TURKEY
SOFTWARE QUALITY
REPORT

TTB
Turkish Testing Board
www.turkishtestingboard.org

2012 - 2013

Contents

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Foreword

Turkish Testing Board (TTB) is pleased to bring you the 2012-2013 edition of the Turkey Software Quality Report (TSQR). TSQR 2011-2012 edition was distributed not only in Turkey but also in more than 70 countries through International Software Testing Qualifications Board (ISTQB) member boards. This report aims to show the importance given to software quality in Turkey and contribute positively to the image of Turkish IT industry throughout the World.

The report is designed to help companies to make paradigm shifts in their mindsets. It not only draws a clear picture of the current situation in the Turkish market but also sets the de facto standards and trends for future information technology (IT) projects. As IT projects begin to fail more frequently in our market, this kind of a report will be a reference point for all decision makers.

With the help of TSQR, we are trying to lay down the foundations of a healthy discussion platform for the development of Turkish IT market. TSQR will be presented at opening ceremony speech of TestIstanbul 2012 (www.testistanbul.org) on May 24th initiating a series of keynotes, presentations, discussions and panels during a two-day conference.

We would like to thank all TTB members and professionals who took the time to complete the survey and contribute to this report.

We are looking forward to meeting with you at TestIstanbul on May 24th, 25th and discuss the findings of this report face to face.

Turkish Testing Board

Executive Summary

Key Findings

Testing Organization and Processes

Compared to last year's TSQR results, the maturity level of software testing has improved. Most of the companies established dedicated test teams. The ratio of testers responsible for testing has increased against developers, business analysts and end users. But the time allocated for software testing during IT projects is still unsatisfactory.

Testing Trainings

In parallel to acceptance of software testing as a separate profession in Turkey, importance of international software tester trainings and certifications has also increased. Companies consider software tester trainings & certifications as a key differentiation factor during recruitment and performance assessment processes.

Test Automation Tools

Test automation is considered as the hottest topic in Turkish software testing industry. But most of the companies participated to TSQR has stated that they cannot leverage their test automation tools and frameworks inspite of their big investments. The main reasons have emerged as the lack of trained personnel on this field and immature test processes and techniques.

Overview

TSQR 2012 – 2013 results show that Turkish software testing market is at the end of Awareness Stage and is proceeding to Growth Stage. It is better to have a continuous and healthy growth rather than a fast one. We hope TSQR 2012 – 2013 helps Turkish IT Executives as a guideline in preparation of their road-maps at this stage.

Testing Organization and Processes

**1. Who is responsible for software testing in your company?
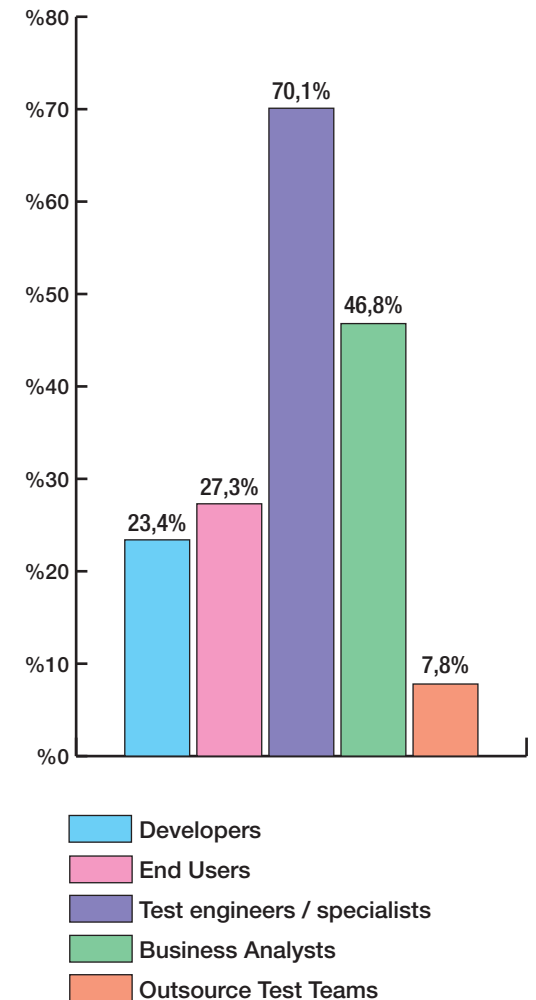(You can select more than one)**

