

# TMMi Benchmark Report FINANCIAL INSTITUTIONS

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2024



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# MESSAGE FROM THE CHIEF EXECUTIVE OFFICER

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## **Dr. Erik van Veenendaal**

CEO TMMi Foundation management executive

Upon starting the TMMi initiative, providing industry (domain specific) test maturity benchmark reports was one of the originally defined objectives. As often, some things are easier said than done. However, today I proudly present to you the first TMMi benchmark report. With TMMi being highly popular in the financial services domain, this first TMMi benchmark report is dedicated to financial institutions. Over the last few years, we have seen a huge growth in TMMi awareness and uptake resulting in (amongst others) 29 TMMi Local Chapters, 350+ certified organizations and approximately 10.000 TMMi users. The TMMi model is now widely recognized as the world's leading model for test process improvement. With such a large installed user base doing benchmark studies now becomes possible.

The TMMi world-wide user survey reports from both 2021 and 2023 revealed that one of the industries with the largest TMMi user base comes from the financial services sector (mostly banking, but also insurance and trust companies). In today's digital economy, it is vital that software applications processing financial information are reliable, operate without disruptive errors or incidents, e.g., due to specific security vulnerabilities. It is also of utmost importance for public confidence that the institution's business operations have the capacity to continue uninterrupted. Driven by business needs, IT needs to ensure a high level of quality of software products in the financial sector. Software testing is the process to verify and validate that acquired or developed software products are reliable and comply with the institution's and regulated requirements.

Sixty financial institutions from across the globe participated in this benchmark study. Almost all of them were previously either informally or formally assessed against the TMMi. The study was performed to establish a view of:

- test maturity in the financial domain
- the cost and benefits associated
- at which test levels and test types TMMi is being used
- the role of test automation
- reasons for adopting TMMi
- challenges encountered when applying TMMi.

The benchmark report will allow financial institutions involved in doing test process improvement and TMMi to validate their performance against the wider industry. Financial institutions that have not yet started doing test process improvement can learn from the cost and benefits reported, and can study how (e.g., at which test levels, test types, test roles of test automation) others are doing test process improvement.

I would like to thank all who responded to the survey or contributed to the study in any other capacity. The results of the study 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, especially in the financial domain.

# Executive Summary

1

## Reasons for adopting TMMi and benefits match

Enhance software quality, reduce product risks and achieve TMMi certification are the top 3 reasons to adopt TMMi. These are also the top 3 benefits achieved, thereby making the improvement process a successful one.

2

## Improved product quality and more efficiency

A very high 89% of the financial institutions experience product quality benefits, e.g., reduced risk levels, and a high 76% experience test efficiency benefits, e.g., increased productivity.

3

## TMMi levels 3 and 4 most popular

TMMi maturity level 3 is the most commonly achieved level by financial institutions. Many have also achieved TMMi level 4. There seems to be less interest, compared to the overall TMMi market, to achieve level 5.

4

## Focus on system and UAT testing

The test improvement processes within financial institutions are mainly targeting system testing, system integration testing and user acceptance testing. Shift-left is clearly not in full focus yet.

5

## Multiple types of lifecycles are being used

No less than 90% of the financial institutions use multiple types of lifecycles (e.g., sequential, Agile and/or DevOps) depending on the type of project and product. The V-model still being the most popular one.

6

## Many institutions already involved in AI

No less than 39% of the financial institutions are already using AI in their software applications. More than 50% of them are using the TMMi framework with testing of AI-based systems.

7

## People aspect: ISTQB certification

ISTQB is a highly popular scheme (83%) for test training and certification of personnel within financial institutions thereby addressing an important part of the people aspect at test improvement.

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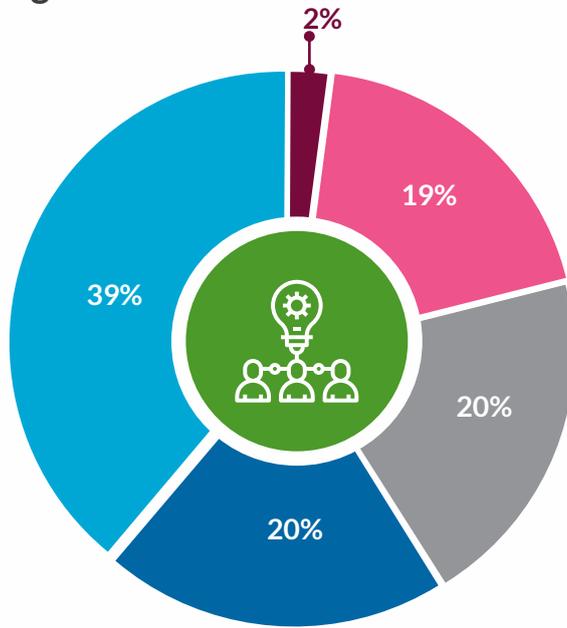
## Technology aspect: Test Automation

No less than 91% of the financial institutions is also applying test automation for test improvement thereby addressing the technology aspect. System test automation (85%) being most popular one.

# Size of Financial Institutions doing TMMi

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

- < 100
- 100 - < 500
- 500 - < 2.000
- 2.000 - < 5.000
- 5.000+

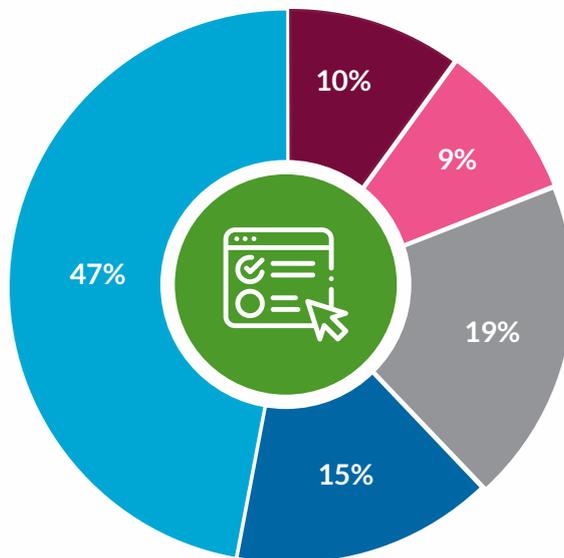


The financial institution benchmark survey collected responses from a diverse set of institutions in terms of size. Many institutions using TMMi are large enterprise organizations whereby 39% have more than 5.000 employees, with 21% of the total number of institutions being much smaller (less than 500 employees).

# Number of Testers

What is the number of testers in your organization?

