TURKEY
SOFTWARE
QUALITY
REPORT
2014 ~ 2015

CONTENT

FOREWORD

Turkish Testing Board (TTB - turkishtestingboard.org) is pleased to bring you the 2014-2015 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 defacto 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 2014 (testistanbul.org) on May 29th 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 2014 with this year's motto of 'Mobile Testing: Testing on the move ' on May 29th, 30th and discuss the findings of this report face to face.

Turkish Testing Board

EXECUTIVE SUMMARY

Do not miniaturize, mobilize!

In order to succeed in mobile world, companies have to change their mindset and make paradigm shifts. As Newton's rule of gravity 'Force = Mass x Acceleration' is not valid in quantum physics, the rules and the formulas that worked in desktop are not valid anymore, companies have to come up with new formulas and perspectives. The biggest challenge that companies and executives face today while developing mobile applications is their perception of mobile as the miniaturization of desktop. They assume that the only changing parameter in mobile is the smaller screen size, saying that 'in our desktops and laptops we have a screen size ranging between 11" and 17", now we have a screen size of 3.5" and 5," that is it. Hey developer, miniaturize our web site and put it into the smart phone, we are all done!'.

You are right, miniature was a popular art form in the Ottoman Empire, but it will not work in the mobile world. Because it is not just only the screen size that makes the difference, the biggest difference is the change in users' behaviour. As the user behaviour changes, everything changes: feature sets, content, interaction design, information architecture, navigation, visual design ... Everything you can imagine changes. If we are aware of the change and define it well, we have to come up with the next question 'How we will adapt to the change?'. As you read throughout the survey results and their analysis, you will see that companies are listening their users and customers more and more. In the 6th survey question, almost 90% of respondents say that they are conducting usability tests during their mobile development efforts. We expect these efforts to go one step further and expect companies conduct user research projects including ethnographic research.

Turkey Software Quality Report also indicates that besides an increase in usability testing, performance and security testing efforts are gaining ground in the overall mobile testing efforts. No need to mention the functionality testing efforts needed which are the foundations for all types of testing.

In comparison with previous years' reports which were mostly focused on software testing in desktop environment, we are happy to see that the importance of testing is much more appreciated in the mobile world.

QUESTIONS

How many years of experience do you have?

10,1%	Less than 2 years
31,8%	2 - 5 years
26,7%	6 - 10 years
15,8%	11 - 15 years
9,3%	16 - 20 years
3,4%	21 - 25 years
2,9%	More than 25 years

Less than 2 years   2 - 5 years   6 - 10 years

11 - 15 years   16 - 20 years   21 - 25 years   More than 25 years
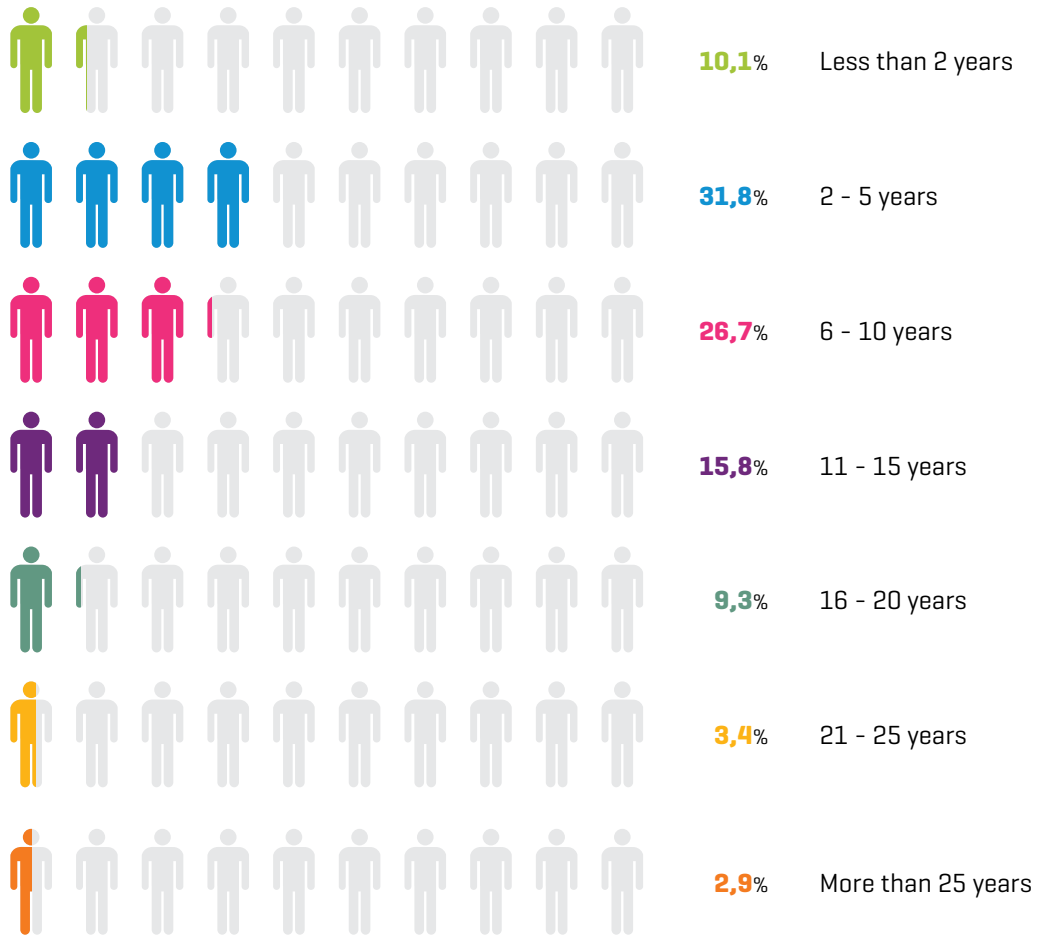
Which industry does your organization belong to?