Analysis Of The Current Situation

According to last year's survey results, developers, end users and business analysts were dominating the testing efforts. This year's survey indicates that test engineers have the main responsibility for software testing which shows a transformation in the testing industry.

Future Predictions

The main challenge ahead of software testers is the lack of domain knowledge. To overcome this issue, more companies will assign part of their analyst teams to software testing teams in their organization. Within 5 years, end users and developers will disappear in this test responsibility graph even in mid-sized companies. End users will be involved only in UATs and Developers will be only responsible for Unit Tests.

Provision of test outsourcing service only as body shopping has decreased the value and demand for outsourced testers. Most of the companies have recruited their own testers. This trend will continue and number of in-house testers will outpace the number of outsourced testers. Only high end outsourcing companies specialized on specific testing types and techniques will be able to survive.

Developers 23,4%
End Users 27,3%
Test engineers / specialists 70,1%
Business Analysts 46,8%
Outsource Test Teams 7,8%

Testing Organization and Processes

2. What percent of your project timeline is dedicated for software testing phase?
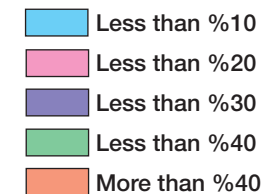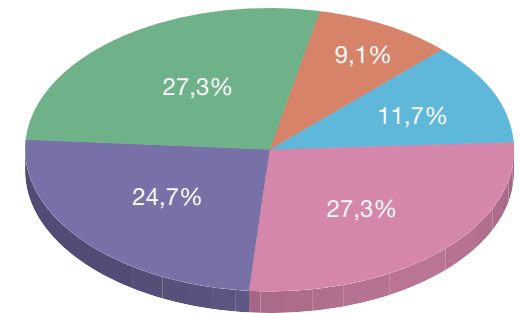
Analysis Of The Current Situation

Almost 65% of survey respondents indicate that the time allocated for software testing is less than 30 % of their total project timeline.

The latencies in analysis, design and development stages are compensated by reducing the time allocated for testing. This results in customer dissatisfaction and large number of defects found in production.

Future Predictions

The most efficient way of allocating more time for testing is applying early testing principle. With this principle in place, test cases will be documented as the requirements are baselined and defects will be found early at the requirements definition phase. This prevents high costs due to large number of regression cycles and unexpected failures in production.

Also with the adoption of Agile software development methodologies like Testing Driven Development, time allocated for testing activities will increase.

