TURKEY SOFTWARE QUALITY REPORT

2013 - 2014

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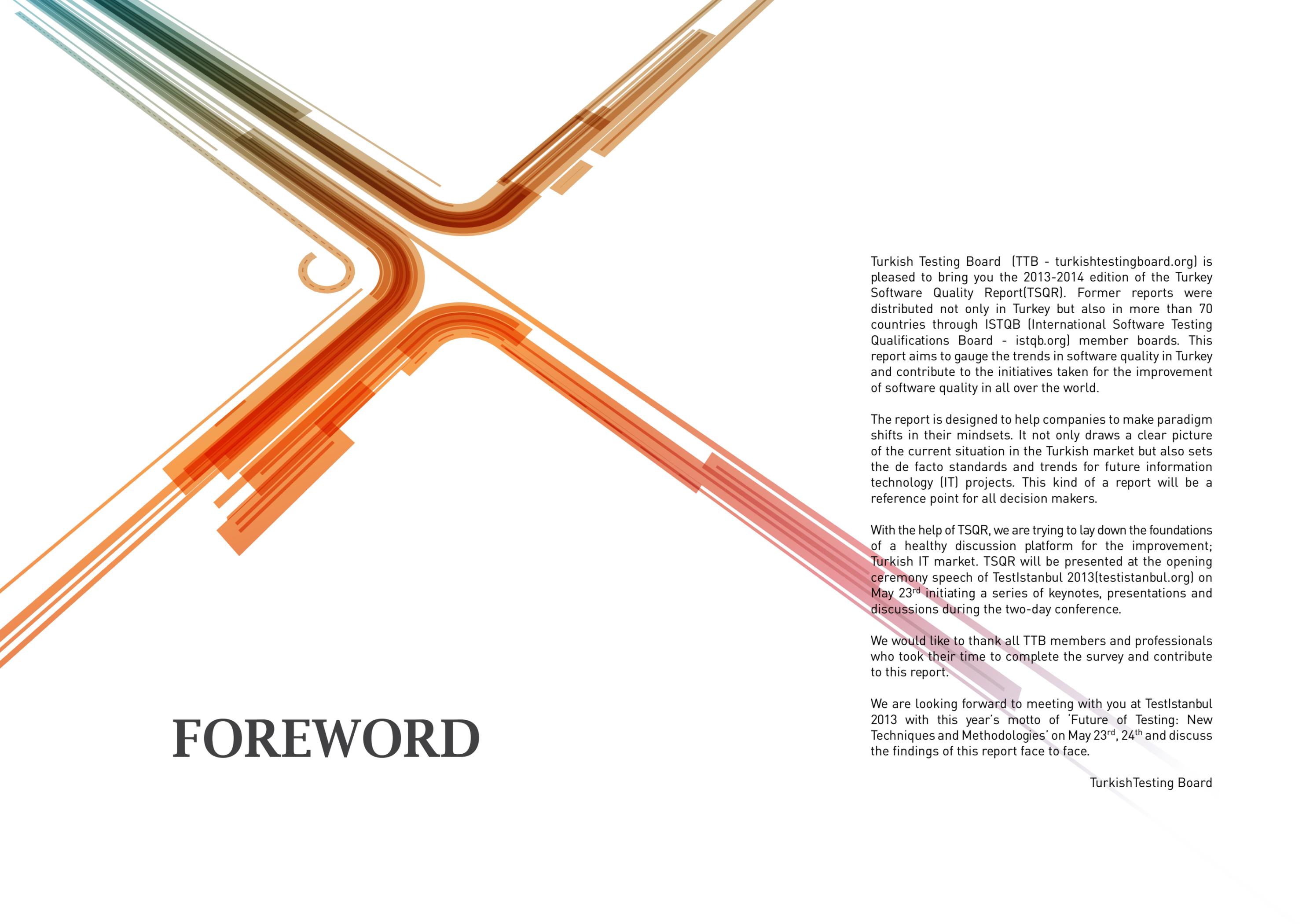
FOREWORD

Turkish Testing Board (TTB - turkishtestingboard.org) is pleased to bring you the 2013-2014 edition of the Turkey Software Quality Report(TSQR). Former reports were distributed not only in Turkey but also in more than 70 countries through ISTQB (International Software Testing Qualifications Board - istqb.org) member boards. This report aims to gauge the trends in software quality in Turkey and contribute to the initiatives taken for the improvement of software quality in all over 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. 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 improvement; Turkish IT market. TSQR will be presented at the opening ceremony speech of TestIstanbul 2013(testistanbul.org) on May 23rd initiating a series of keynotes, presentations and discussions during the two-day conference.

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

We are looking forward to meeting with you at TestIstanbul 2013 with this year's motto of 'Future of Testing: New Techniques and Methodologies' on May 23rd, 24th and discuss the findings of this report face to face.

TurkishTesting Board

EXECUTIVE SUMMARY

Due to the motto of this year's conference "Future of Testing: New Techniques and Methodologies"; special attention is paid to test techniques in this year's report. Although the report shows an increase in the awareness and usage of test techniques, testing teams are still limited with most basic testing techniques like use case testing. Testing techniques, which require more advanced skills like pair-wise and classification tree and techniques which require more technical know-how like statement and decision coverage are still away from test teams' agenda. However, the increasing pressure on test teams to achieve more coverage in shorter timelines is creating a driving force for more investments on test techniques. As the respondents stated in their answers, this investment will be put in practice via test trainings.