% 27,8	Banking / Finance
% 21,7	Software / Hardware Vendor
% 15,2	Telecommunications
% 6,9	Other
% 6,1	Consulting
% 5,3	E-commerce / Internet
% 4,2	Military / Defense
% 2,3	Automotive
% 2,1	Insurance
% 2,1	Government / Public
% 2,1	Aerospace / Aviation
% 1,3	Research / Science
% 1,3	Energy
% 1,1	Health / Medical / Pharmaceutical
% 0,6	Education
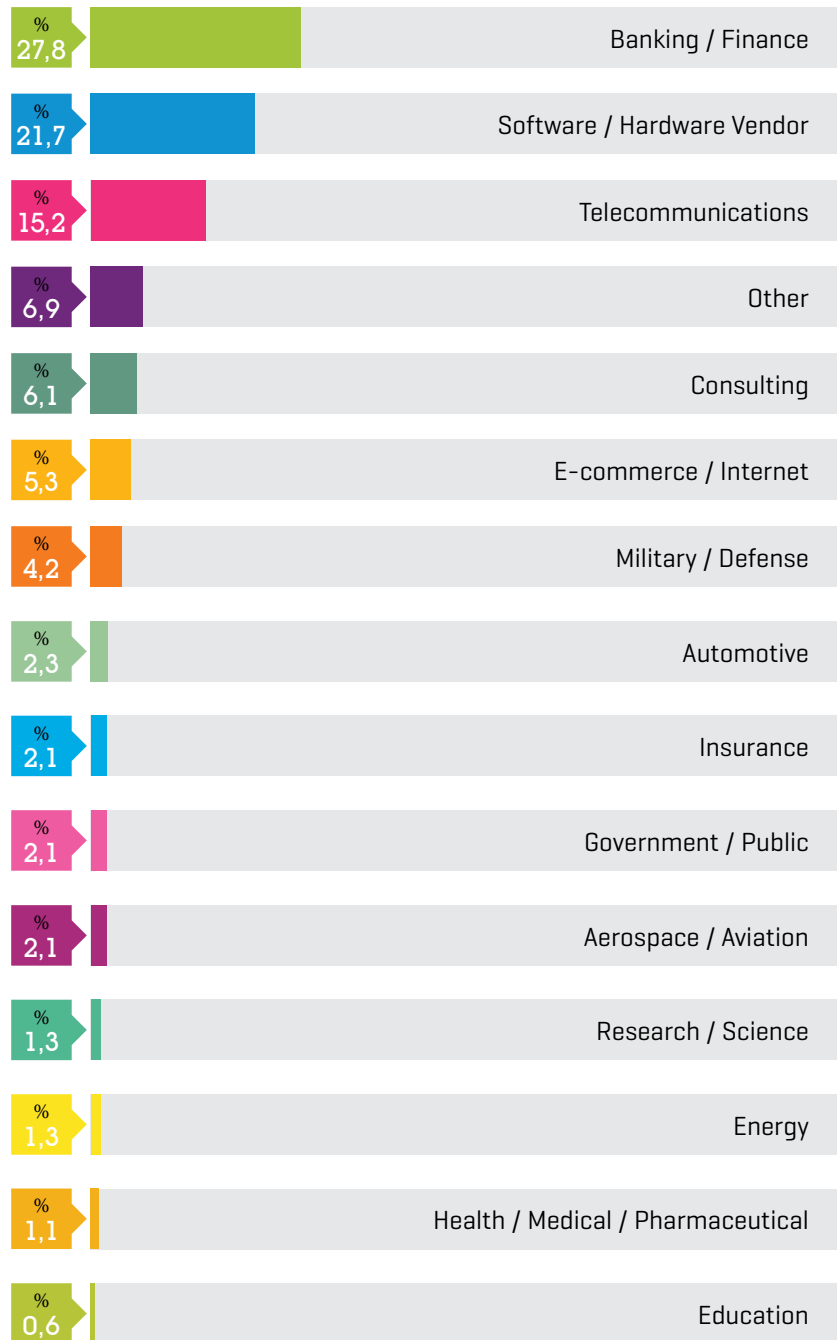
What is your current job title?