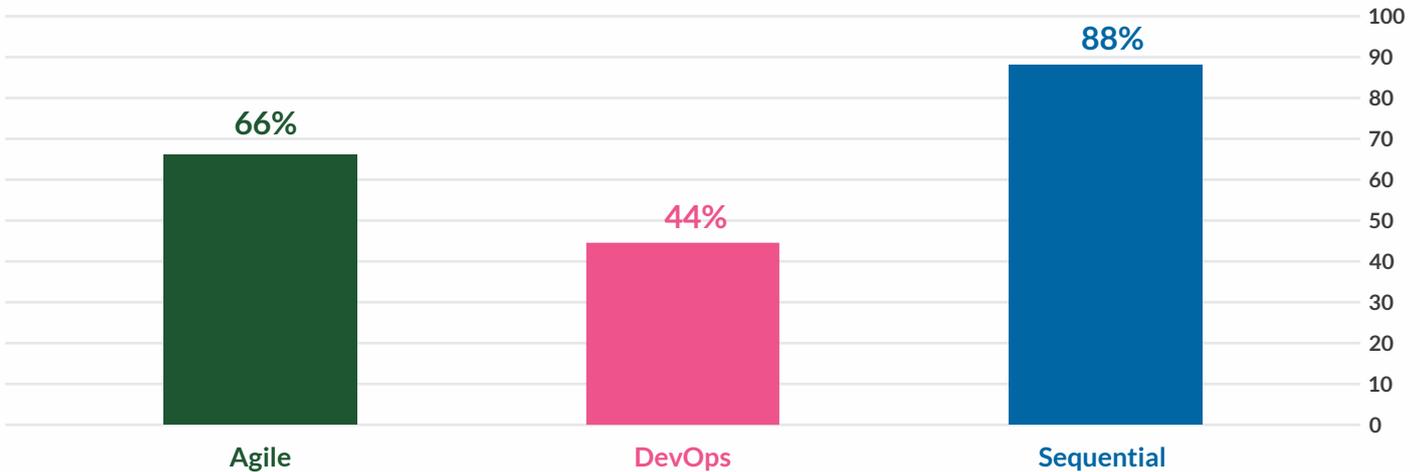
- < 25
- 26 - < 50
- 50 - < 100
- 100 - < 200
- 200+



Survey respondents indicate that 10% of the institutions using TMMi have no more than 25 testers, and 62% have more than 100 testing professionals with 47% having more than 200 testing professionals.

# Software Lifecycle being Used

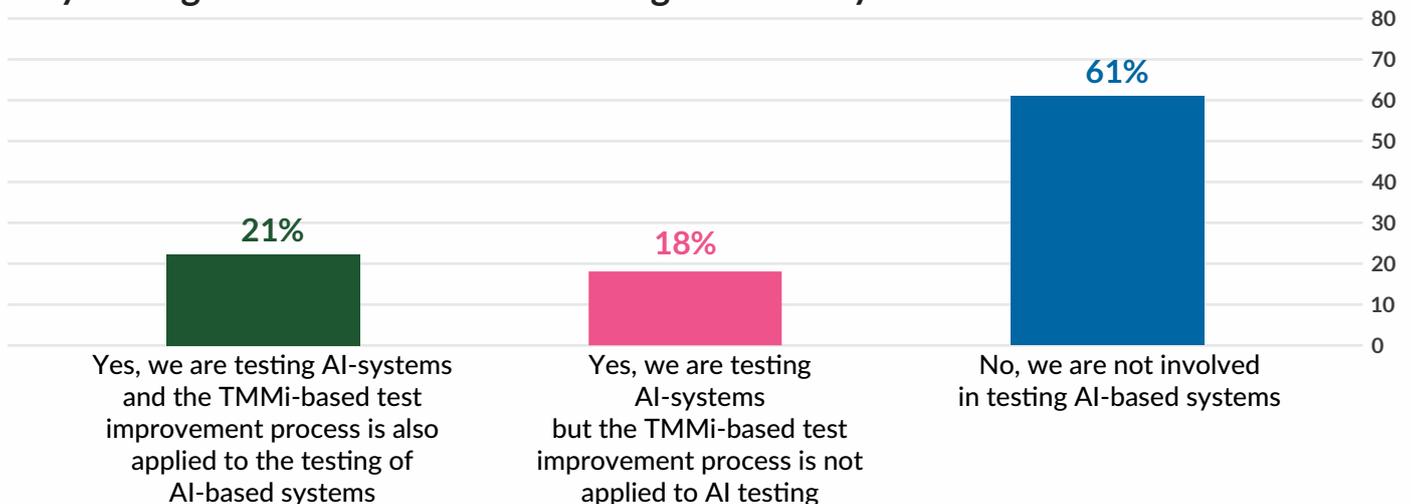
Which software development lifecycle are you currently using?



A sequential lifecycle remains the most popular type in the finance domain. 88% 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 44% apply DevOps. No less than 90% (!! ) of the financial institutions apply multiple types of lifecycle models depending on the type of project and product.

# Testing AI-based Systems

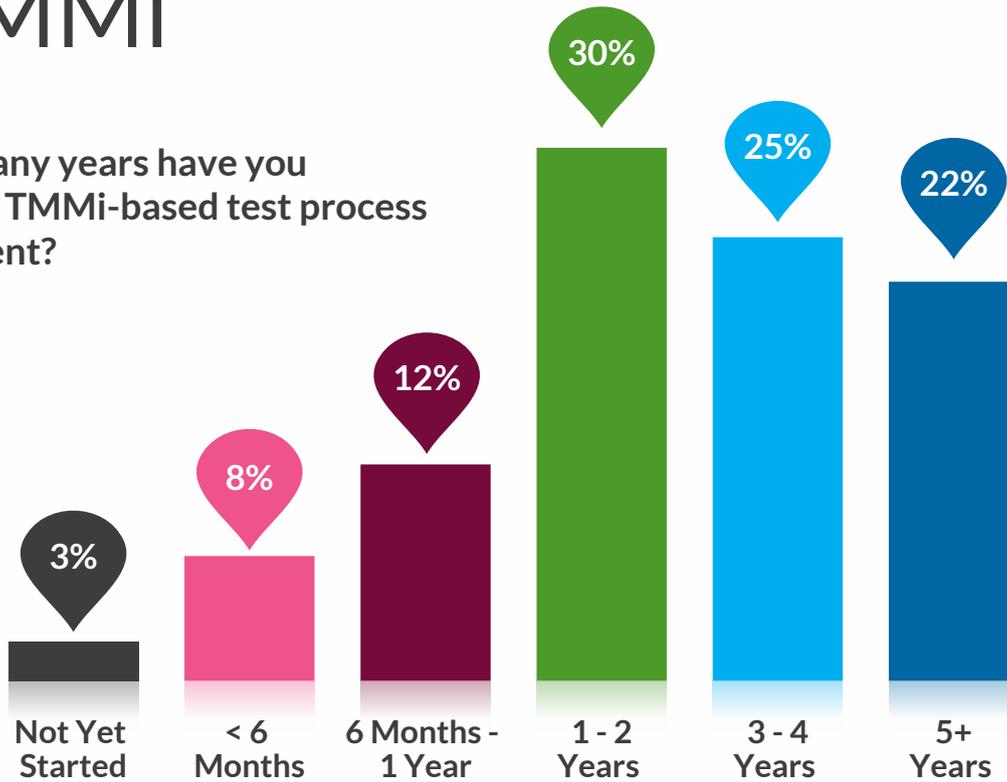
Is your organization involved in testing AI-based systems?



Artificial Intelligence (AI) is a hot topic in the world today, and indeed also in the finance domain where already 39% of the institutions are involved in testing AI-systems. More than 50% of them are using TMMi when testing AI-based systems.