In addition to sluggish growth in test techniques, the main problem of software testing industry is still alive; testing teams still concentrate more on defect finding than defect prevention. We are expecting a contrary trend in the coming years with more investment in static testing techniques like reviews. Early involvement of testers in SDLC with the help of static testing techniques will decrease total cost of ownership while increasing total quality.

Apart from these trends, latest advancements in mobile technology and high adoption of smart phones push us to include a question regarding mobile application testing. The answers given to that question has clearly shown the major problems in the industry. Due to mobile industry's still infancy state, lack of available mobile test environments, number of different operating systems and device proliferation make mobile testing a challenging one. In addition to these disadvantages, lack of mobile testing know-how makes the situation even worse.

Compared to last year's report, we have experienced a moderate growth in Turkish software testing industry. We hope TSQR 2013 – 2014 will be a guideline for Turkish IT Executives in preparation of roadmaps to a healthier and stronger growth.

QUESTIONS

Q1
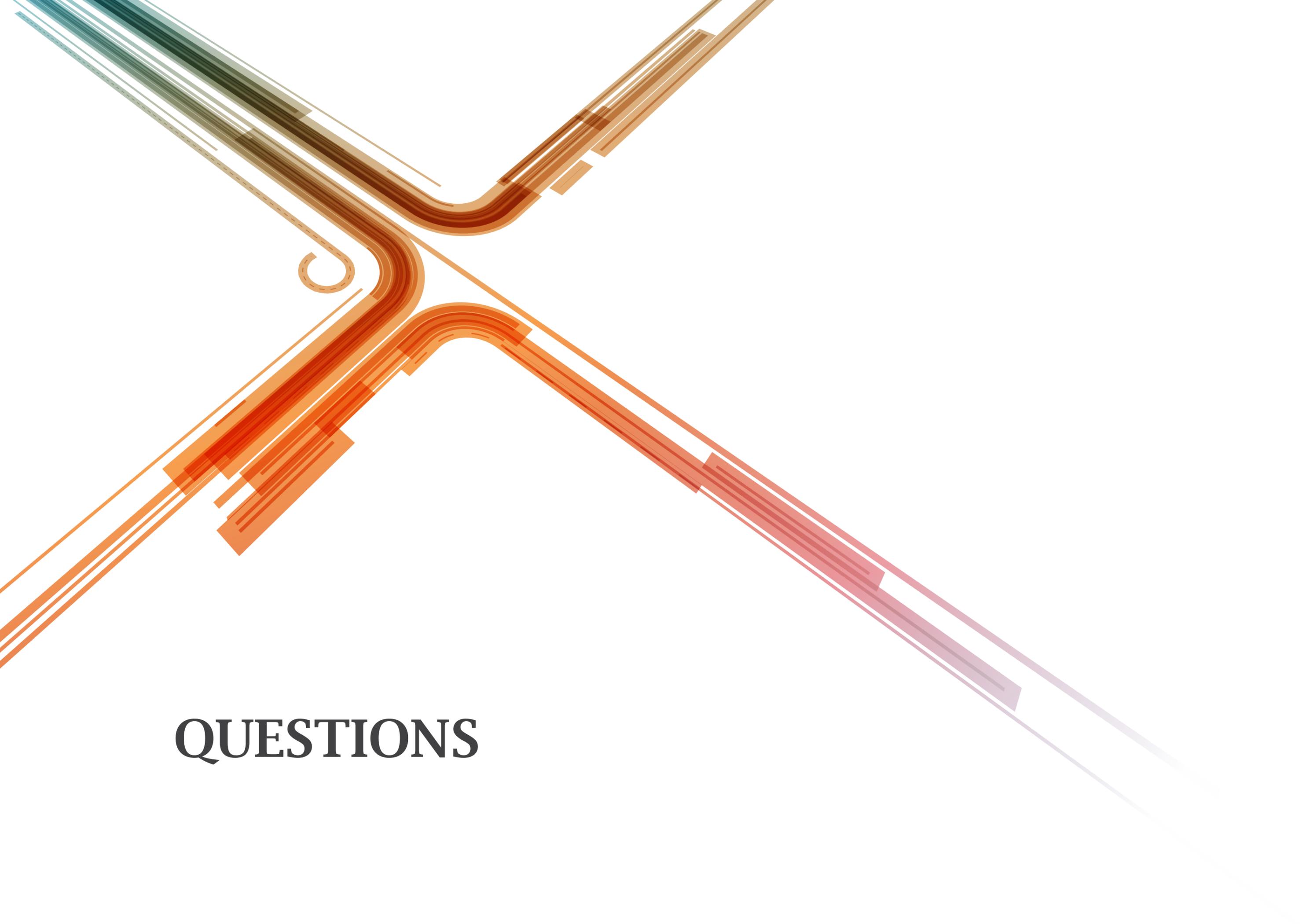
Which Test Techniques Are Utilized By Your Testing Team?
(You can select more than one answer)