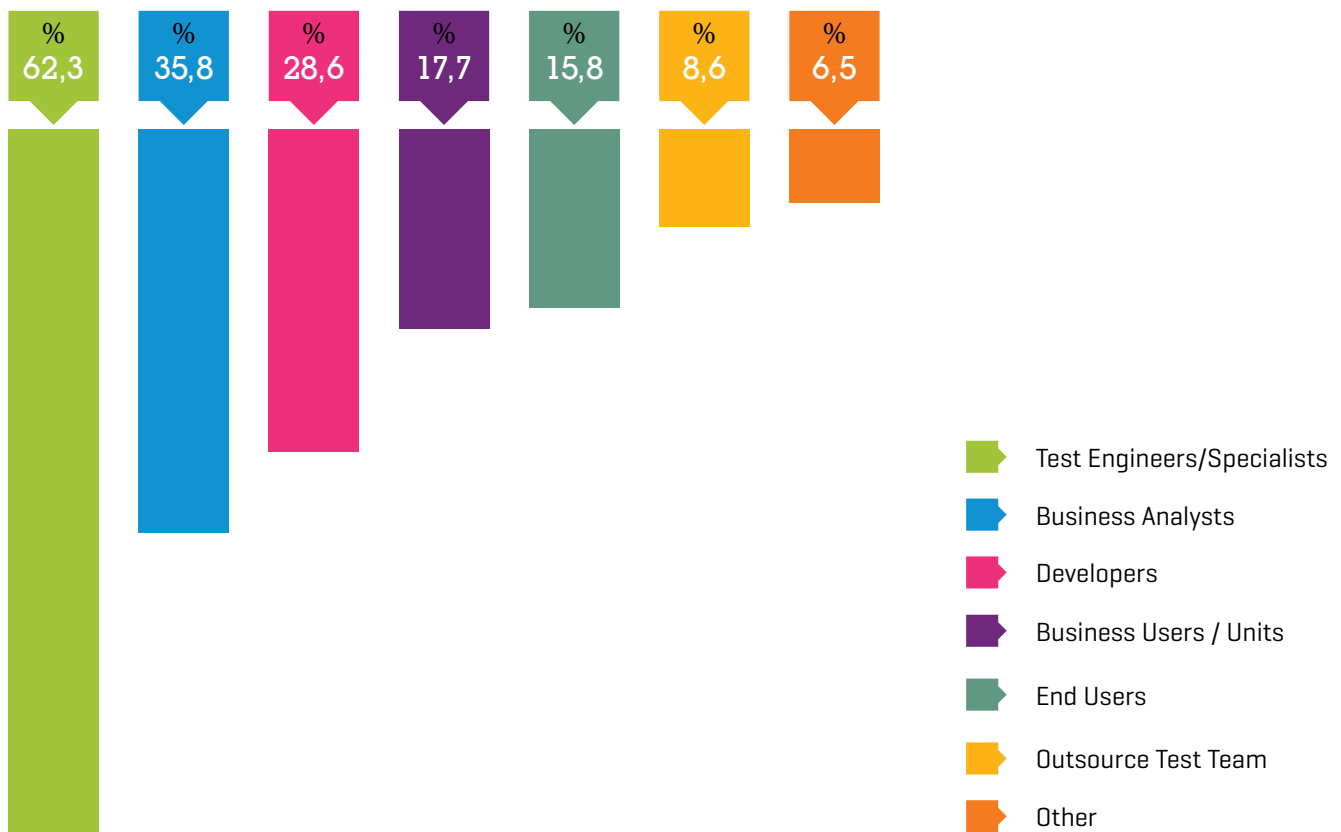|	
% 25,9	Test Engineer/Specialist
% 20,4	Manager
% 17,5	Business Analyst
% 8,2	Developer
% 6,3	Test Manager
% 4,6	Test Analyst
% 4,6	Other
% 4	System Analyst
% 2,1	C-Level
% 1,9	Architect
% 1,7	Business Unit
% 0,8	Technical Test Analyst
% 0,6	Student
% 0,4	Test Architect
% 0,4	Automation Tester
% 0,2	Performance Tester
% 0,2	Academic
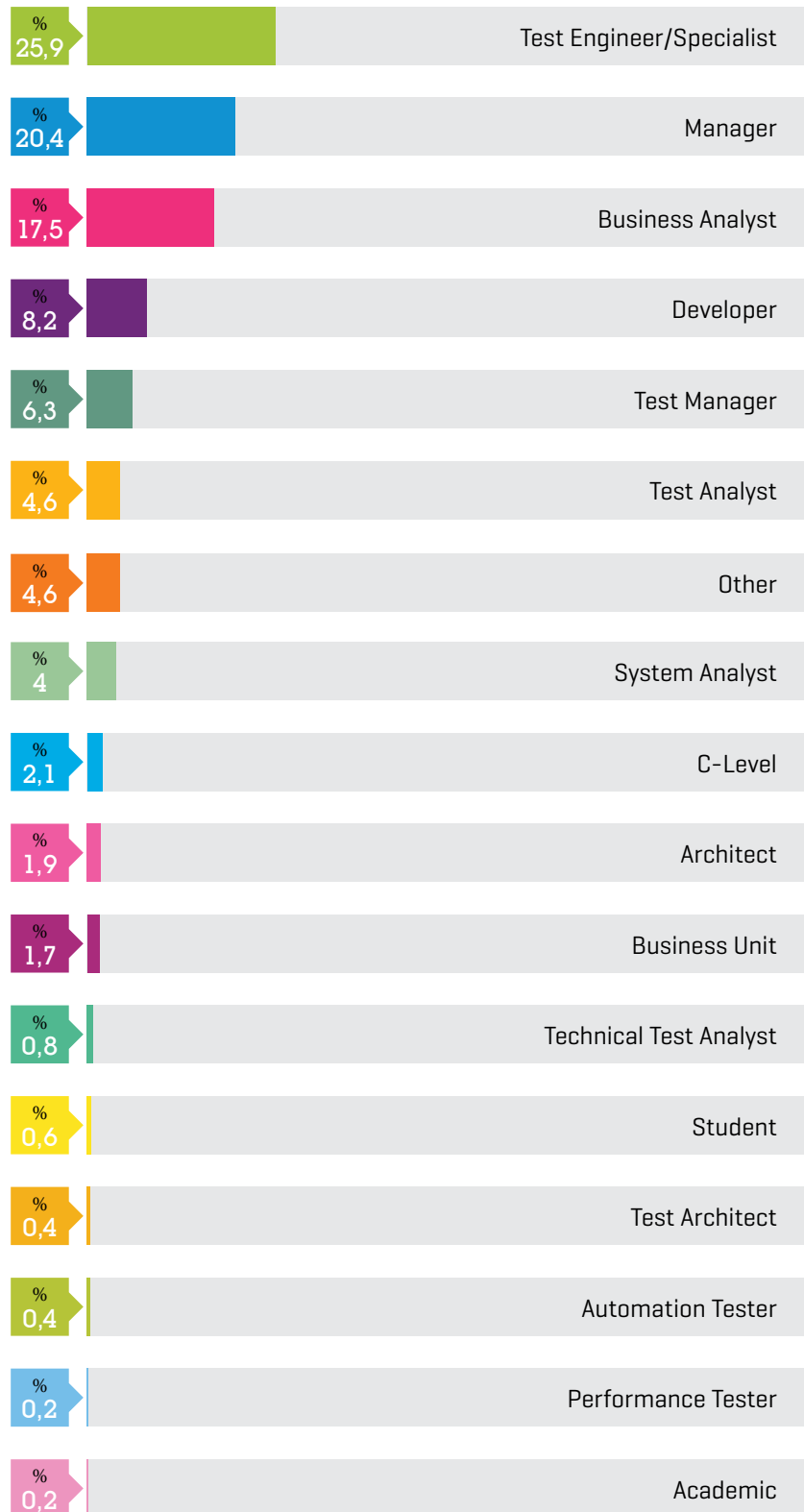
Who is responsible for mobile testing in your organization?

