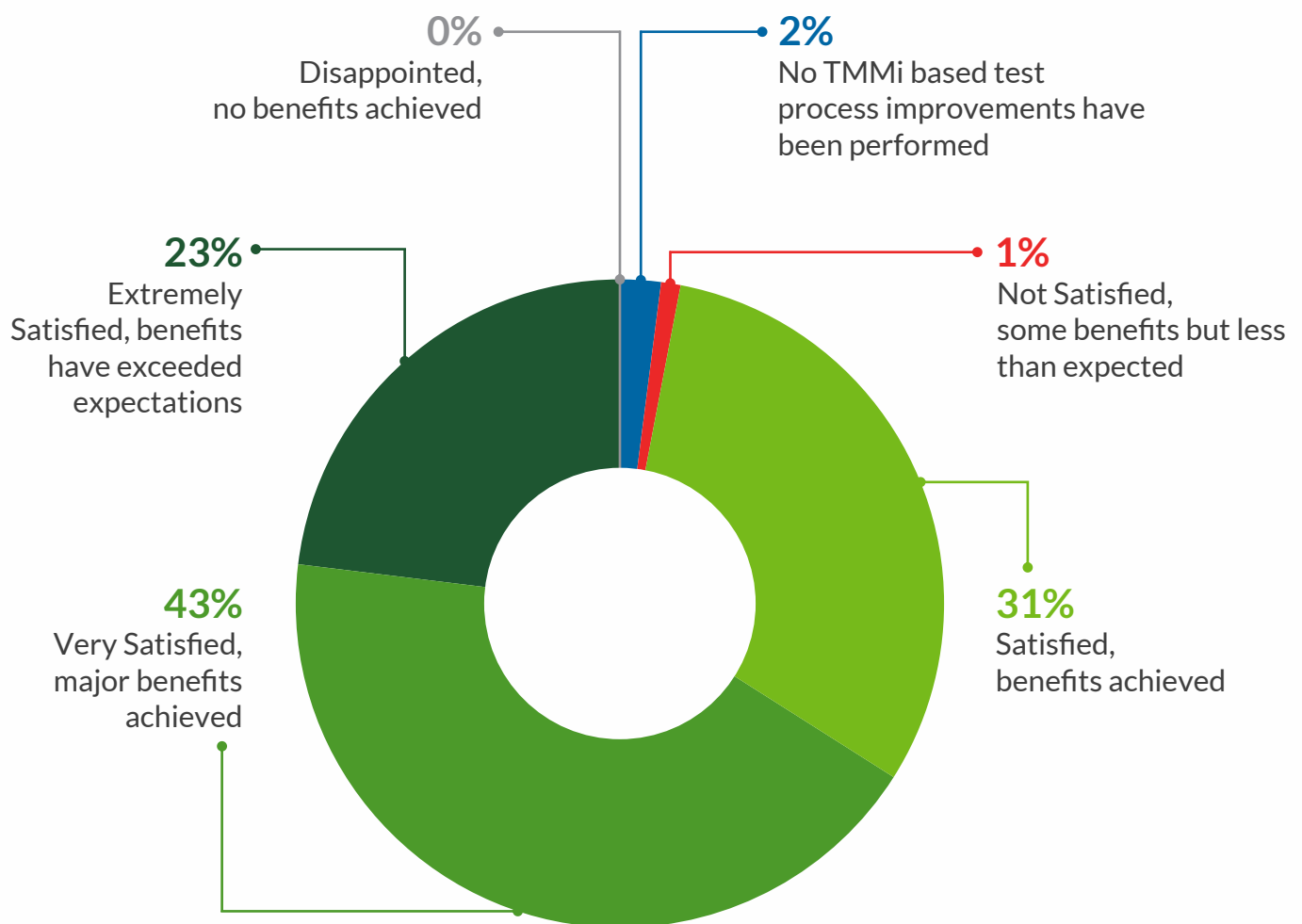
0 10 20 30 40 50 60 70 80 90 100

The TMMi level 2 process areas Test Policy and Strategy (57%), Test Planning (40%) and Test Monitoring and Control (51%) were identified as being the most important process area start of a TMMi-based test process improvement project. Test Policy and Strategy serves to define objectives for testing and test process improvement and achieve business alignment.

It is interesting to note that test engineering oriented process areas, e.g. Test Design and Execution (28%) and Non-Functional Testing (17%), are typically considered less important process area at the start of a TMMi-based test process improvement project.