9,1%

11,7%

27,3%

27,3%

24,7%

- Less than %10
- Less than %20
- Less than %30
- Less than %40
- More than %40

Testing Organization and Processes

3. What are the trends that you are most interested in software testing industry?
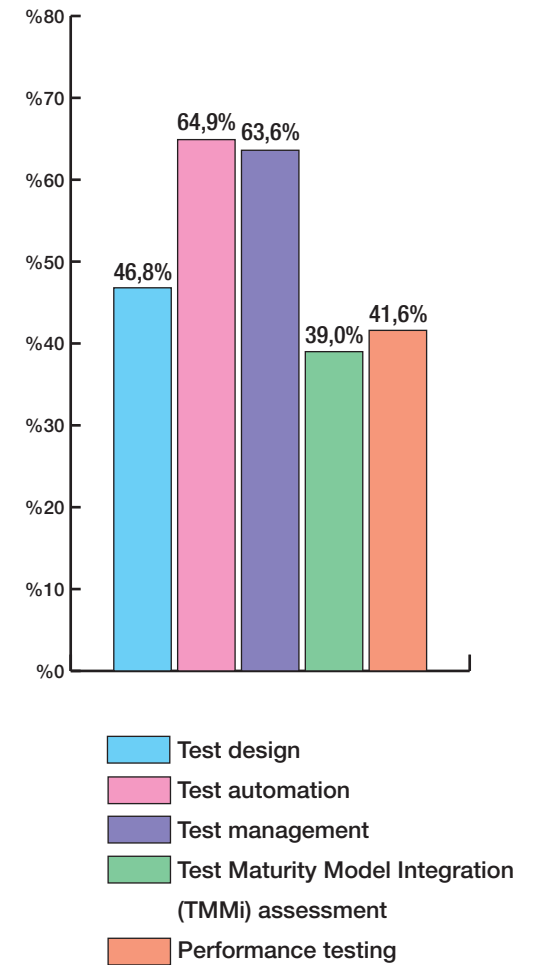**(You can select more than one)**

Analysis Of The Current Situation

Software testing industry considers test automation as the hottest trend followed by test management and test design techniques. The 39% interest on TMMi (Test Maturity Model Integration) assessment is an indicator of interest in transforming current testing processes according to international standards.

Future Predictions

Most of the companies especially in Finance, Telco and IT industries have formed testing teams as separate organizational units. This new organizational structure brings new management issues. How many testers should be employed, which test design techniques to adapt and what kind of tools to invest are some of the issues tried to be clarified by management teams.
TMMi Assessment method has emerged as the major guideline for
management to build their own software testing roadmap.

Chart values:
- Test design: 46,8%
- Test automation: 64,9%
- Test management: 63,6%
- Test Maturity Model Integration (TMMi) assessment: 39,0%
- Performance testing: 41,6%

Legend:
- Test design
- Test automation
- Test management
- Test Maturity Model Integration (TMMi) assessment
- Performance testing

Testing Organization and Processes

4. What are the main activities you conduct to find defects before test execution?
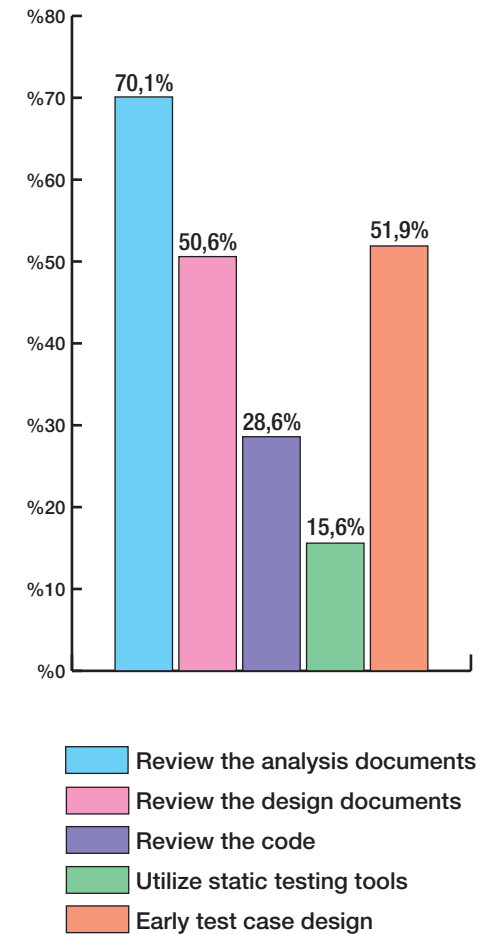**(You can select more than one)**

Analysis Of The Current Situation

Reviews are part of static testing. Survey results show that the focus of software testing teams is shifting from dynamic testing to static testing putting more emphasis on total quality management.

Future Predictions

Conducting reviews in all stages of SDLC and early test case design improves the efficiency and effectiveness of testing teams.
As time allocated for testing is getting tighter, we expect increasing importance and utilization of static testing tools and techniques by test teams.