Analysis of the current situation

Survey results indicate that most organizations still have traditional approach of testing by employing huge amount of inhouse test engineers. The increase on end-user testers shows us that the mobile technology actually driven by end-user experience and expectations.

% 62,3	% 35,8	% 28,6	% 17,7	% 15,8	% 8,6	% 6,5

- Test Engineers/Specialists
- Business Analysts
- Developers
- Business Users / Units
- End Users
- Outsource Test Team
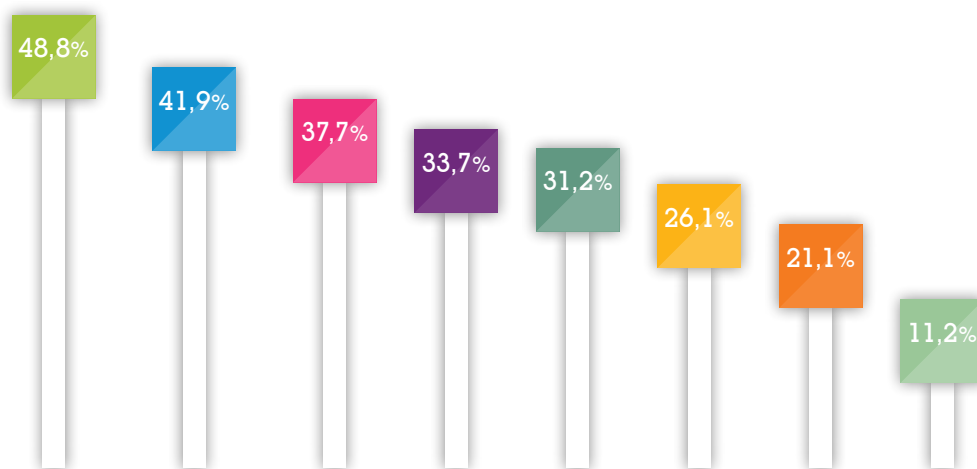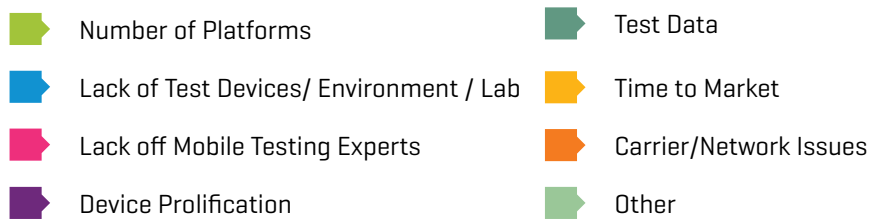- Other