Technique	Percentage
Use Case Testing	76,2%
Checklist based	60,3%
Error guessing	54%
Exploratory Testing	49,2%
Boundary Value Analysis	41,3%
Decision Table	31,7%
State transition	23,8%
Attacks	22,2%
Statement Coverage	20,6%
Decision Coverage	20,6%
Equivalance Partitioning	15,9%
Classification Tree	11,1%
Pair-wise Testing	9,5%
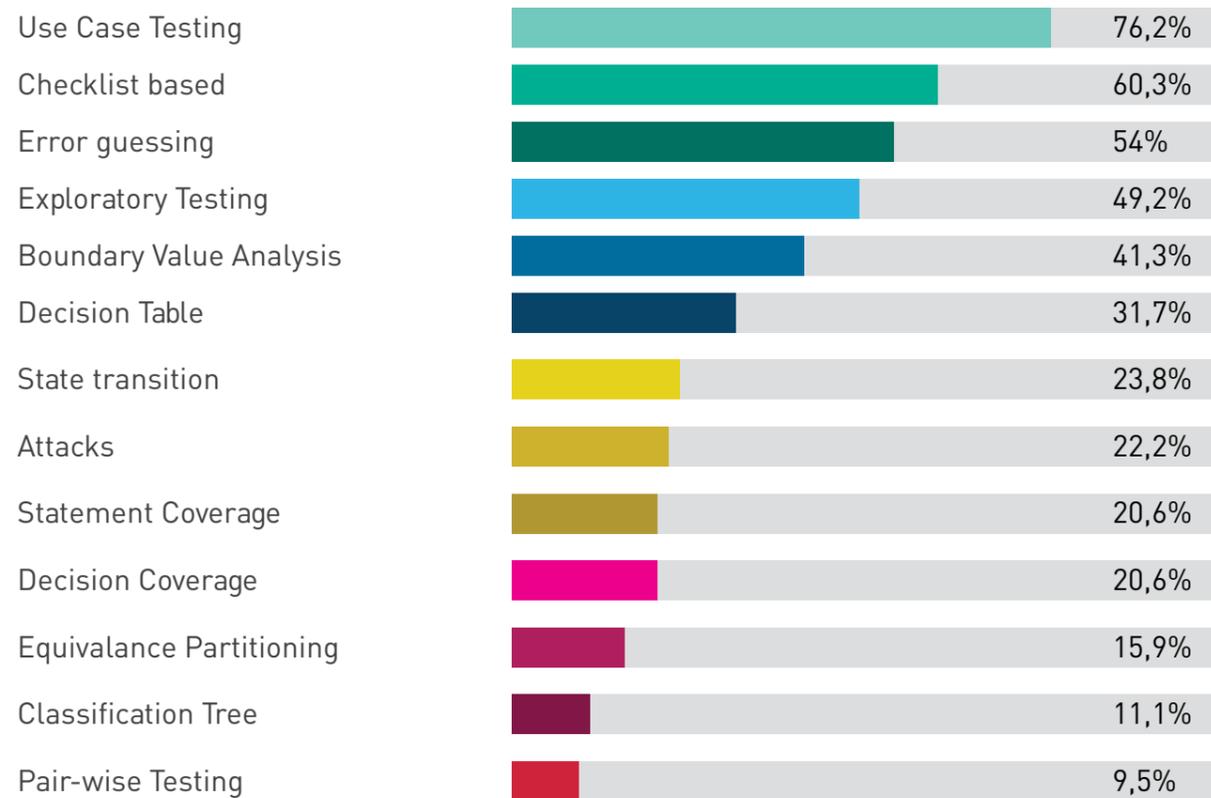
Analysis of the current situation

The necessity to meet the user requirements drives the reasons behind frequent usage of use case testing. This technique is followed with more traditional and experienced based techniques like error guessing, checklist based and exploratory testing. Compared to other techniques low but increasing frequency of usage of systematic techniques like boundary value analysis and decision table techniques is the result of involvement of more trained testers in the testing work force.

Future predictions

Technical review and static analysis are expected to show an increasing trend because early testing is a crucial step to find defects in the beginning of development stages. Due to the penetration of new software development methodologies like Scrum and TDD into the market, variation and depth of test techniques will be enhanced to achieve more effecient and effective testing.

Q2

How do you improve the competency level of your testers?
(you can select more than one answer)

Analysis Of The Current Situation

According to survey results, more than 80% of respondents substantially believe that training is a well-accepted way of developing competencies. Since software testing became an essential part of SDLC and companies are more or less aware of this managements make significant investment on trainings to reach higher levels of competencies in their organizations. The results show that respondents believe certification comes after trainings provide outcomes to measure the competency level of their employees. This ratio is increasing in every year since companies encourage and support testers for most widely recognized and well respected international certifications like ISTQB. It seems that the other way of competency development is participation to software testing conferences and this ratio is significant which is above 30%.

Future Predictions

In coming years, trainings will still remain as a hot topic and it seems conferences will attract much more attention as a supportive activities of trainings to learn latest developments in the industry. With increasing number of software testers and higher quality objectives of companies, technical certifications will be the most important tools for testers to differentiate themselves from other professionals for getting promotions or the jobs they want.

Category	Percentage
Training	85,7%
Certification	46%
Conferences	31,7%
None	12,7%