Satisfaction with TMMi results

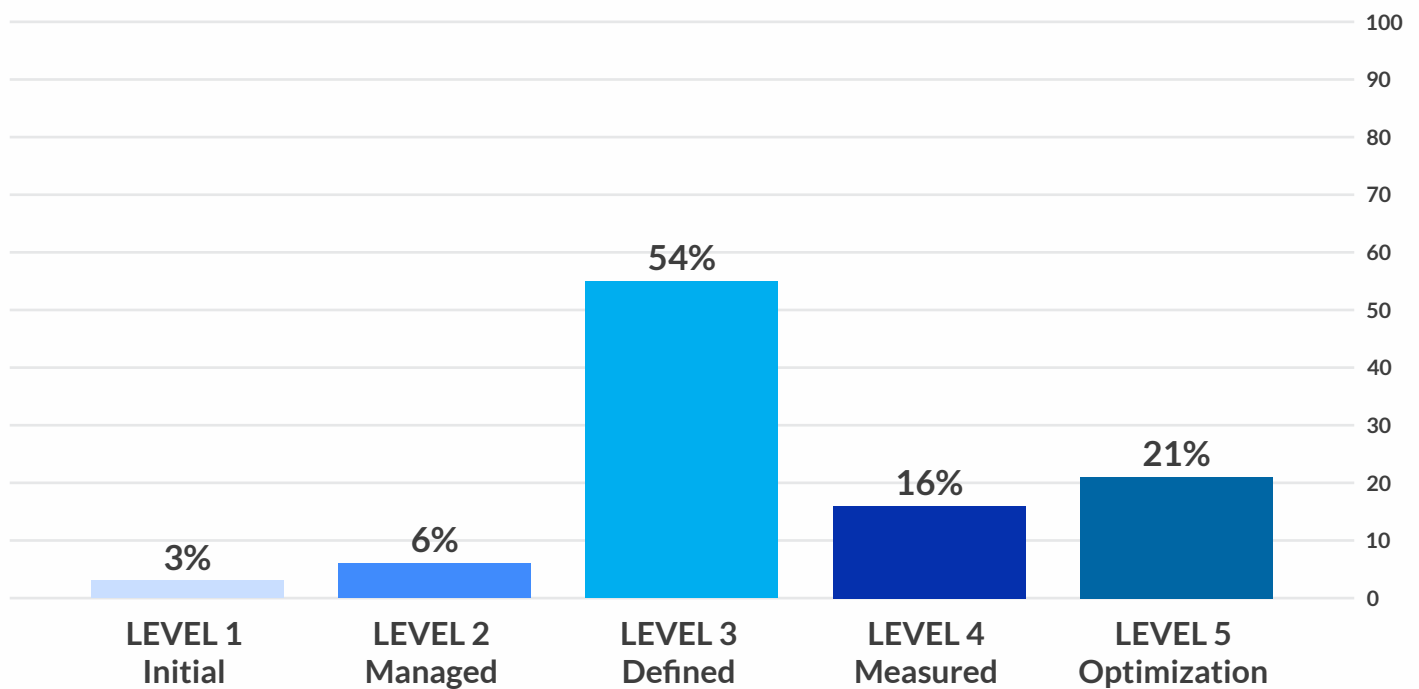
In general, have the TMMi-based test process improvement efforts been successful?



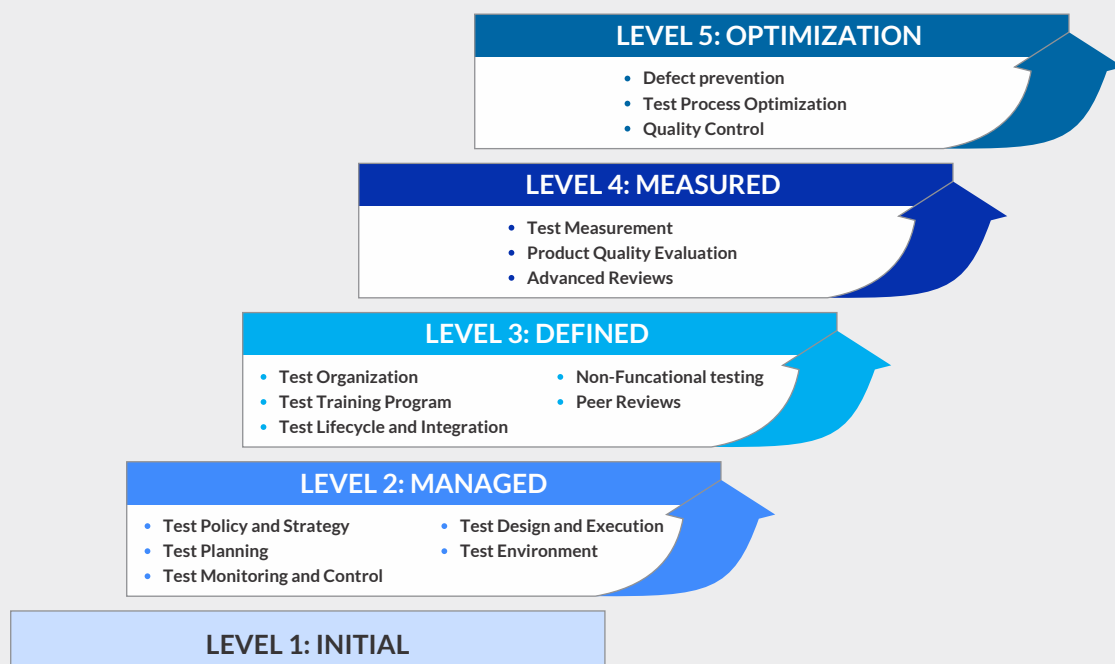
An extremely high 97% of respondents state that TMMi fully meets their expectations; they are either satisfied, very satisfied or extremely satisfied with the benefits achieved. This is 10% higher compared to the 2021 survey results. Also the percentage of TMMi users being extremely satisfied went up by 6% to an impressive 23%. Only 1% of the respondents indicated that less benefits were achieved than expected.

TMMi Maturity Level

According to you (based on either informal or formal assessments), at which TMMi maturity level are you currently?