Future predictions

As test engineers and specialists are more dedicated and systematic, they will continue to take the biggest portion of testing. However rapid development on technology create quick changes on end user experience. In order to catch changing trends of user experience and expectations, occupation of end user testers will be increased. Also, the increase on usage of end users and outsourced test teams shows that organizations have tendency to have testing with independent and objective eyes. Since it is difficult to find end-users as testers, the usage of testing companies as tester resources will increase rapidly, where they are more objective and act as real end-users.

What are the challenges of mobile testing?

Analysis of the current situation

There is no question that software industry is going mobile. Ever increasing user demands and complexity are creating a challenging environment for both companies and software testers. When we degrade the subject into mobile testing; we observe that platform diversity and lack of test devices and environment seem to be the biggest challenges.

Following those, we experience that mobile testing clearly requires a different mindset and mobile testers need to possess special testing skills and talent. Traditional approaches and regular way of executing tests will not bring so much success; consequently we observe a gap in the field about mobile testing expertise. Creative, talented and educated testers are needed!

- Number of Platforms
- Lack of Test Devices/ Environment / Lab
- Lack off Mobile Testing Experts
- Device Prolifation
- Test Data
- Time to Market
- Carrier/Network Issues
- Other

48,8%
41,9%
37,7%
33,7%
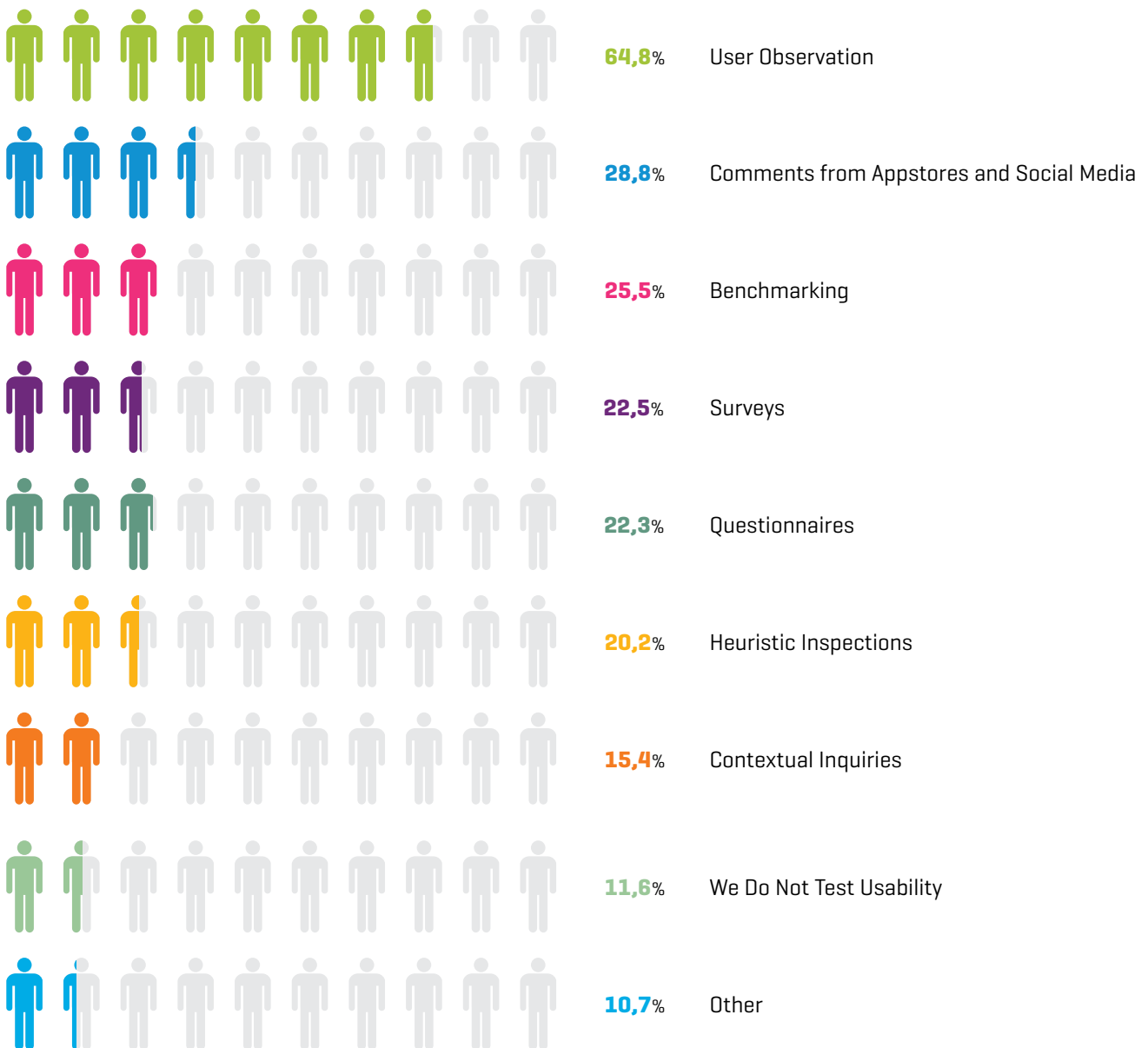31,2%
26,1%
21,1%
11,2%