Q3
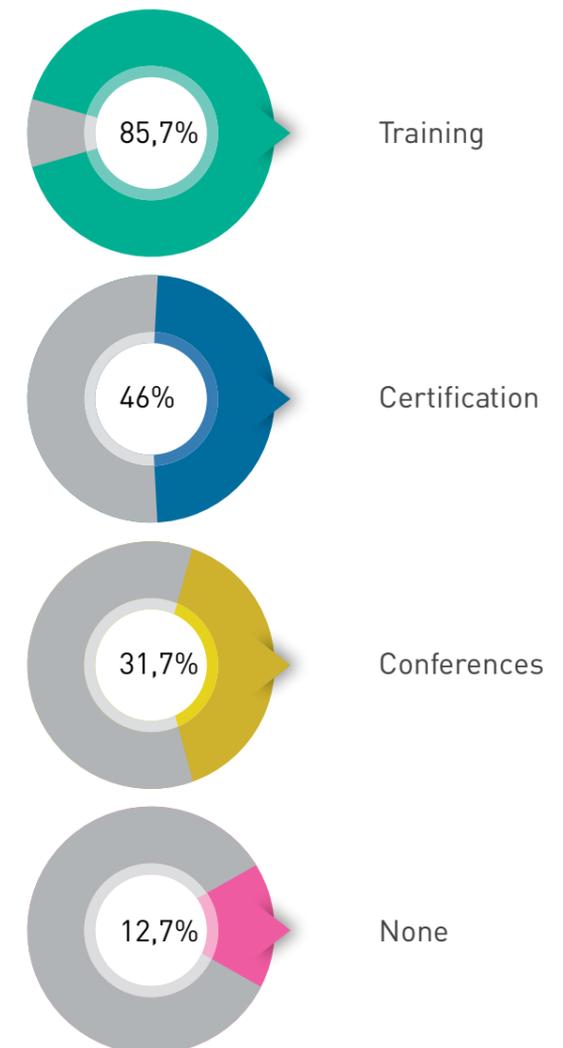
What are the main objectives of your testing efforts?
(You can select more than one answer)

Analysis Of The Current Situation

Answers show that, the initial and main driver of testing is still continuing to be finding the bugs. However, one of the other major principles of testing turns out to be giving confidence in the software. In other words, a big majority of respondents are also paying attention to show their colleagues that the system under test is working properly. From the answers, we also observe that requirements are the most common artifacts which are forming our test basis and also regulatory concerns play a considerable amount of role in facilitating test efforts.

Future Predictions

In the future, we are expecting to observe that regulatory issues will become more dominant and testing will be an inevitable and nonignorable activity. Bug detection will naturally remain as the key value of any test activity, but we are presuming that showing proper system functionality and mitigating risks will be more in the foreground.

87,3% To detect bugs

69,8% To show the system is working properly

61,9% To evalute requirements

33,3% To comply with regulations

28,6% To have zero defects

Q4
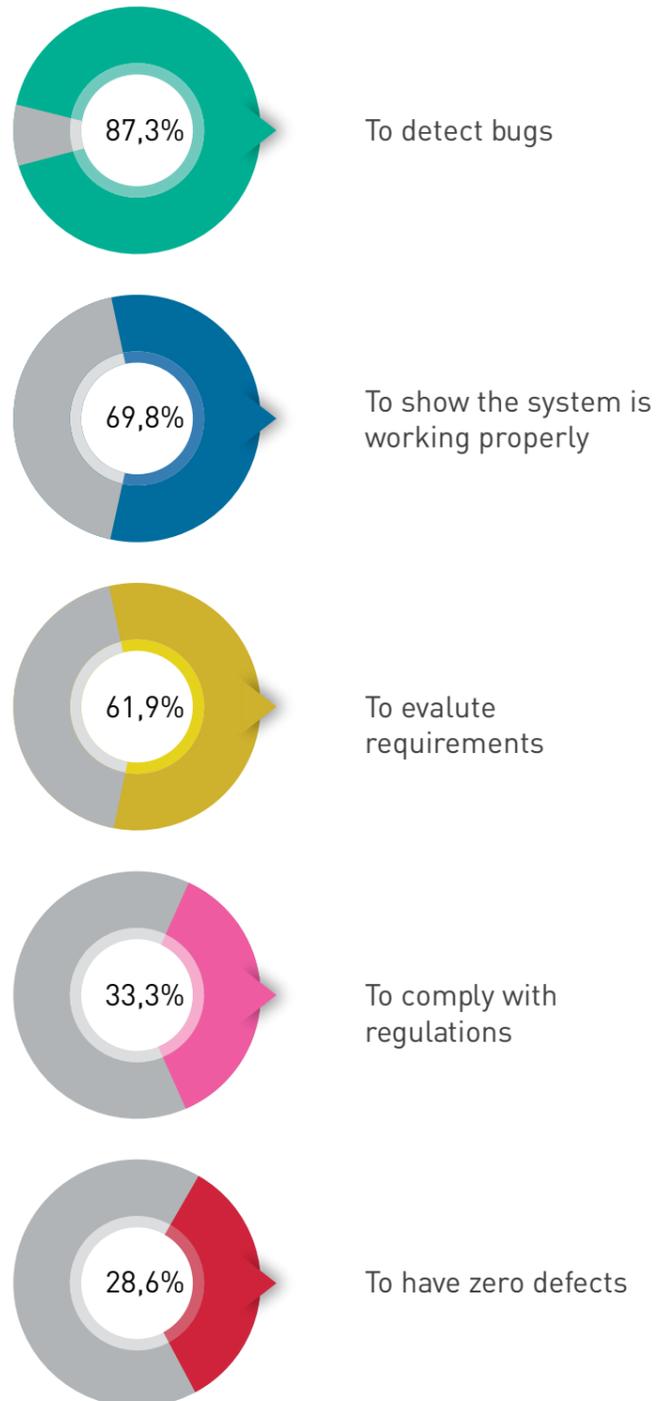
What are your test exit criteria?
(You can select more than one answer)

Requirements coverage	77,8%
Deadline	50,8%
Risk coverage	42,9%
Defect closure rates	25,4%
Number of defects found	20,6%
Budget	11,1%

Analysis of the current situation

The survey results show that the exit criteria for tests mainly concentrates on the requirements coverage which is in alignmet with the results of question 1. This is followed by the deadline constraints which is the main problem of the testing industry. An increasing awareness about the relationship between testing and risk makes risk coverage as the third highest ranking among the answers.