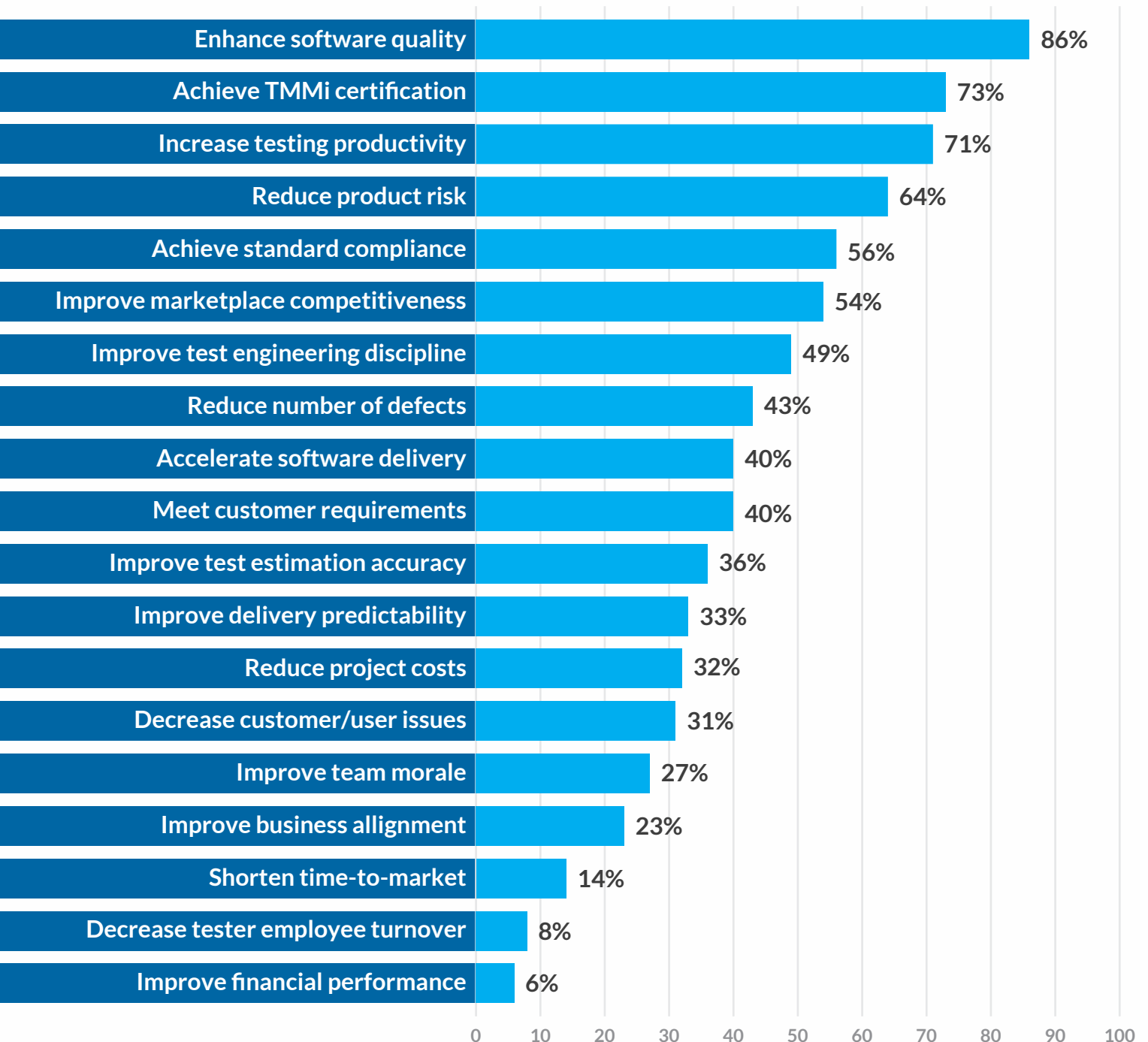


Most of the TMMi users are at TMMi level 3 - Defined (55%). An impressive number (21%) is at TMMi level 5 - Optimization. The graph also shows that organizations typically target at achieving either TMMi level 3 or TMMi level 5, TMMi levels 2 and 4 and merely intermediate steps in achieving the end goal.



Reasons for Adopting TMMi

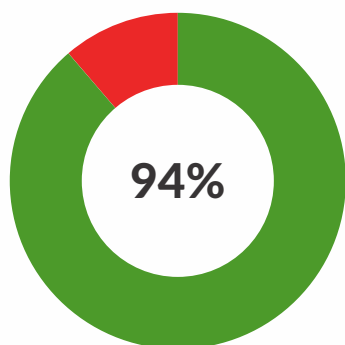
What were the main reasons for adopting TMMi?



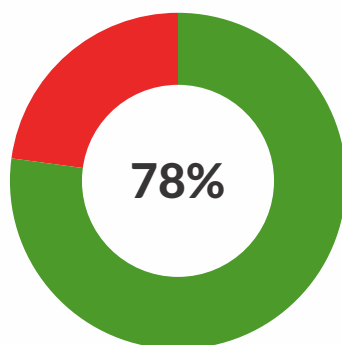
Enhance software quality, increase testing productivity, achieve TMMi certification and reduce product risk remain the top 4 reasons stated for starting a TMMi-based test improvement project. The benefits organizations are trying to attain vary based on their business objectives, with improved marketplace competitiveness (54%) as an interesting new reason relatively high on the list.

Benefits Achieved (Grouped)

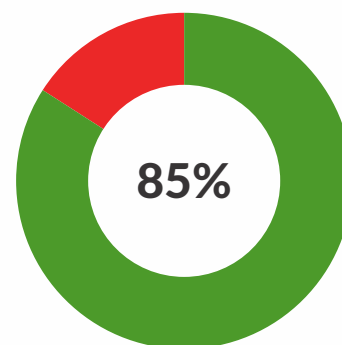
What benefits have you experienced of adopting TMMi?