70,1%   **50,6%**   **28,6%**   **15,6%**   **51,9%**

- Review the analysis documents
- Review the design documents
- Review the code
- Utilize static testing tools
- Early test case design
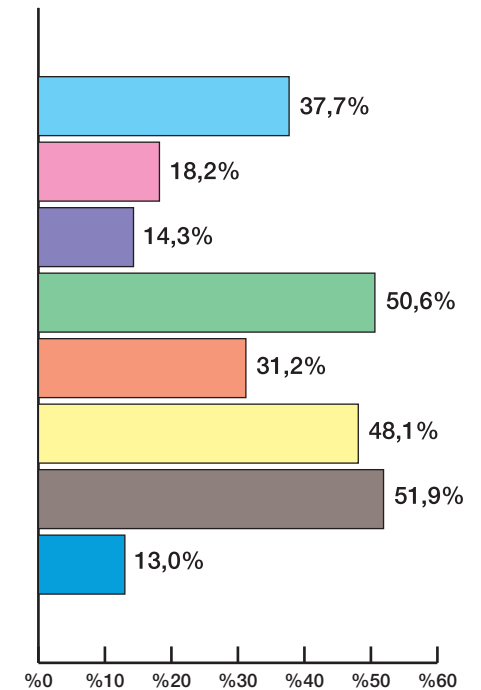
Testing Organization and Processes

5.What is the most fatal illusion regarding software testing in your company?
(You can select more than one)

Analysis Of The Current Situation

The investments on software testing have increased the expectations of upper management from the test teams. They expect the software to be fully tested and without any defects remaining.

Future Predictions

Although it is impossible to test the software 100% and find all of the defects, we expect test teams to pay more attention on risk based testing techniques like FMEA to focus their efforts on the most important parts of the software and advanced level testing techniques like pairwise testing techniques to narrow their testing scope.

- 37,7%
- 18,2%
- 14,3%
- 50,6%
- 31,2%
- 48,1%
- 51,9%
- 13,0%

%0 %10 %20 %30 %40 %50 %60

- Managers expect zero defects after testing
- Bug free code
- Testing is not important
- Testing should be done after the code has been written
- Business units and testers do not have to communicate with each other
- A tester can test everything
- A tester should test everything
- Investing in a test tool is enough to have successful testing

Testing Trainings

6. What percent of your test engineers has taken an international software testing training?
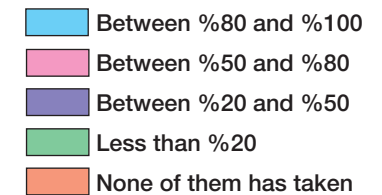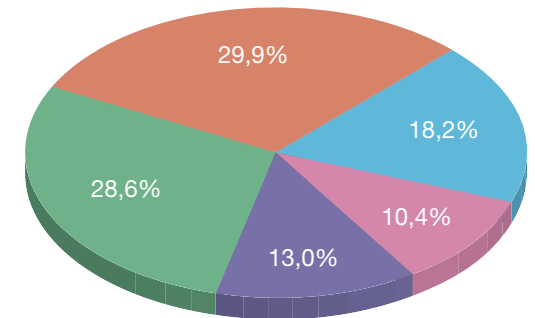
Analysis Of The Current Situation

There is an increasing interest in companies to train their testers according to international standards.

Test teams applying only experienced based test techniques have started to realize the importance of more structured and brand new testing techniques to better test their products. This need increases the demand for international trainings.

Future Predictions

Being a part of information technology industry, software testing is a very dynamic profession. Every year, new testing tools and techniques are evolving with the advance of new technology and new SDLC methodologies like Scrum and TDD.

International software testing trainings bridge the gap between software testers and recent international know how. We expect more demand for international software testing trainings due to rapid enhancements in the testing industry.