Future predictions

Increasing risk awareness and its close relation with testing will drive a need to invest in risk based testing and risk calculation techniques like Failure Mode and Effect Analysis (FMEA). By utilizing more of these techniques, test teams will enhance their efficiency and effectiveness.

Q5

On which areas are you using cloud as a test service?
(You can select more than one answer)

Analysis Of The Current Situation

Cloud-based testing of software applications brings cost benefits but this alone does not make it a top priority for most companies. Only 20% of Turkish companies are applying cloud services for testing purposes.

Future Predictions

The volume of software testing, that companies have to conduct has gone up tremendously in today's business climate with the increasing dependency on software to provide a competitive edge. Although cloud services eliminate the need to build and maintain required infrastructure for peak load simulations, and making it far more convenient and cost-effective, Turkish companies will still have to contend with issues such as data security, interoperability of cloud systems and regulations of related sectors such as banking, insurance or pharma.

20,6% Test environment management

19% Test data generation

17.5% Regression testing

6,3% Other

61,9% None
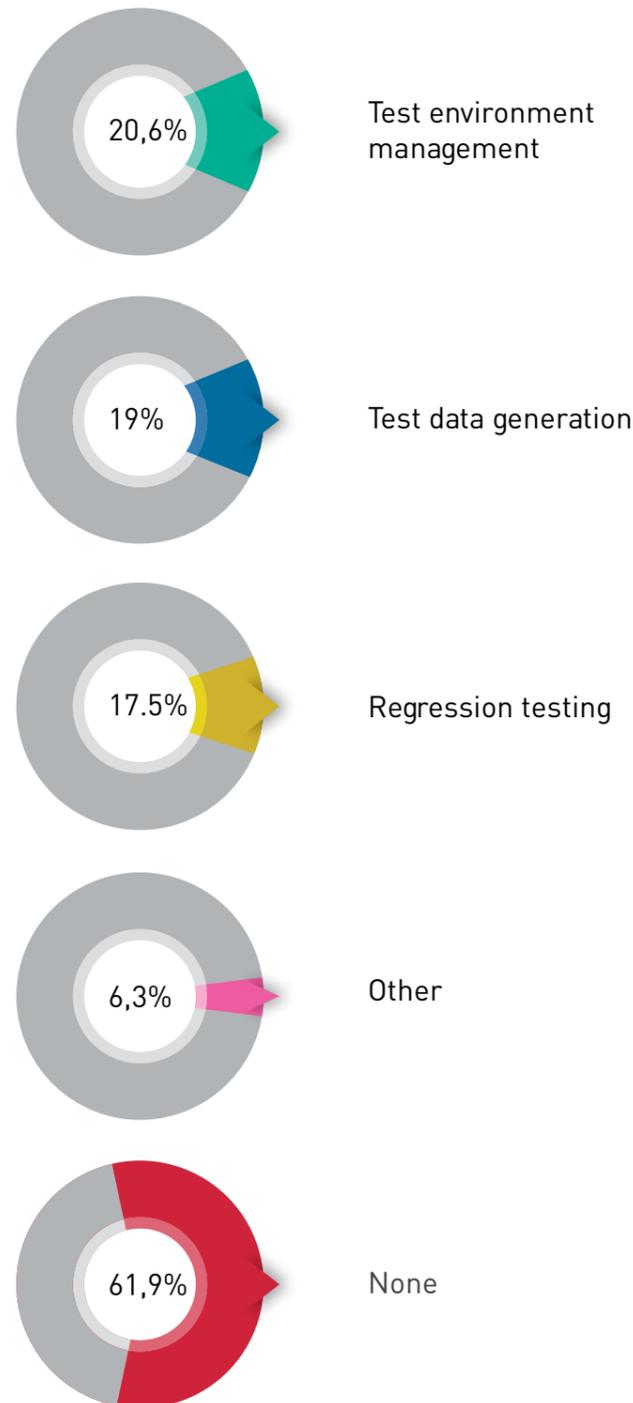
Q6

What are the challenges of mobile testing?
(You can select more than one answer)