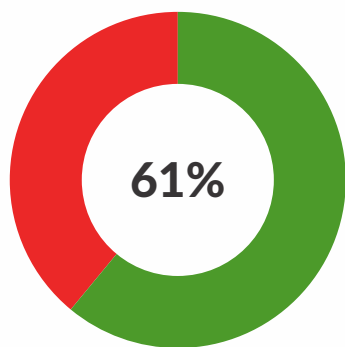
Product Quality



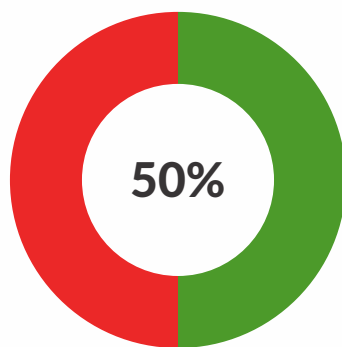
Test Efficiency



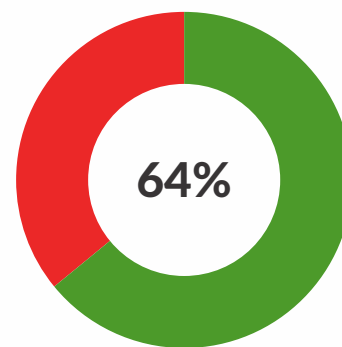
Compliance



People



Test Predictability

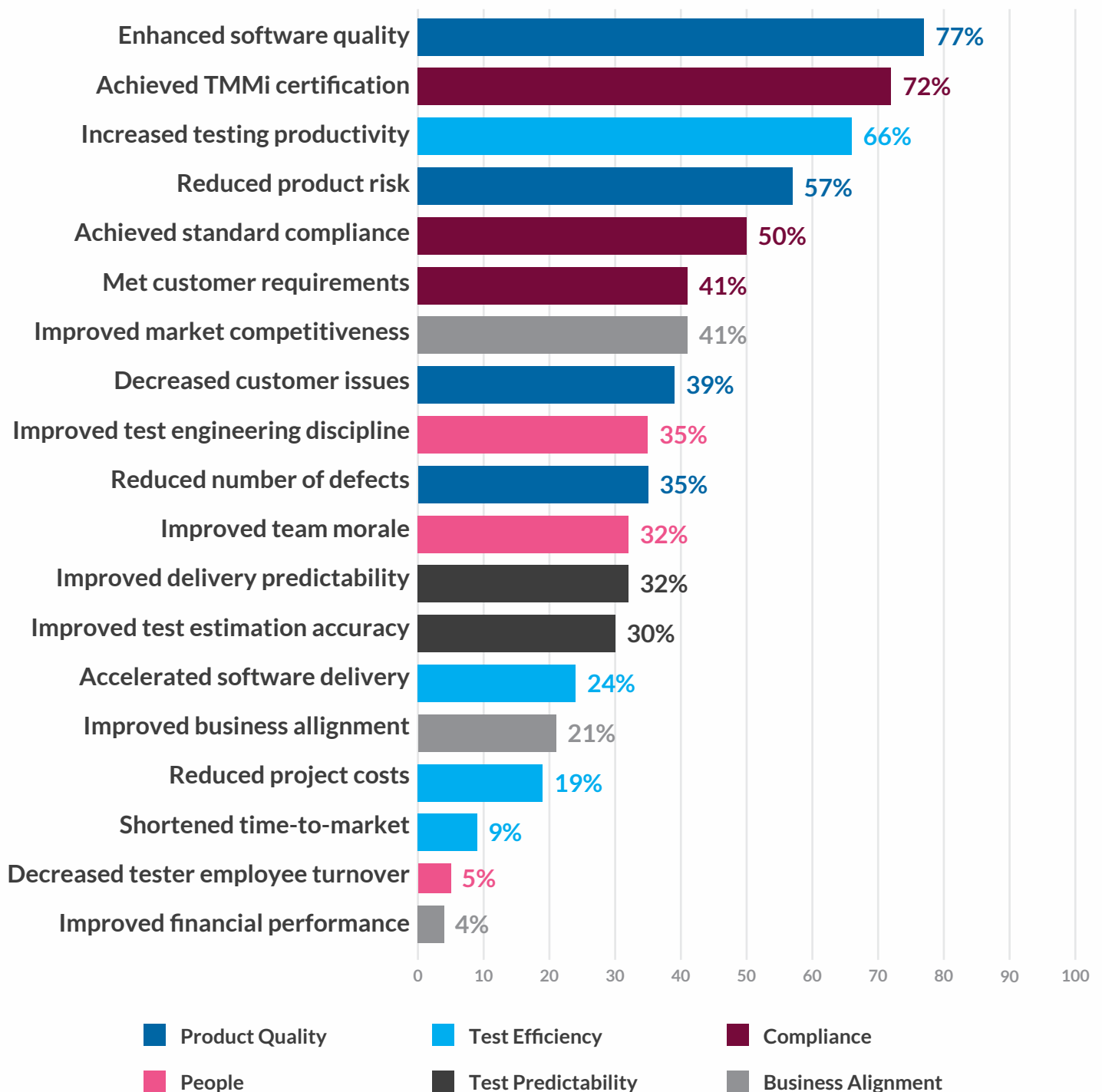


Business Alignment

The benefits that can be achieved with TMMi are categorized under six headings. A high 94% of the TMMi users are experiencing benefits for product quality (e.g., reduced product risks and/or reduced number of defects). Benefits are also commonly experienced with test efficiency (78%), e.g., increased testing productivity, compliance (85%), e.g., achieved test certification and/or achieved standard compliance. Benefits regarding business alignment (now at 64%) are much more present than with the previous TMMi user survey (39%).

Benefits Achieved (Detailed)

What benefits have you experienced as a result of adopting TMMi?



Enhanced software quality, achieved TMMi certification, increased testing productivity, and reduced product risk are the 4 benefits accomplished by those implementing TMMi. An interesting high percentage (41%) is reporting an improved marketplace competitiveness. It's important to note that the benefits organizations are trying to attain will vary based on their business objectives. There is a strong correlation between the reasons (see page 14) and the actual benefits of adopting TMMi.

Reported Metrics



IT Software Delivery



Health Care



Banking



Insurance



Professional Services



Government

Please quantify one or more of the benefits achieved?

Examples

TMMi Level 2 - Managed



Estimation accuracy improved by 30%



Estimation accuracy improved by 60%



Decrease post implementation issue by 20%



DDP to production improved by 15%



Enhanced software reliability by 20%



Decrease customer/user issues by 20%

TMMi Level 3 - Defined



DDP improved by 20%



Decrease product issues by 17%



25% more defects found at early stages



Increased testing productivity by 50%



Successfully won testing services contracts



Defect density decreased by 20%

Participants were asked to quantify one or more of the benefits. Many of the respondents provided feedback to the question. Examples are provided grouped by TMMi level of the responding organization. Note that DDP is the defect detection percentage, i.e. the number of defects found by a test phase, divided by the number found by that test phase and any other means afterwards.

Reported Metrics



Please quantify one or more of the benefits achieved?