# Experience in TMMi

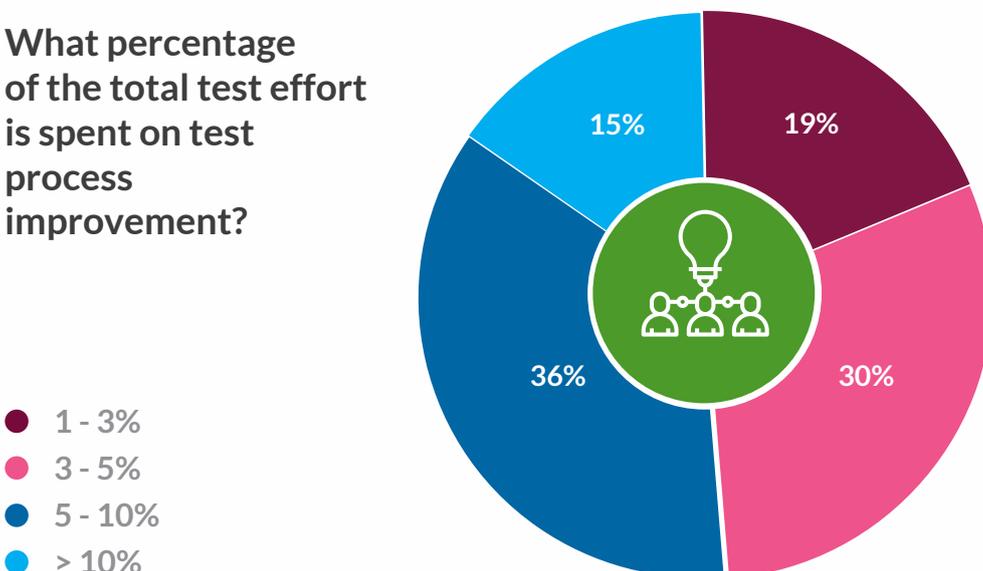
For how many years have you been doing TMMi-based test process improvement?



77% of survey respondents have at least one year of experience using TMMi for test process improvement. One should anticipate that such users have detailed and highly valid insights on TMMi adding a further validity to the survey results. Only a mere 11% 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?

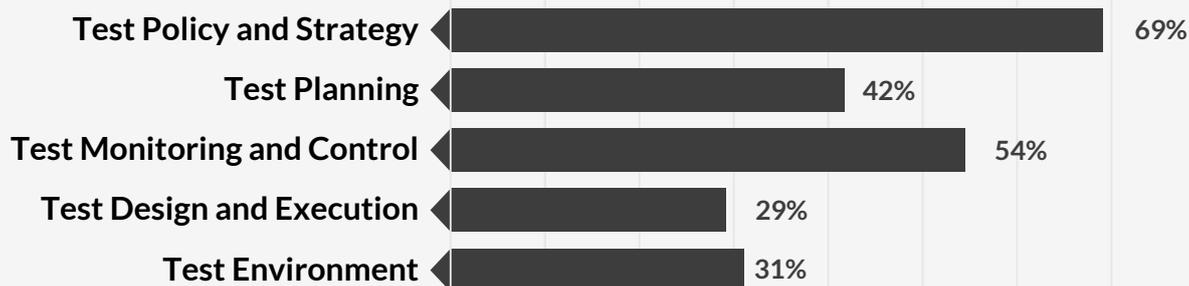


To achieve the results reported hereafter, 30% of the institutions surveyed spent 3 to 5% of their total test effort on test process improvement. No less than 51% of the institutions spent more than 5% of their total test effort on test process improvement.