Number of platforms	54.0%
Test environment	49.2%
Compatibility of systems	42.9%
Security	38.1%
Device proliferation	33.3%
Lack of mobile testing experience	30.2%
Lack of test automation tools	27.0%
Network/ provider issues	20.6%
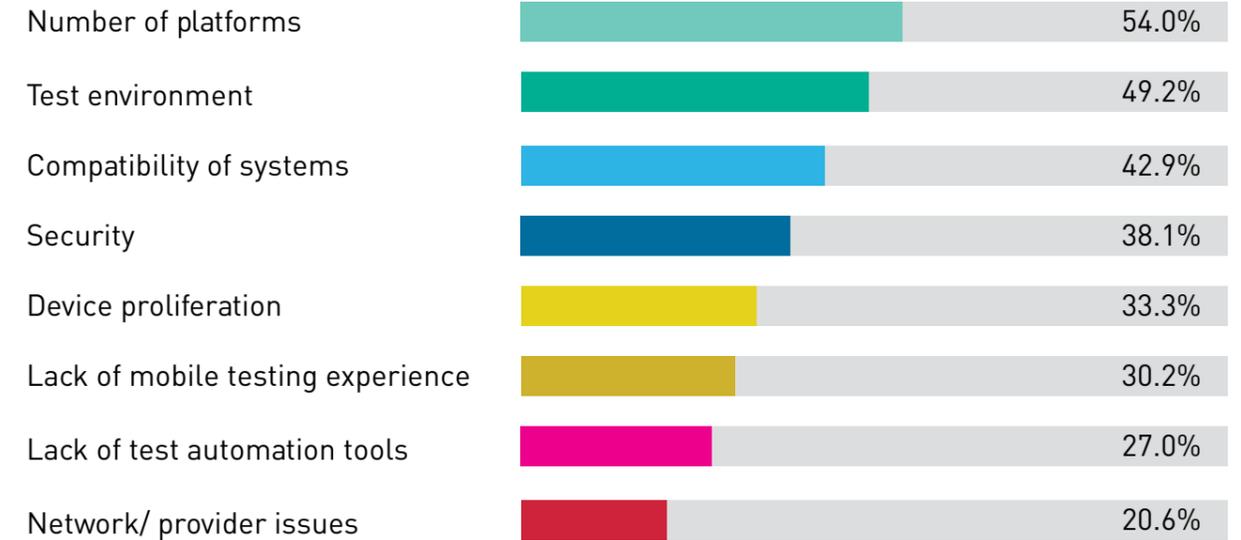
Analysis of the current situation

54% of the respondents assert that the number of existing mobile platforms is the biggest challenge regarding mobile testing. Almost half of the respondents see test environment and related compatibility as a challenge.

Future predictions

Mobile applications have become a "game changing" force for companies across all industries.However, with the proliferation of devices such as iPhones, iPads, and a wide variety of Android devices, mobile application providers have to market to a variety of mobile platforms to reach their audience. However, because no industry-wide standards for operating systems or device hardware have been established, it increases the complexity of testing and decreases the compatibility of systems. Rapid roll-out schedule, lack of automation tools, mobile carrier issues and security underline the importance of experienced test engineers, because the domain is fairly new and expertise of this domain will gain importance within the next months.

Q7

How do you ensure maturity and standartization of the test processes?
(You can select more than one answer)

Analysis of Current Situation

Survey results indicate that most of the companies have passed the awareness stage for foundation of test processes. They have started to improve their processes in allignment with international standards. Additionally regulatory compliance rules became the main driving force for some industries like finance to standardize their software testing methodologies and test artifacts.

Future Predictions

As software testing becomes one of the main streams in IT organizations, IT executives will allocate more budget and more qualified resources for software testing teams. This will make it easier to increase the maturity level of test processes. In this journey IT executives will use international reference models like TMMi more frequently as a guideline to assess their processes' current maturity level and to decide on the milestones in reaching the target levels. The success and effectiveness of testing processes depends on the maturity level of other integrated processes like business analysis and project management. These processes should be also assessed and reengineered to leverage improvement efforts on testing processes.

44,4% Regulatory standards

39,7% Other

38,1% Test Process Frameworks (TMMi / TPI)

Q8
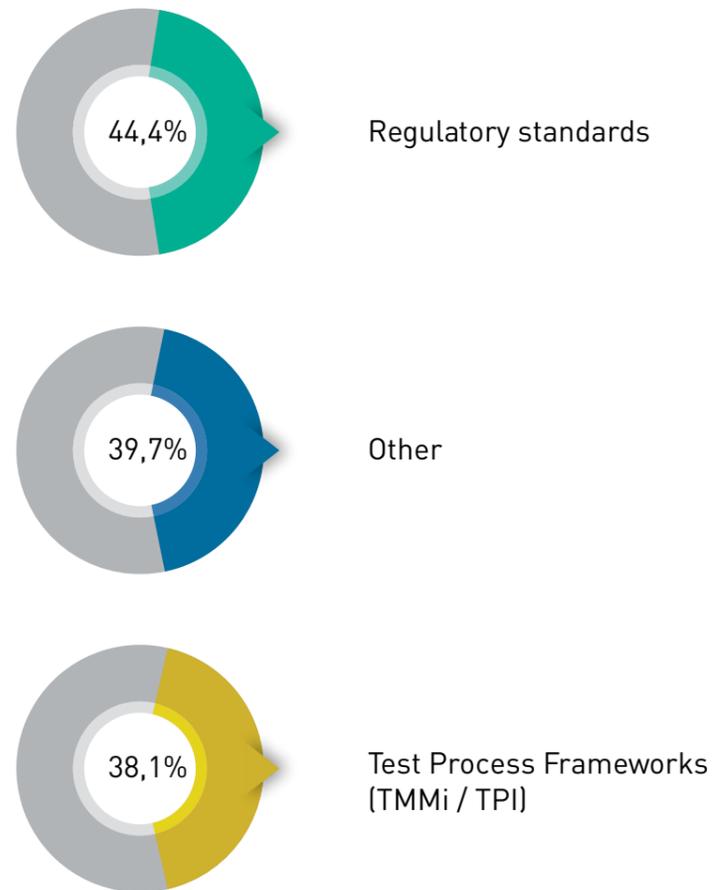
What is your understanding of exploratory testing?
(You can select more than one answer)