29,9%
18,2%
28,6%
10,4%
13,0%

■ Between %80 and %100
■ Between %50 and %80
■ Between %20 and %50
■ Less than %20
■ None of them has taken
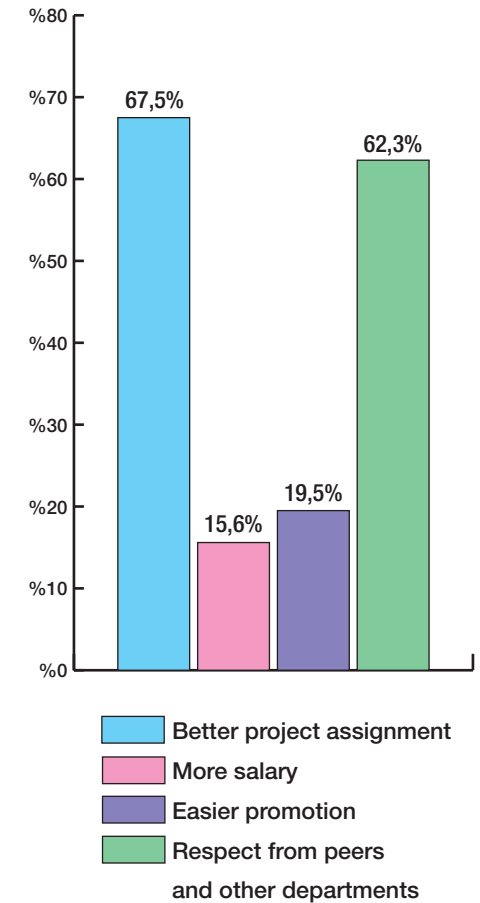
Testing Trainings

7. What are the benefits test engineers / specialists gained from international software testing trainings and certifications?
(You can select more than one)

Analysis Of The Current Situation

The survey results show that software testers who want to be a part of important projects take advantage of the trainings and certifications in their career portfolio to show their competency levels.
Also the certifications owned and knowledge and insight gained through these trainings increase the respect of their peers from different departments.

Future Predictions

As software penetration increases in every industry and companies invest more on quality, the demand for software testers will increase exponentially. Companies will be more selective in employment and promotion of personnel responsible for quality control and assurance. This makes continuous improvement a 'must to have' rather than a 'nice to have' for software testers. Respectively the Foundation, Advanced and Expert Level international know-how will be the determinant factors on the career paths of software testers. Different than the past, the future brings more career opportunities for highly qualified software testers. Testers have the equal chance with developers and analysts to promote to CXO levels.

- Better project assignment
- More salary
- Easier promotion
- Respect from peers and other departments

Test Automation Tools

8. Which of the below testing processes are automated in your company?
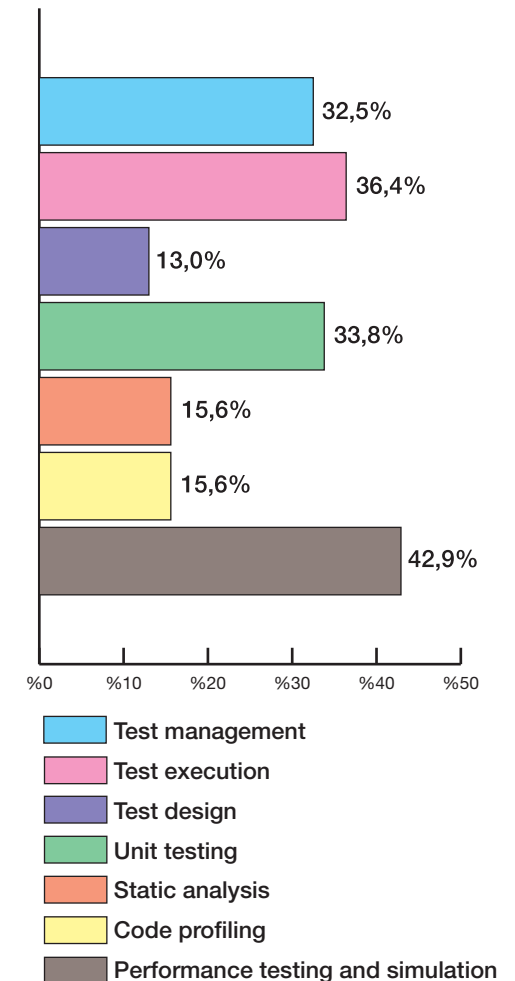**(You can select more than one)**

Analysis Of The Current Situation

According to survey results performance testing, unit testing, test management (test case and defect management) and functional & regression test execution are among the most automated testing activities. Utilization of advanced automation tools like static testing and code profiling are at awareness stage.