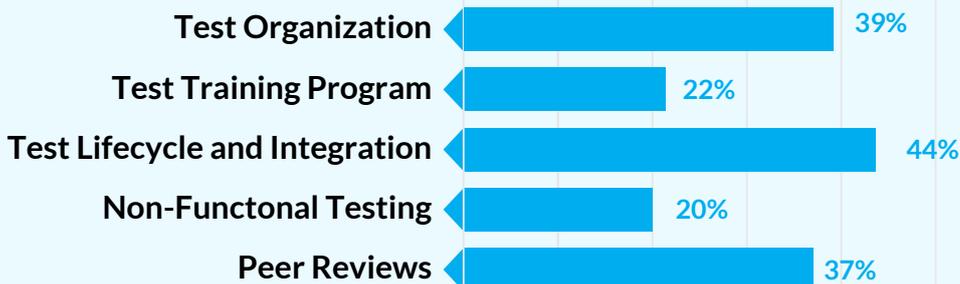
# Most important Process Areas

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

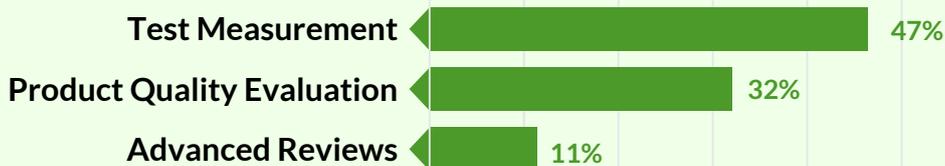
## TMMi level 2 process areas



## TMMi level 3 process areas



## TMMi level 4 process areas



## TMMi level 5 process areas



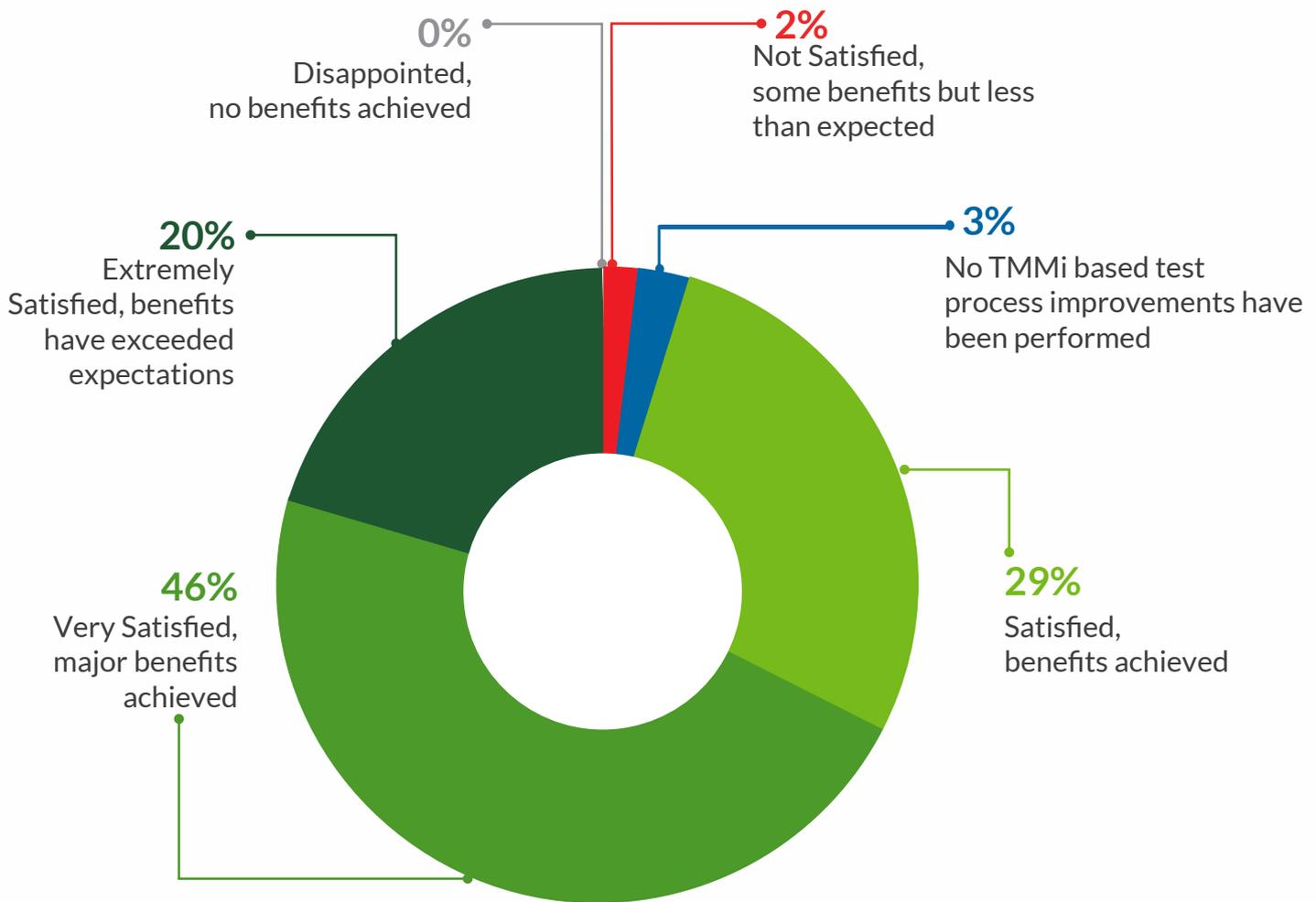
0 10 20 30 40 50 60 70 80 90 100

The TMMi level 2 managerial process areas Test Policy and Strategy (69%), Test Planning (42%) and Test Monitoring and Control (54%) were identified as being the most important process area start of a TMMi-based test process improvement project.

In addition, Test Lifecycle and Integration (44%) at TMMi level 3, creating a standard test process across the organization, and Test Measurement (47%) at TMMi level 4, establishing a quantitative understanding of the processes, were identified as being of importance to the financial institutions.

# Satisfaction with TMMi results

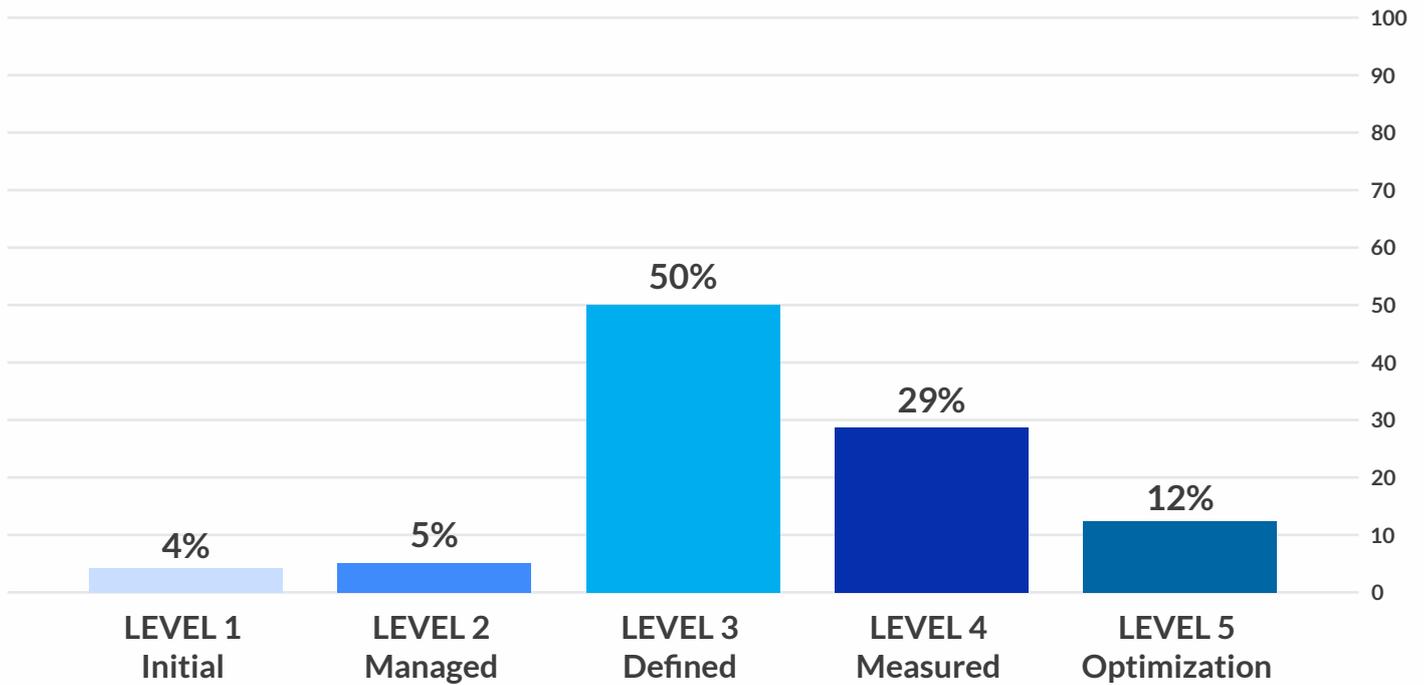
In general, have the TMMi-based test process improvement efforts been successful?



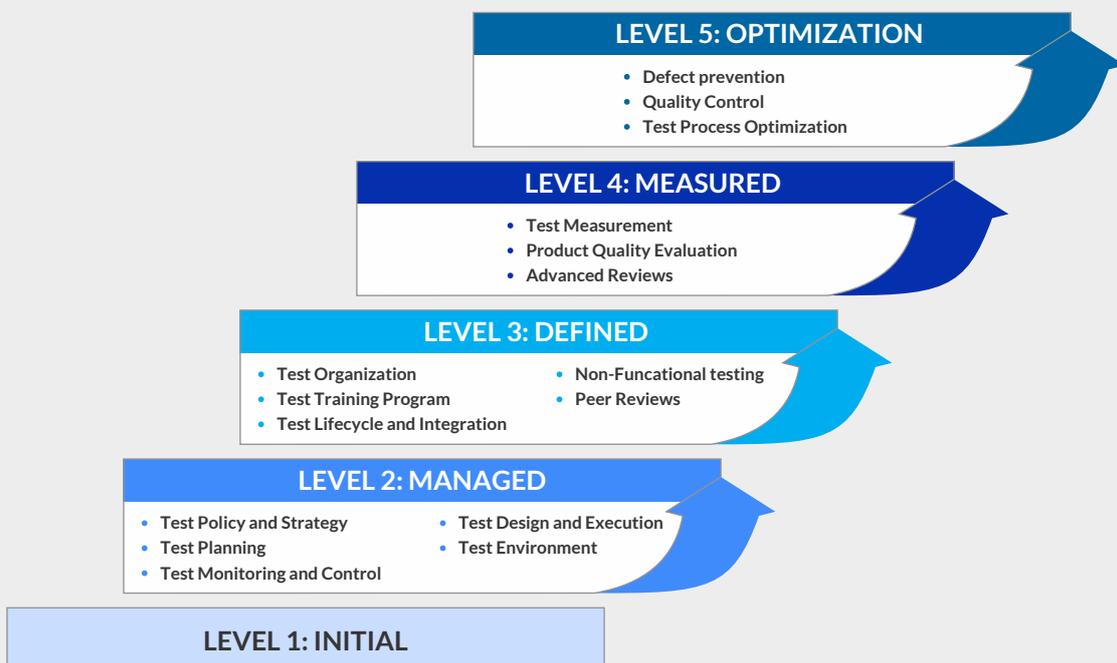
95% of respondents stated that TMMi fully meets or exceeds their expectation; they are either satisfied, very satisfied or extremely satisfied with benefits achieved or exceeded. This indicates an overall high satisfaction ratio. Whereas in the world-wide TMMi user survey 9% of the respondents indicated that less benefits were achieved than expected, in the financial domain benchmark study only 2% of the respondents provided this indication.