Anyone can do exploratory testing — 39,7%

Simultaneous learning, test design, and test execution — 36,5%

Random testing — 31,7%

Testing done by end users — 25,4%

Error guessing — 25,4%

Testing done by business analysts — 22,2%

Testing done by business units — 17,5%

Testing done by developers — 15,9%

Forced error tests — 14,3%
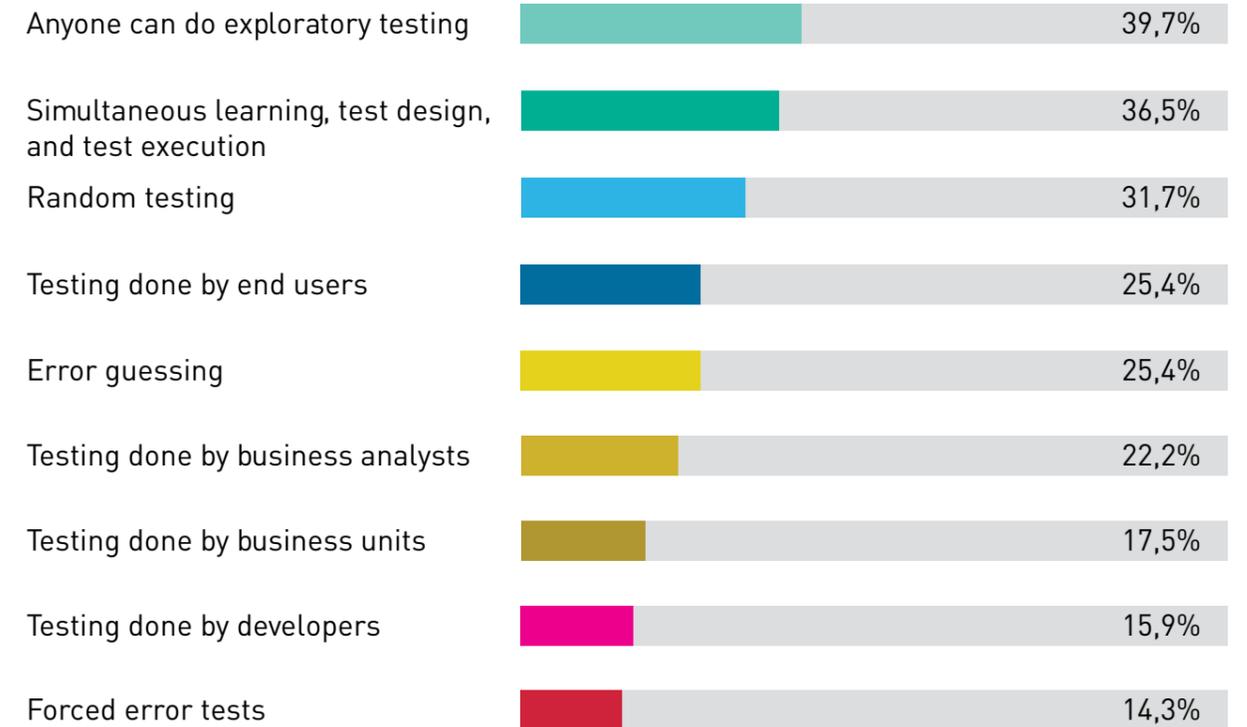
Analysis of the current situation

The answers given by the respondents show a clear confusion about what exploratory testing is. Some of them has tried to categorize exploratory testing based on roles and almost 32% perceived exploratory testing as random testing making analogy to monkey testing. Only 36,5% stated the right definiton of exploratory testing as 'simultaneous learning, test design, and test execution'.

Future predictions

As test specialists pay more attention to systematic test techniques like specification and structure based, the importance of exploratory testing will become more and more obvious as a complementary technique to these systematic techniques. In addition to that, exploratory testing will differentiate itself from monkey testing and become a standalone test technique,when test specialists include risk analysis, test charter, heuristic checklists and debriefing into their exploratory test sessions and keep these sessions uninterrupted.

Q9

Which skill sets are expected from your testers?
(You can select more than one answer)

Skill	Percentage
Soft skills (Communication Skills Problem Solving Skills – Analytical Thinking)	79,4%
Domain Knowledge / Business Knowledge	71,4%
QA Skills	63,5%
Database Skills	54%
Programming / Scripting Skills	27%
Certification	19%
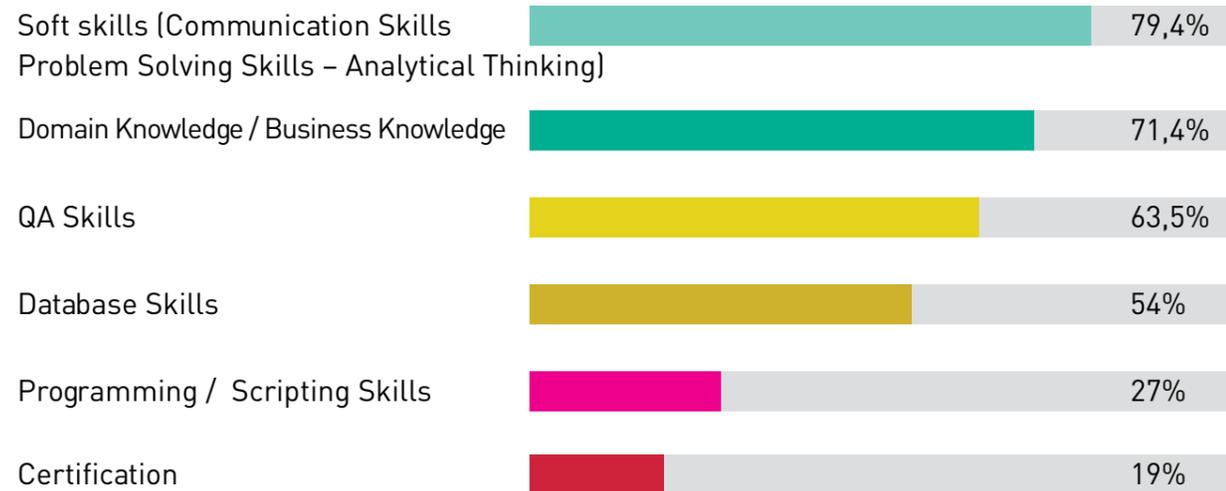
Analysis of the current situation

From the answers, it is clearly seen that employers require solid soft skills from their testers. As testers are negotiators and also facilitators they need to possess good communication and problem solving skills. Furthermore, respondents attached importance to business knowledge, QA skills and database skills. As a result the bottom line will be, "no matter what kind of testing job you search; you need to show deep technical skills as well as the soft ones".