Examples

TMMi Level 4 - Measured



Excellent customer feedback on our projects



Defect leakage rate reduced by more than 50%



Improved efficiency of test case design by 40%



Test efficiency increased by 10%



Defect detection rate for A-level systems now at 99.7%



DDP improved by 10% at mobile banking project

TMMi Level 5 - Optimization



Defect leakage to production decreased by 50%



Test efficiency (effective test cycle time) improved by 30%



Test efficiency improved by 20%



Defect Detection rate now at 98.73%



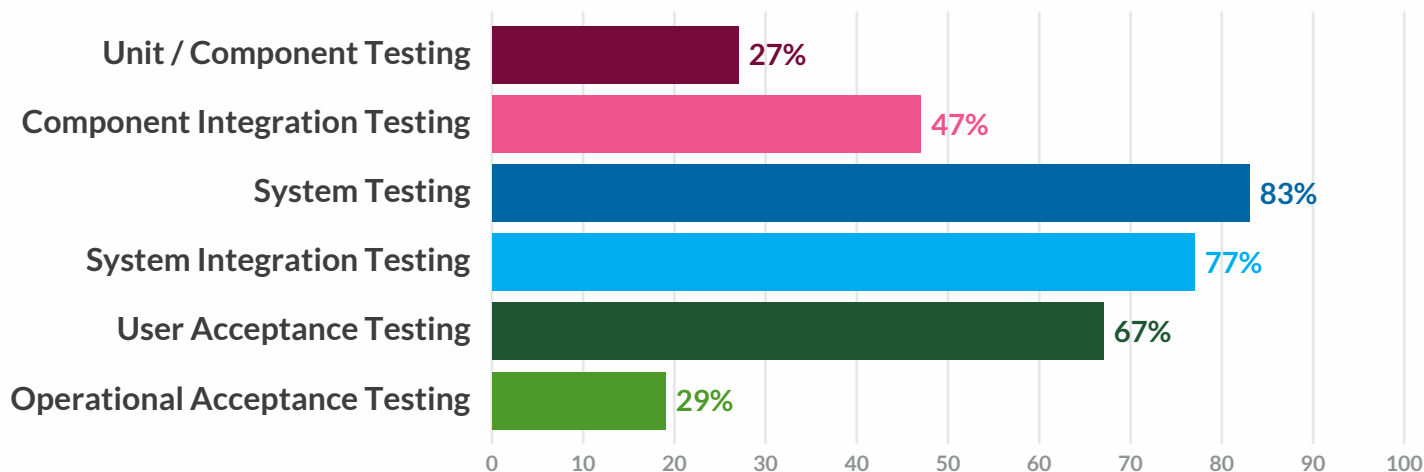
Stability of the test environment now at 99.76%



Enhanced testing discipline and capability

Test Levels within Scope

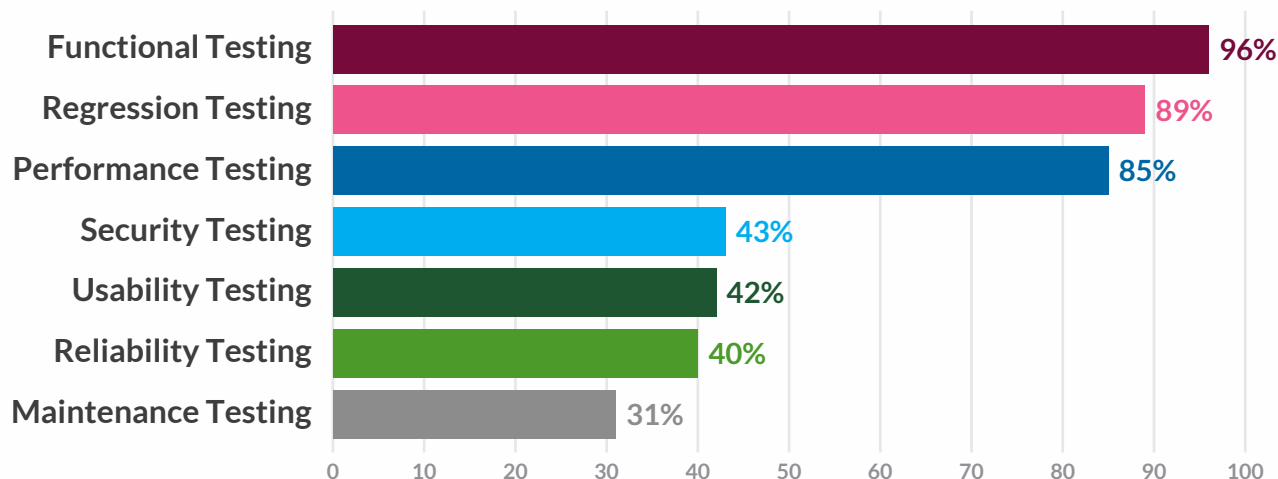
Which test levels are within the scope of the TMMi test process improvement effort?



System testing, system integration testing and user acceptance testing are the three test levels where TMMi is applied most commonly. However, with almost 50% there are also many TMMi users applying it to component integration testing (47%). Only approximately one out of every four TMMi users apply it to operational acceptance testing (29%) and/or unit testing (27%).