# TMMi Maturity Level

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

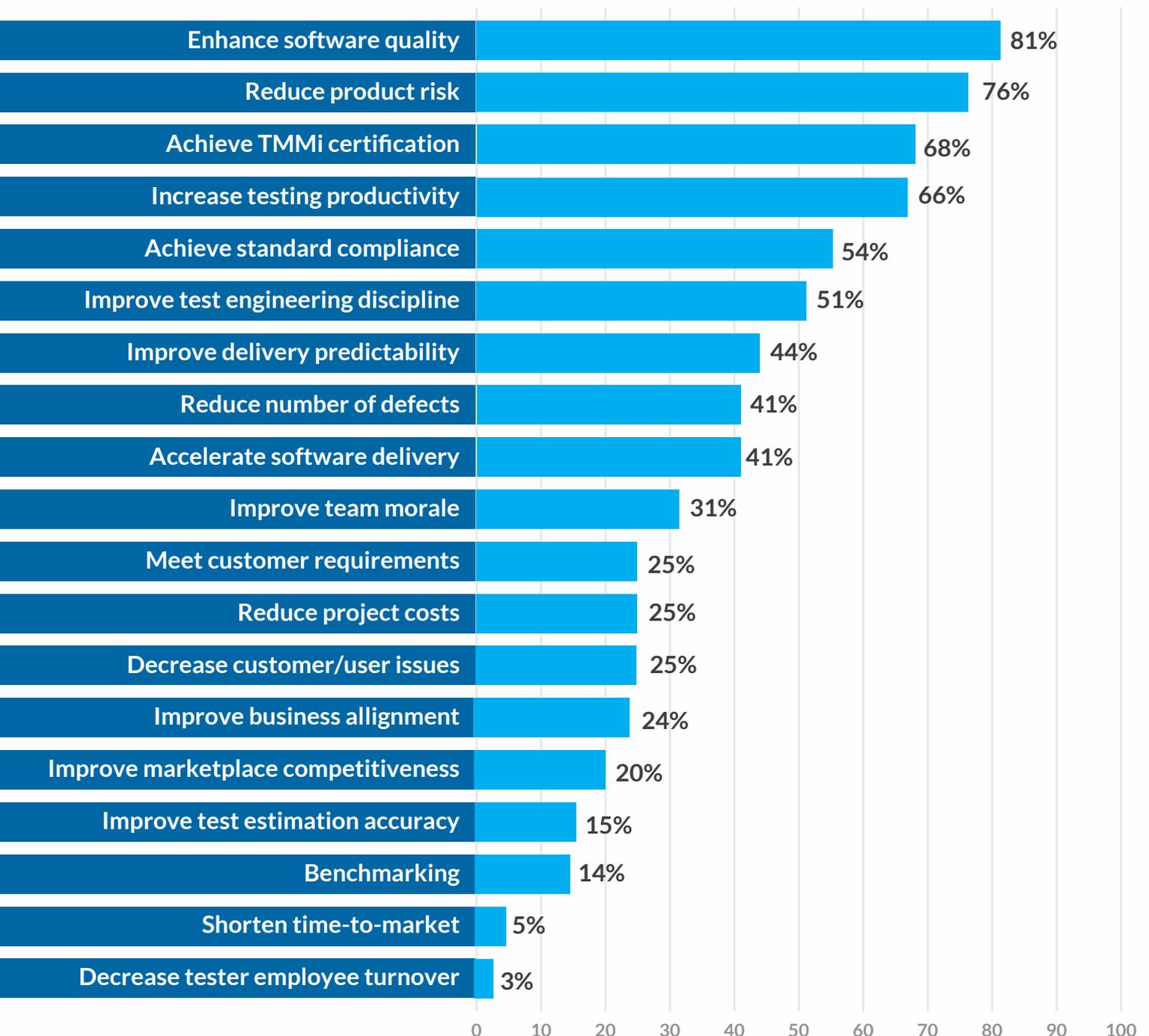


Many of the financial institutions are at TMMi level 3 - Defined (50%). An impressive number (29%) is at TMMi level 4 - Measurement. This correlates to the indicated importance of the Test Measurement process area (see page 8). Generally, financial institutions seem less driven towards achieving TMMi level 5.



# Reasons for Adopting TMMi

What were the main reasons for adopting TMMi?

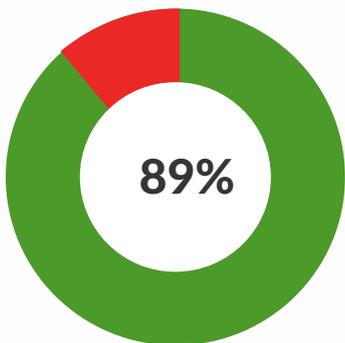


Enhance software quality, reduce product risk, achieve TMMi certification and increase testing productivity are the top 4 reasons stated for starting a TMMi-based test improvement project in the financial domain.

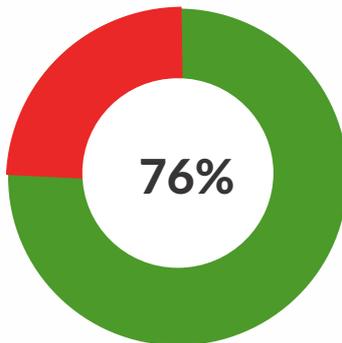
Compared to the overall TMMi market, reduce product risk is higher on the list and improve marketplace competitiveness is much lower on the list.

# Benefits Achieved (Grouped)

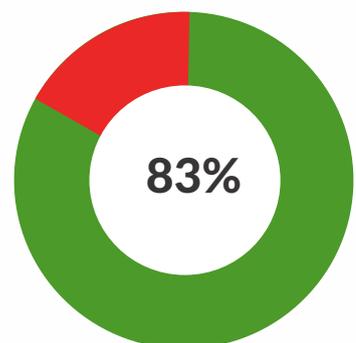
What benefits have you experienced of adopting TMMi?