Future predictions

In the near future we will experience different challenges in this area. More and more companies will start to produce mobile apps and this will definitely bring more challenges. Especially, we expect to see more focus on carrier issues. Other than that we will definitely observe test data issues, that is because companies will be more into harnessing their existing enterprise systems into mobile apps. As a result, mobile testers will be more dealing with "Big Data" phenomenon.

We will definitely see more security focus and this will bring challenges in mobile security testing. And finally, we expect to see that time-to-market will hold its position on the challenges table since it will still be the main business driver. As a response, development cycles will become shorter over time and the need for regression testing will turn from "nice to have" to "mandatory" in near future.

Analysis of the current situation

If we reverse engineer the answers, it is obvious that almost 90% of respondents conduct usability testing of their mobile apps and mobile sites in various ways, even using more than one technique. This shows us that in mobile, usability is much more important than in web. The second net outcome of the answers is that, with almost 65, user observation is the leading, most effective technique used in usability testing of mobile applications.

64,8%   User Observation

28,8%   Comments from Appstores and Social Media

25,5%   Benchmarking

22,5%   Surveys

22,3%   Questionnaires

20,2%   Heuristic Inspections

15,4%   Contextual Inquiries

11,6%   We Do Not Test Usability
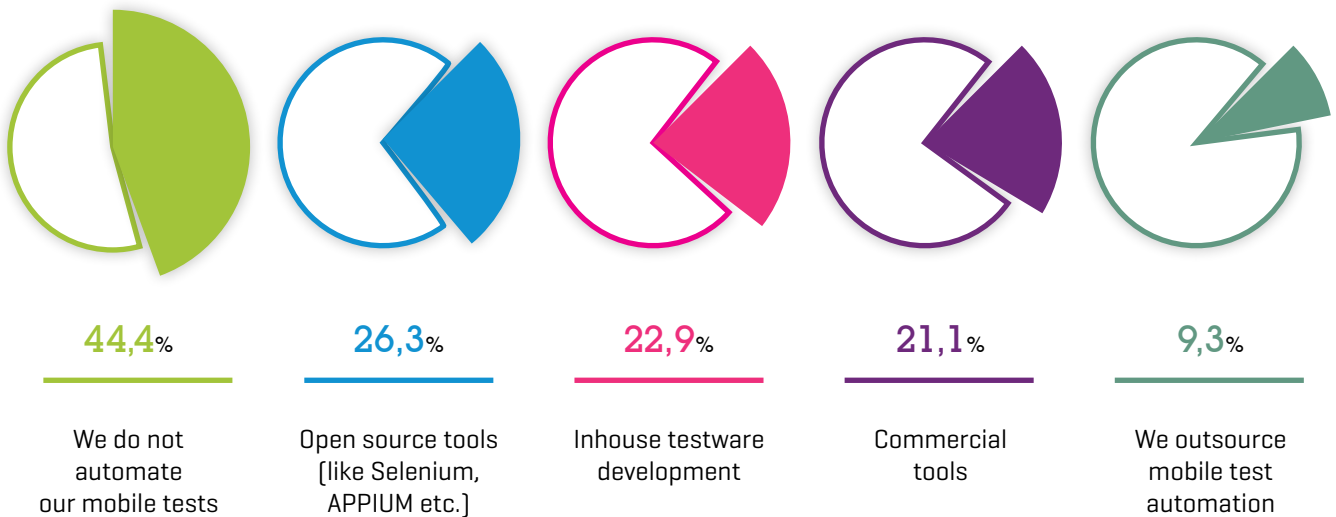
10,7%   Other

Future predictions

Listening your users and customers is your recipe for success in the mobile world. But usability testing is not the only one ingredient in this recipe, it also includes user research. We expect various user research techniques to be included in mobile development projects and one of them will be ethnographic research.