Future predictions

Testing is beyond any doubt a technical discipline, and it requires having both technical and soft skills. Testers are adding great value to projects, as a result in near future employers are expected to be quiet more selective and demanding about filling their test related positions. To be competent in this area, testers should pay more than enough attention to develop them selves and try to get more involved in technical & complex test activities.

Q10

Who is responsible for testing activities in your organization?
(You can select more than one answer)

Analysis Of The Current Situation

Compared to last year's TSQR there is a major decrease, from 27% to 17%,in the percentage of end users who are responsible for testing. The result is not suprising that as the perception of user acceptance testing shifts from finding bugs to confidence building, the percentage of end users involving in testing will continue to follow a downward trend.

Future Predictions

In future, we are expecting an upward trend in test specialists which should be very close to 100% in a mature testing industry. The technical difficulties and the collaboration needed in testing will also cause a percentage increase in all stakeholders taking part in SDLC. This means that more budget and time will be allocated to testing in the overal project budget and time.

- 73% Test engineers Test specialists
- 49,2% Business analysts
- 30,2% Developers
- 17,5% End users
- 12,7% Outsource test team

ABOUT

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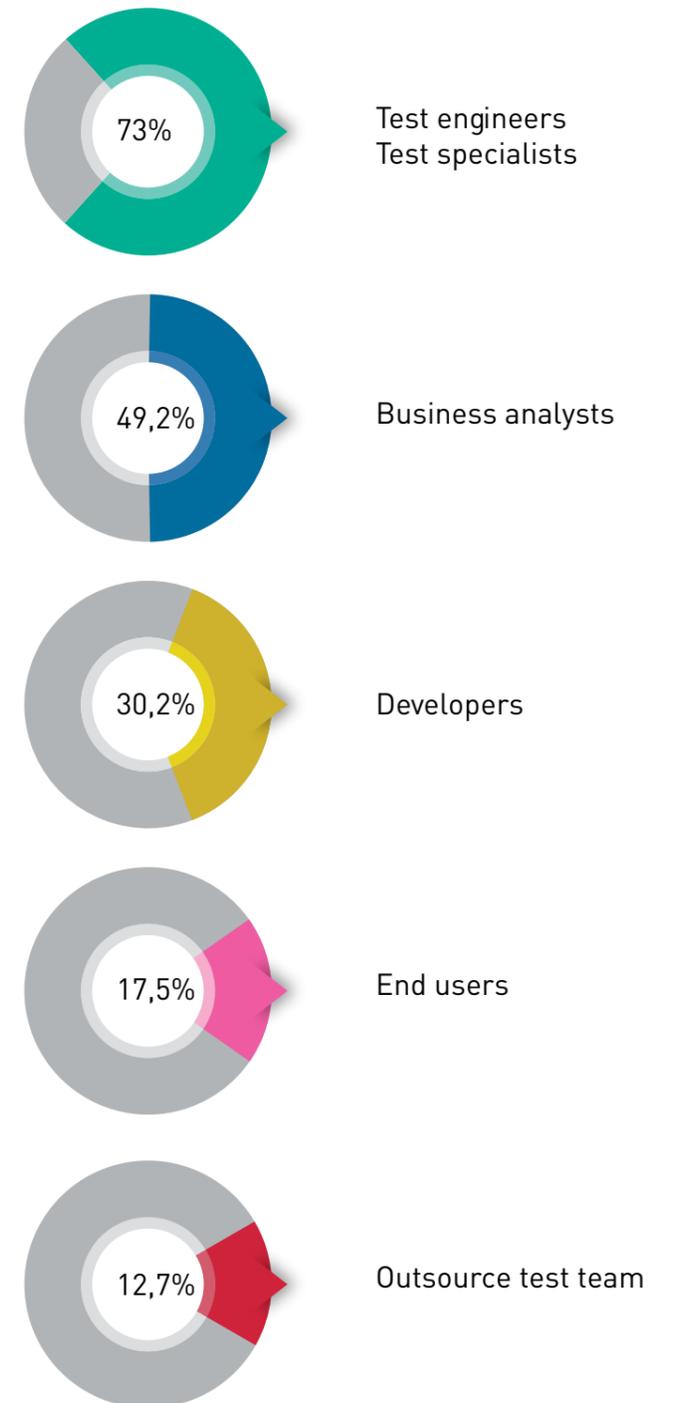
Turkish Testing Board (TTB) is the regional body representing and supporting software testing professionals in Turkey. The TTB was constituted in Istanbul in September 2006 as a non-profit organisation and a member of the International Software Testing Qualifications Board (ISTQB).

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 October 2012, ISTQB has issued over 267.000 certifications in more than 70 countries

www.istqb.org

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