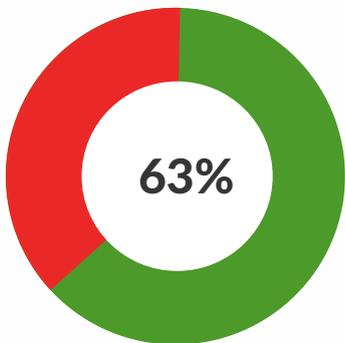
Product Quality



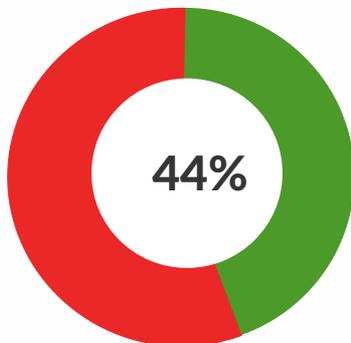
Test Efficiency



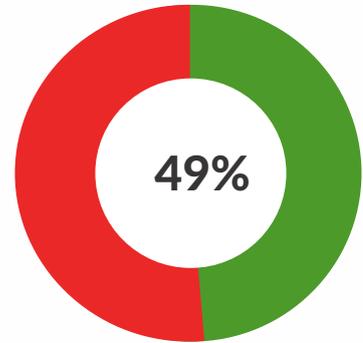
Compliance



People



Test Predictability



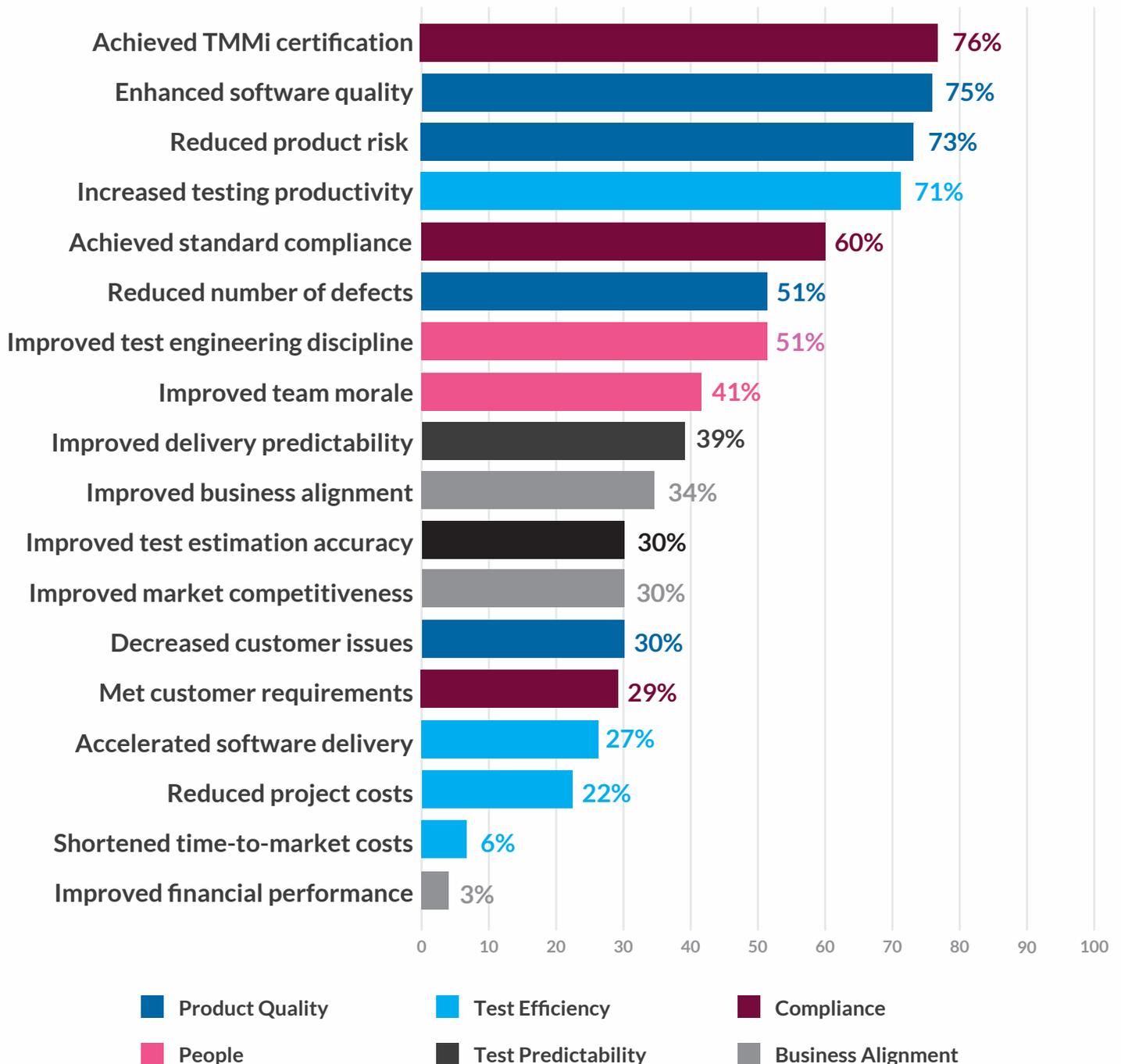
Business Alignment

The benefits that can be achieved with TMMi are categorized under six headings. A high 89% of the financial institutions are experiencing benefits regarding product quality (e.g., reduced product risks and/or reduced number of defects). Benefits are also commonly experienced with test efficiency (76%), e.g., increased testing productivity, compliance (83%), e.g., achieved test certification and/or achieved standard compliance.

People benefits (e.g., improved test engineering discipline and/or improved team morale) are reported by a majority of the institutions. Benefits in the areas of test predictability and business alignment are less often achieved. Note that these two types of benefits are also not stated as major reasons / drivers for adopting TMMi (see page 11).

# Benefits Achieved (Detailed)

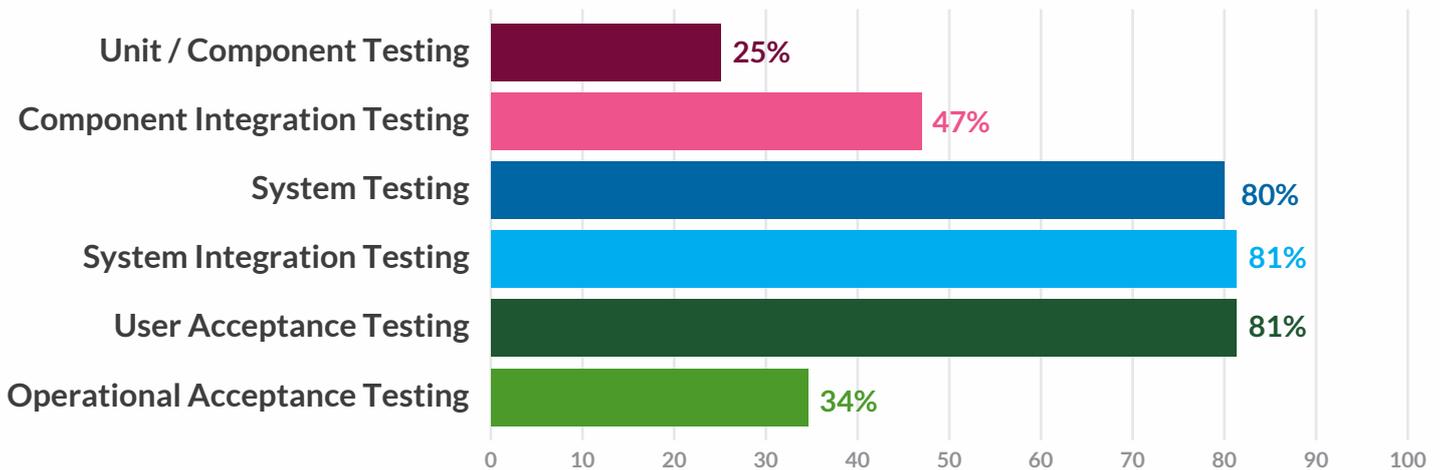
What benefits have you experienced as a result of adopting TMMi?