How do you automate your mobile tests?

Analysis of the current situation

Currently test automation for mobile devices is at awareness stage. In majority of companies mobile applications are tested manually with an experienced based approach. Although test team leaders are aware of mobile test automation tools, they don't have a clear idea about how to benefit from them.

44,4%	26,3%	22,9%	21,1%	9,3%
We do not automate our mobile tests	Open source tools (like Selenium, APPIUM etc.)	Inhouse testware development	Commercial tools	We outsource mobile test automation

Future predictions

The challenges regarding to test automation of web and desktop based applications are also valid for mobile test automation. The most common types of these challenges are :

- Compatibility of test automation tool at different test environments
- Creation of test scripts
- Maintainability of test scripts at dynamic development environments.

Mobile test automation has additional challenges such as:
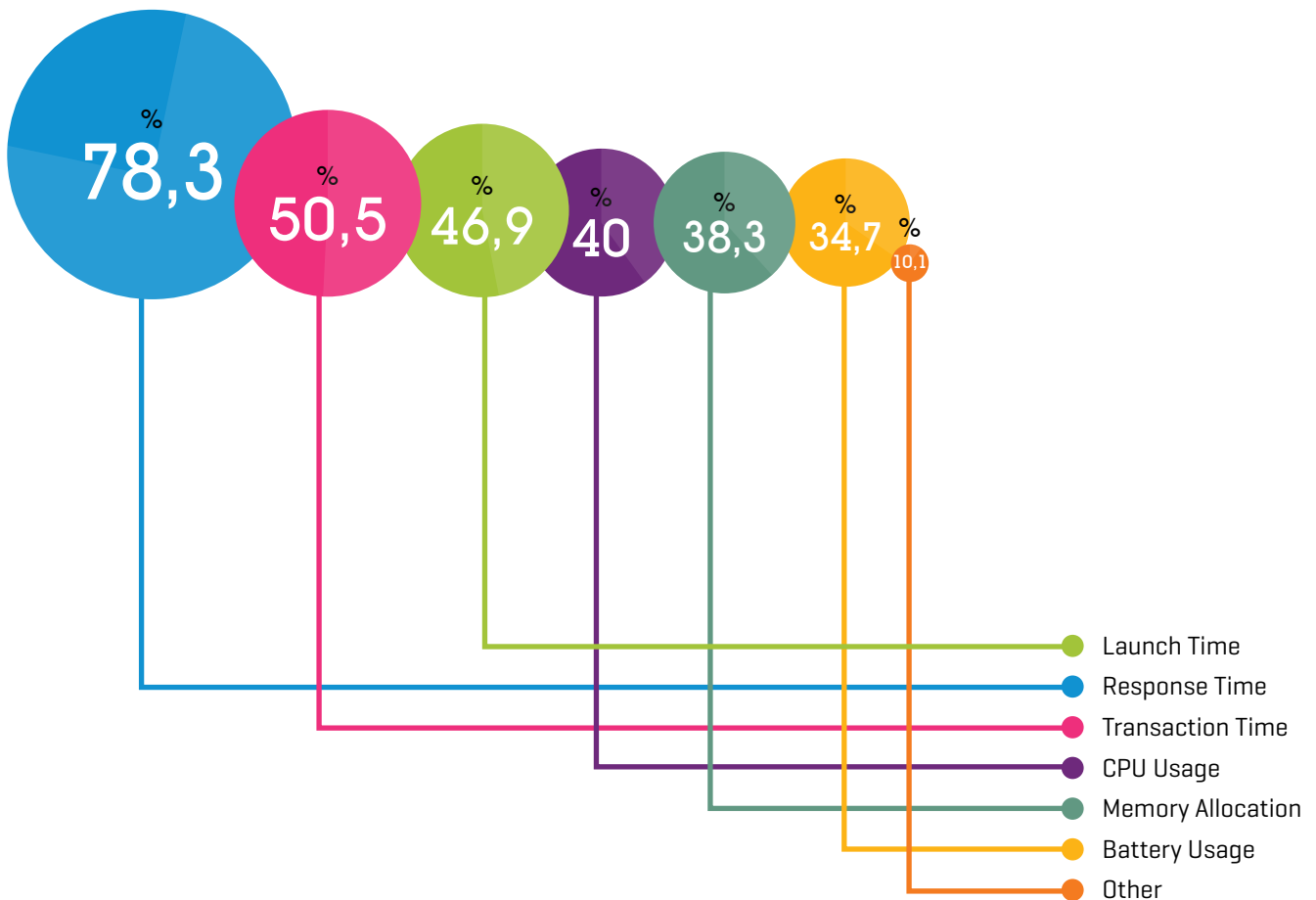
- Device diversity
- Form factor

Test automation tools and approaches that can handle these challenges will be one step ahead of the others.