Future Predictions

In international norms test teams are structured as Test Analysts and Technical Test Analysts. Technical test analysts are mostly responsible from structured testing and test automation.
As the number of technical test analysts increase in Turkish companies, test automation tasks carried out by developers today will be transferred to test teams. But we expect unit testing will still remain as part of development.

Bar chart:
- Test management: 32,5%
- Test execution: 36,4%
- Test design: 13,0%
- Unit testing: 33,8%
- Static analysis: 15,6%
- Code profiling: 15,6%
- Performance testing and simulation: 42,9%

Legend:
- Test management
- Test execution
- Test design
- Unit testing
- Static analysis
- Code profiling
- Performance testing and simulation

Test Automation Tools

9. What is your expectation from a best of breed test automation framework?
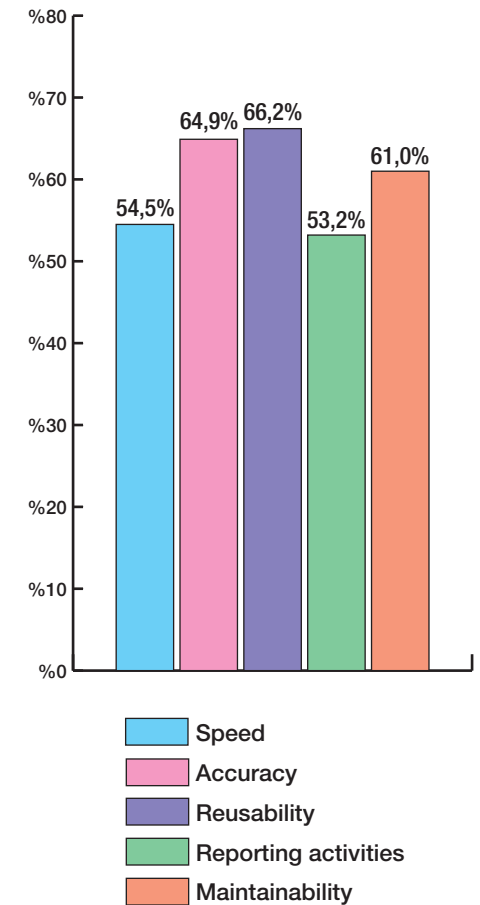**(You can select more than one)**

Analysis Of The Current Situation

According to survey results, reusability, accuracy and maintainability are top three critical success factors for test automation frameworks.

Future Predictions

In test automation frameworks, the most challenging criteria to meet are maintainability and reusability. Test scripts prepared for one build cannot be utilized in testing of next builds. Especially in agile projects where regression cycles are frequent, this makes test automation useless.

To overcome this issue, test teams need successful technical test analysts focus on advanced techniques like API level testing beyond Capture & Play approach. Also to fully utilize the automation frameworks, technical test analysts should accommodate keyword and data driven testing capabilities in their frameworks.