Achieved TMMi certification, enhanced software quality, reduced product risk and increased testing productivity are the four benefits accomplished by the financial institutions implementing TMMi. An interesting high percentage (51%) is reporting an improved test engineering discipline. It's important to note that the benefits institutions are trying to attain will vary based on their specific business objectives. There is a strong correlation between the reasons (see page 11) and the actual benefits achieved.

# Test Levels within Scope

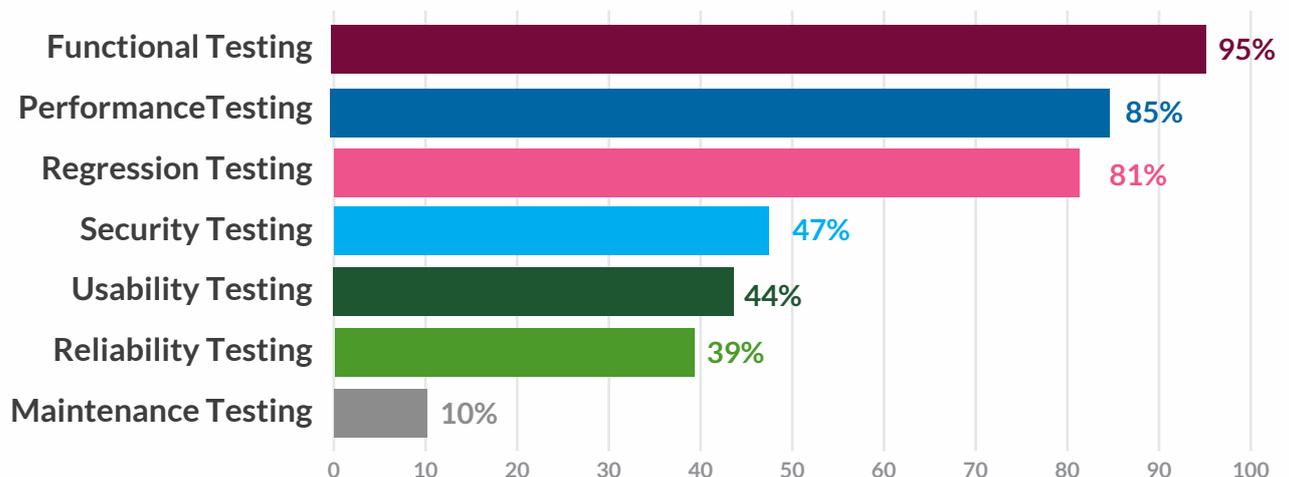
Which test levels are within the scope of the TMMi test process improvement effort?



System testing, system integration testing and user acceptance testing are the test levels where TMMi is most commonly applied by the financial institutions. However, with almost 50% there are also many of them applying it to component integration testing (47%). Only approximately a third apply TMMi to operational acceptance testing (34%), and a fourth to unit testing (25%).

# Test Types within Scope

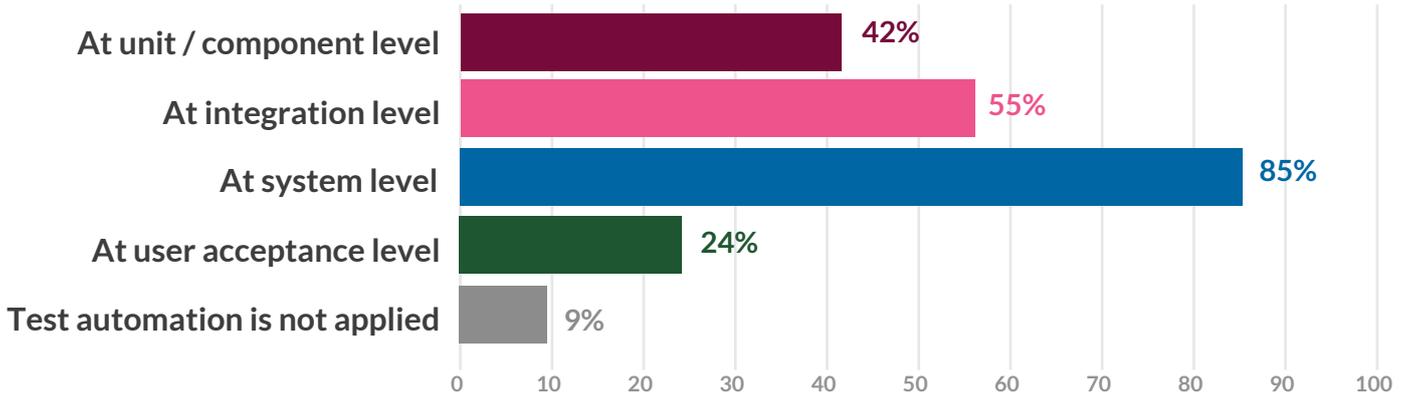
Which test types are within the scope of the TMMi test process improvement effort?