Test Types within Scope

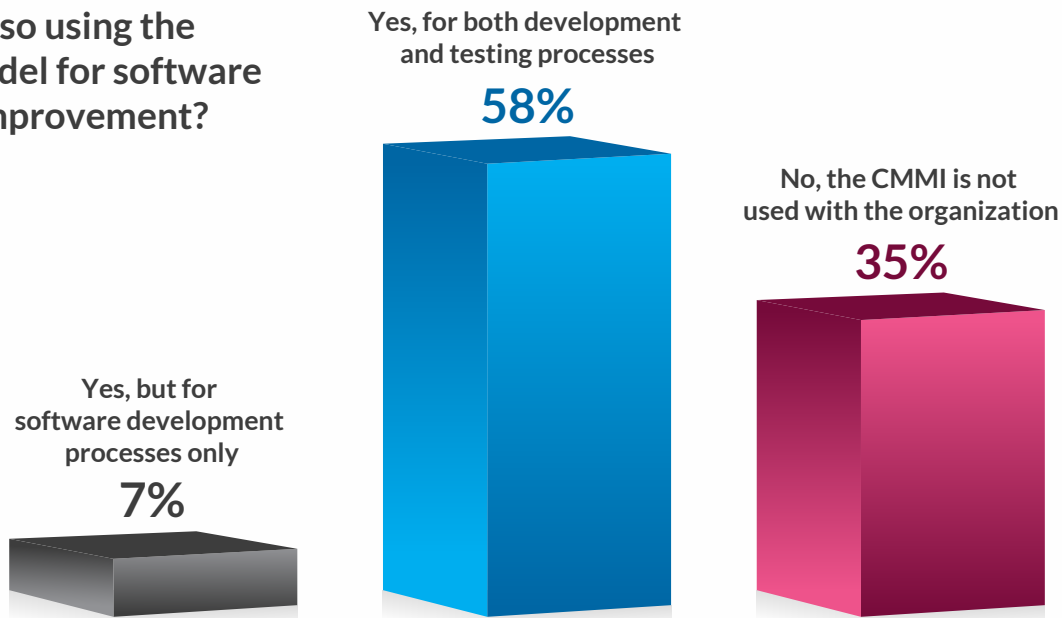
Which test levels are within the scope of the TMMi test process improvement effort?



TMMi remains to be most commonly used to improve functional, regression and performance testing. However, it is clearly on regular basis also used to improve the non-functional test types security, usability and reliability testing.

Using both TMMi and CMMI®

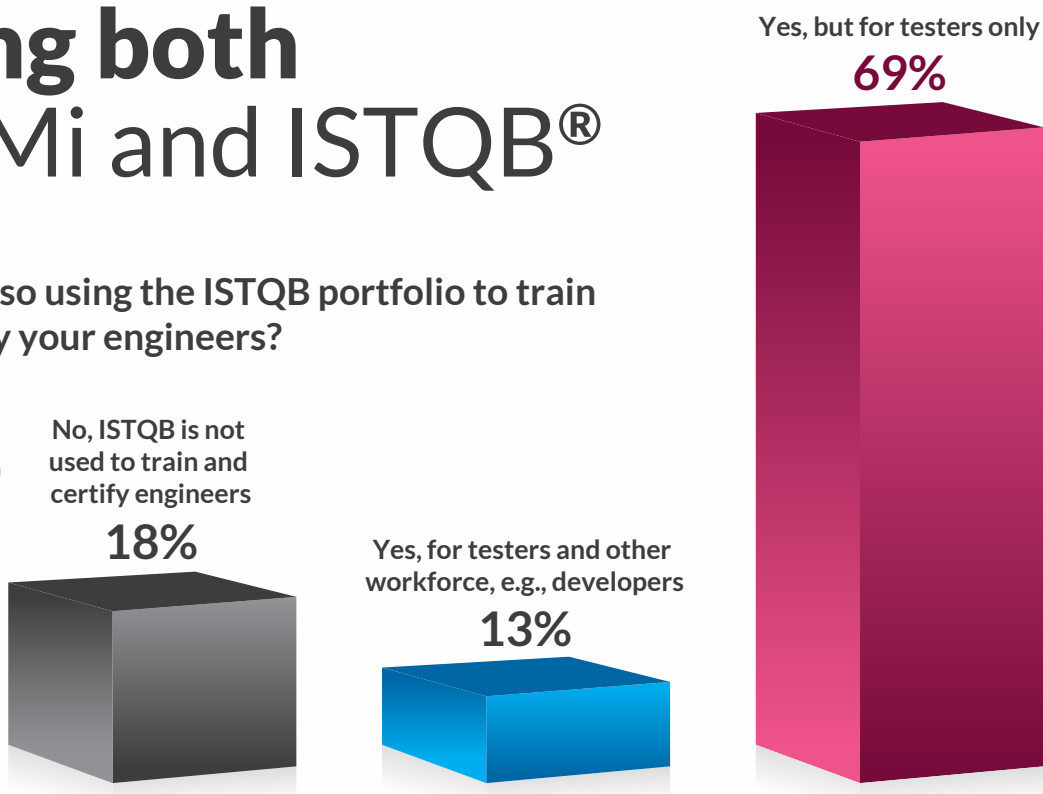
Are you also using the CMMI model for software process improvement?



CMMI continues to be an important software process improvement model, also used by many of the TMMi users. No less than 65% of the TMMi users also use CMMI, which is even an increase of 11% compared to the 2021 survey. This clearly shows the ongoing importance of the CMMI to the TMMi community.