Legend:
- Speed
- Accuracy
- Reusability
- Reporting activities
- Maintainability

Values: 54,5% / 64,9% / 66,2% / 53,2% / 61,0%

Test Automation Tools

10. What are the challenges and obstacles in your test automation processes?
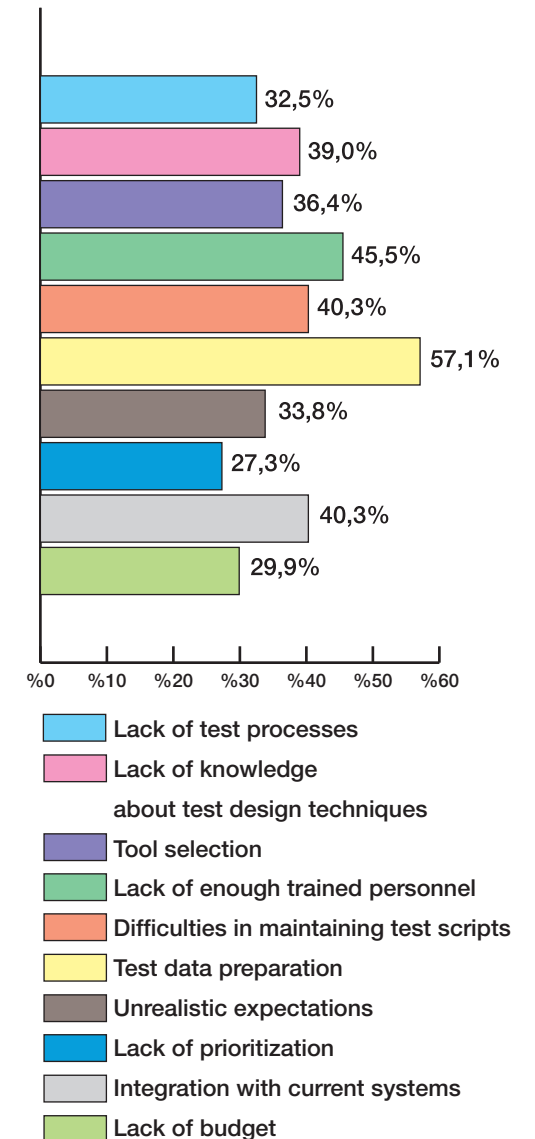**(You can select more than one)**

Analysis Of The Current Situation

According to survey results, the top three challenges with test automation are test data preparation, lack of test design techniques and integration with current systems. But the major problem is more strategic: it is the perception of test automation as a magician in testing of software.

Future Predictions

Companies will consider automation as a tool rather than a magician to better apply their standardized test techniques.
Also without an integrated requirements / test management process and collaboration of testers with developers, analysts and project managers even the best automation tool cannot be leveraged. Application Life Cycle Management Tools (ALM) will help to overcome these issues by establishing a collaborative SDLC management platform.

Challenge	Percentage
Lack of test processes	32,5%
Lack of knowledge about test design techniques	39,0%
Tool selection	36,4%
Lack of enough trained personnel	45,5%
Difficulties in maintaining test scripts	40,3%
Test data preparation	57,1%
Unrealistic expectations	33,8%
Lack of prioritization	27,3%
Integration with current systems	40,3%
Lack of budget	29,9%

About

TTB
Turkish Testing Board
www.turkishtestingboard.org

Turkish Testing Board (TTB) is the regional body representing and supporting software testing professionals in Turkey. The TTB was constituted in Istanbul in September 2006 as a non-profit organisation and a member of the International Software Testing Qualifications Board (ISTQB).

TTB is responsible for certification of testing professionals to the standards and syllabi laid down by the ISTQB. TTB also acts to generate public awareness of the economic and risk mitigation benefits that professional software testing practice offers.

www.turkishtestingboard.org

TEST ISTANBUL
www.testistanbul.org

TestIstanbul is the largest conference in South East Europe and Middle East on software testing. TestIstanbul introduces the region not only to the advancements in software testing but also to the advancements in other streams of SDLC like business analysis, design, development and usability. With its almost 700 participants from all over the world every year, TestIstanbul creates a healthy discussion and networking platform for IT professionals and companies.

www.testistanbul.org

ISTQB
International Software Testing Qualifications Board
www.istqb.org

ISTQB is a global, non-profit organization responsible for enabling test professionals, through globally accepted software testing certification standards to support their career development. As of January 2012, ISTQB has issued over 200.000 certifications in more than 70 countries

www.istqb.org

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