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

# Test Automation

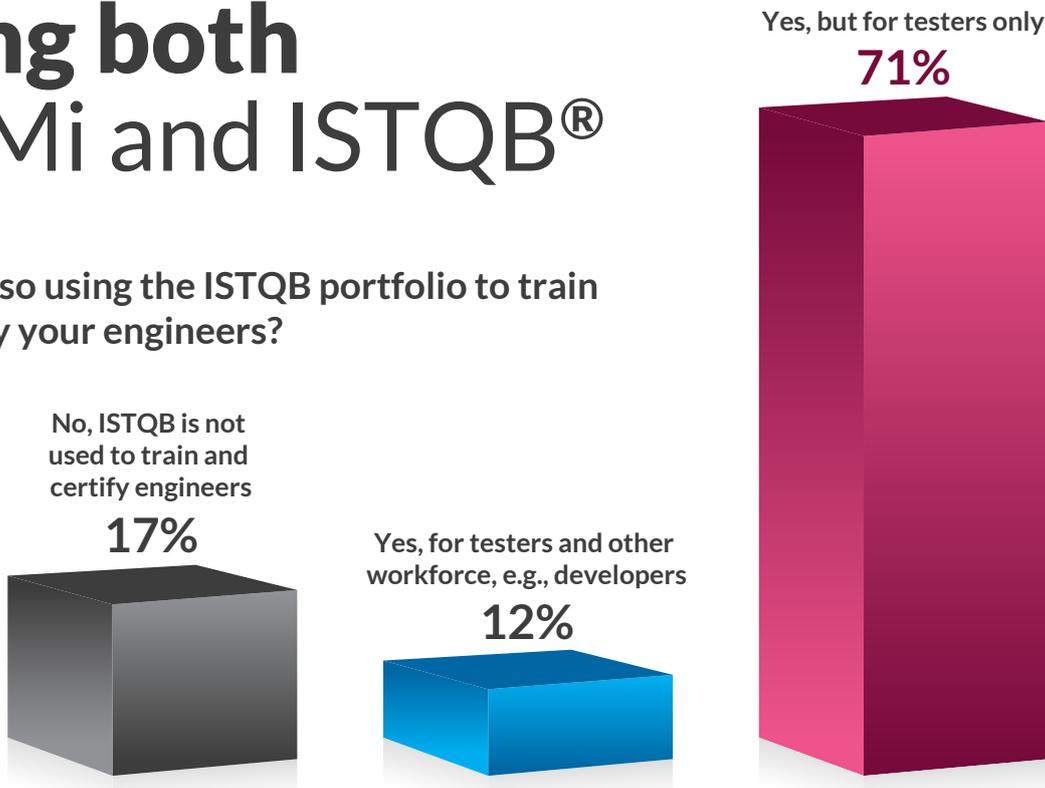
Are you also using test automation for test improvement?



Almost all financial institutions (91%) also use test automation to improve their testing. Interestingly test automation at system level is most popular (85%), following by integration level (55%) 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.

## Using both TMMi and ISTQB®

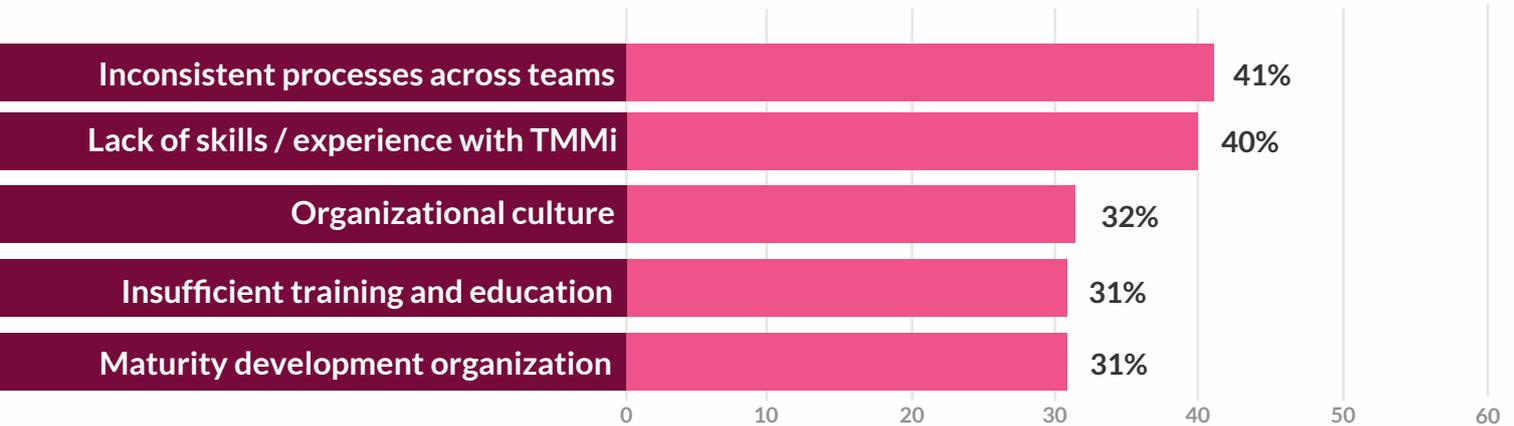
Are you also using the ISTQB portfolio to train and certify your engineers?



83% of the financial institutions use the ISTQB certification scheme to train their staff and build testing knowledge and skills. Only a mere 12% also use ISTQB to train other workforce than testers. 17% does not use the ISTQB scheme to train their staff on testing.

# Challenges Experienced

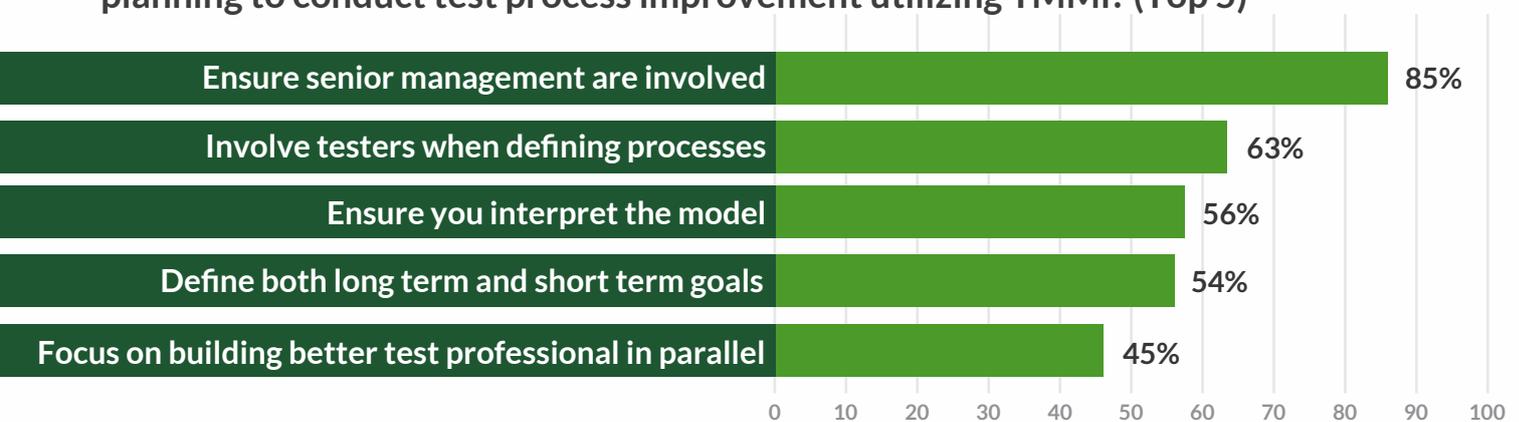
Which challenges have been experienced throughout the test process improvement activities? (Top 5)



Addressing the issue “Inconsistent processes across teams” is a main improvement goal at TMMi level 3. The number two challenge “lack of skills/experience with TMMi” calls for more TMMi training before starting and TMMi consultancy. Maturity of the development organization is another area where many financial institutions are experiencing challenges.

## Advice to others

Based on your experiences, what advice would you offer to others planning to conduct test process improvement utilizing TMMi? (Top 5)



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 of senior management to a TMMi improvement process is critical to its success. Testers need to be part of the improvement process to ensure practicality and manage resistance. It is very important to spend time interpreting the TMMi model, its goals and practicality to the context of use.



**Contact us at the  
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