Using both TMMi and ISTQB®

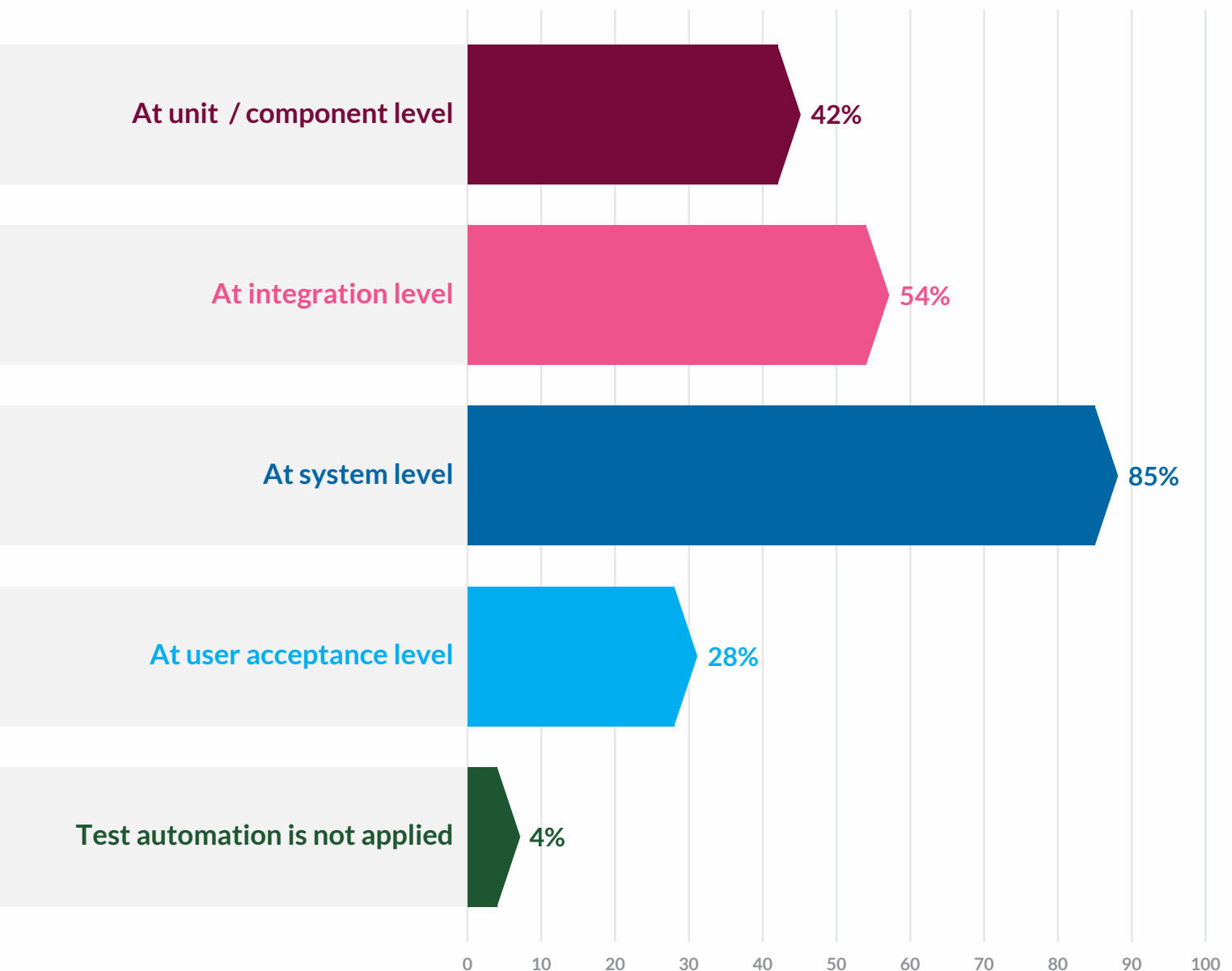
Are you also using the ISTQB portfolio to train and certify your engineers?



82% of the TMMi users use the ISTQB certification scheme to train their staff and build testing knowledge and skills. Only a mere 13% also use ISTQB to train other workforce than testers. 18% does not use the ISTQB scheme to train their staff on testing, this a higher number compared to the 2021 survey when this was only 13%.

Test Automation

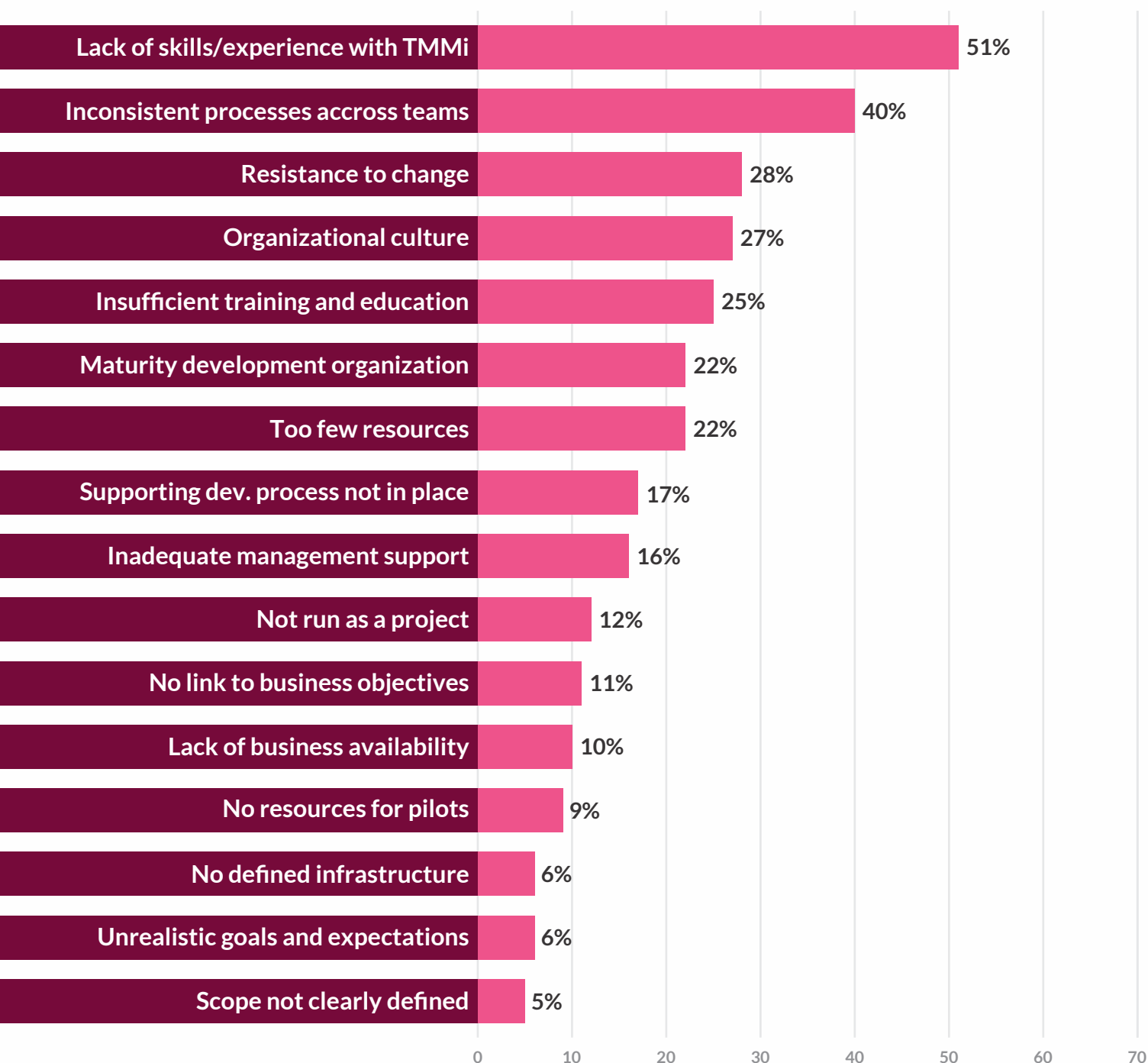
Are you also using test automation for test improvement?



Almost all TMMi users (96%) also use test automation to improve their testing. Interestingly test automation at system level is most popular (85%), following by integration level (54%) and unit/component level (42%). This is not in line with the so-called test pyramid which advocates the idea that test automation should preferably start at unit/component level.

Challenges Experienced

Which challenges have been experienced throughout the test process improvement activities?

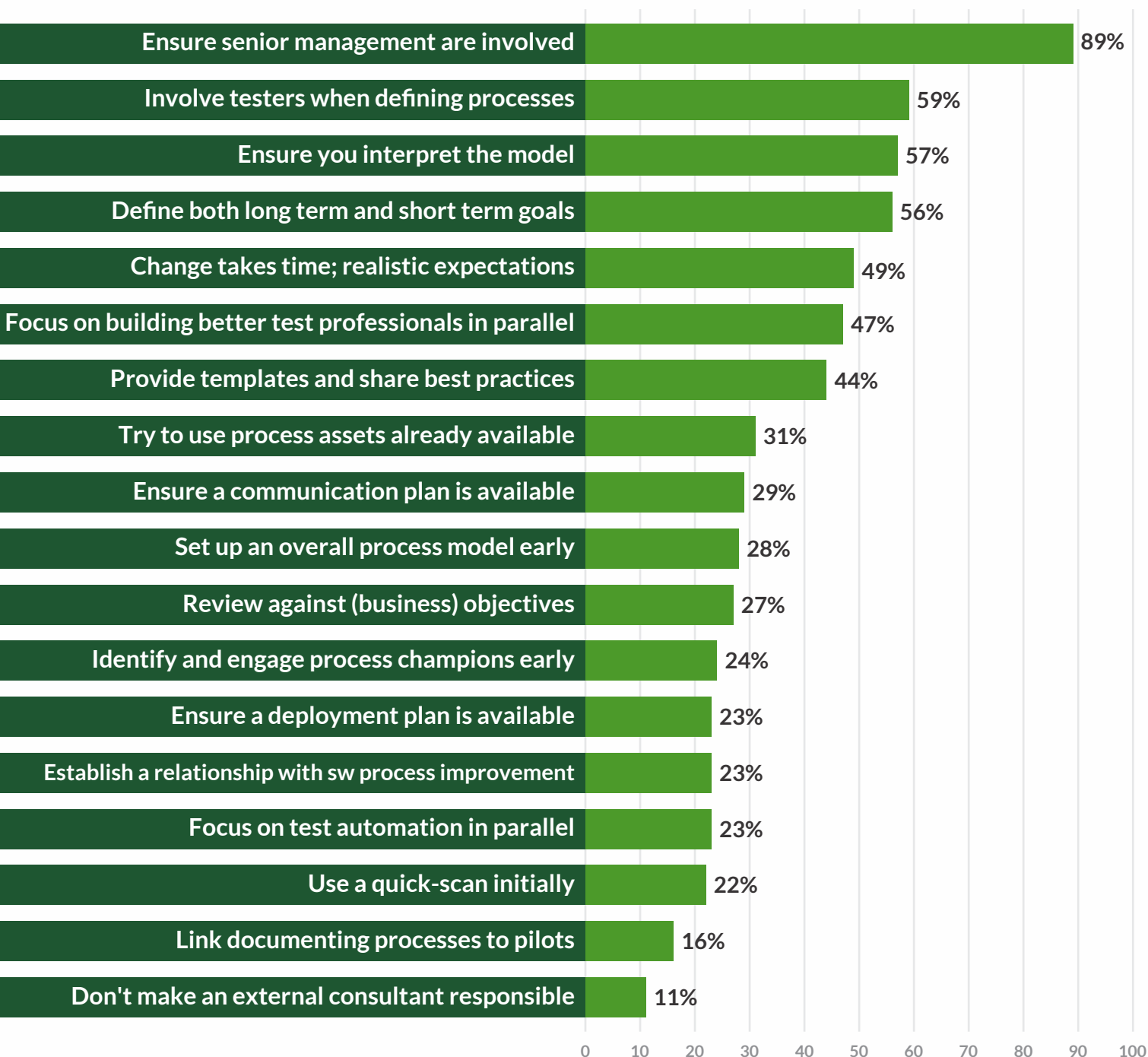


The number one challenge “lack of skills/experience with TMMi” calls for more TMMi training before starting. It also shows the market need for TMMi consultants that are able to support organizations implementing TMMi.

In addition maturity, e.g., “inconsistent processes across teams” (40%) and “maturity development organization” (22%) remains to be another area where many challenges are experienced.

Advice to others

Based on your experiences, what advice would you offer to others planning to conduct test process improvement utilizing TMMi?



Important advice is shared by the respondents to take into account when planning to conduct test process improvement. It is clear that the involvement and support to the TMMi process of senior management is critical to its success. Interestingly focussing on better test professionals in parallel (47%) has a substantial higher score than focusing on test automation in parallel (23%).



**Contact us at the
TMMi Foundation:**

✉ info@tmmi.org
🌐 www.tmmi.org