What are your mobile performance criteria?

Analysis of the current situation

Survey results indicate that response time is top priority as mobile performance criteria for most companies. 78.3% of the respondents assert response time and nearly half of the respondents consider transaction time as mobile performance criteria. It is a fact that from a user's perspective, mobile application performance is response time. Companies, aware of this fact, are trying to meet and improve users' performance expectations.

%
78,3

%
50,5

%
46,9

%
40

%
38,3

%
34,7

%
10,1

- Launch Time
- Response Time
- Transaction Time
- CPU Usage
- Memory Allocation
- Battery Usage
- Other

Future predictions

As the global growth in the use of mobile apps is huge, mobile users' expectations for performance are increasing and applications they are accessing are becoming ever more critical to the business. That's why, companies realize that it is now mandatory for them to ensure the performance of applications in the mobile environments to survive in a competitive market by improving response, transaction and launch time of apps as well as enhancing apps' integration with the mobile devices.

On which mobile platform do you test more?

Analysis of the current situation

iOS and Android operating systems are by far leading the market. There is tense competition between them where Windows phone is following. Now the question appears to be 'who will be the winner'. We can challenge this question by asking will there be an absolute winner? The answer is definitely 'no', but we are sure that there will be more than one loser.

IOS	Android	Windows Phone
71,6%	79,4%	19,4%

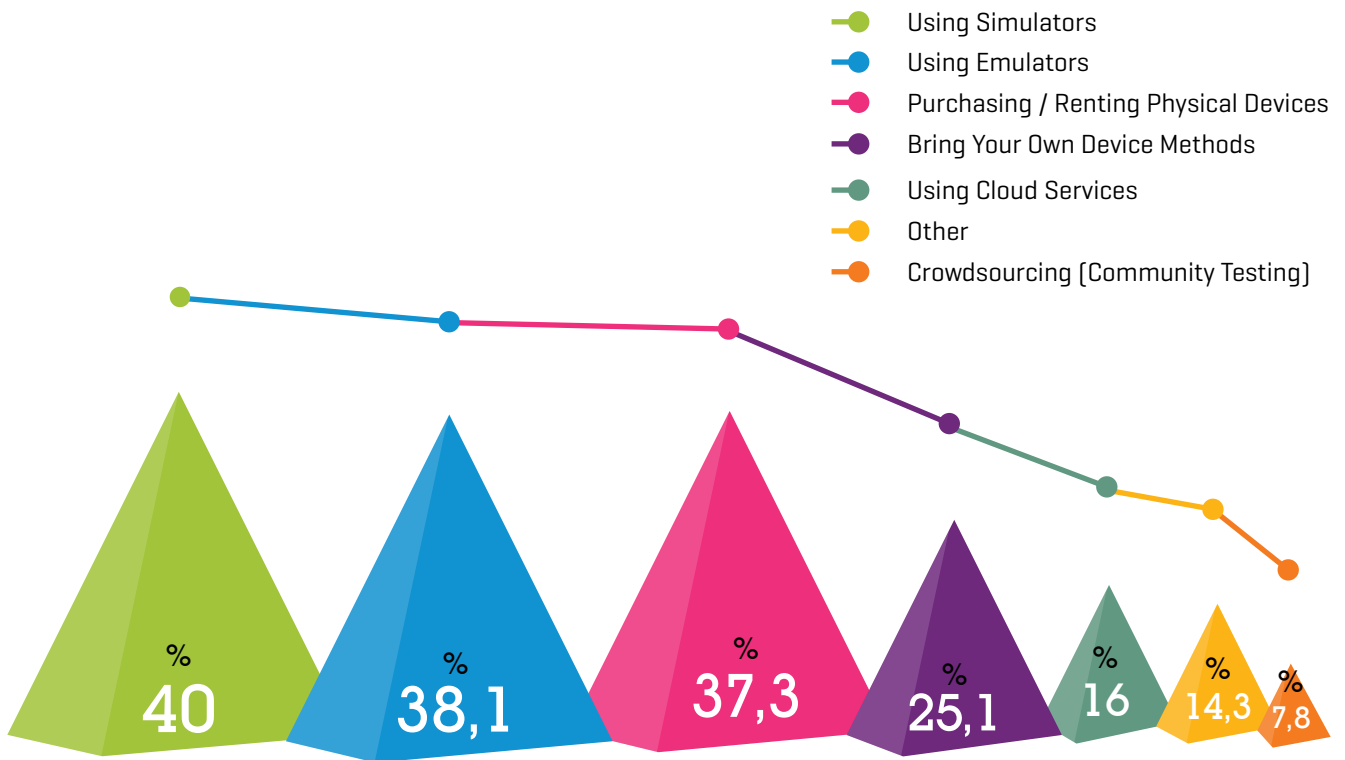| Blackberry	Other
9,7%	9,9%
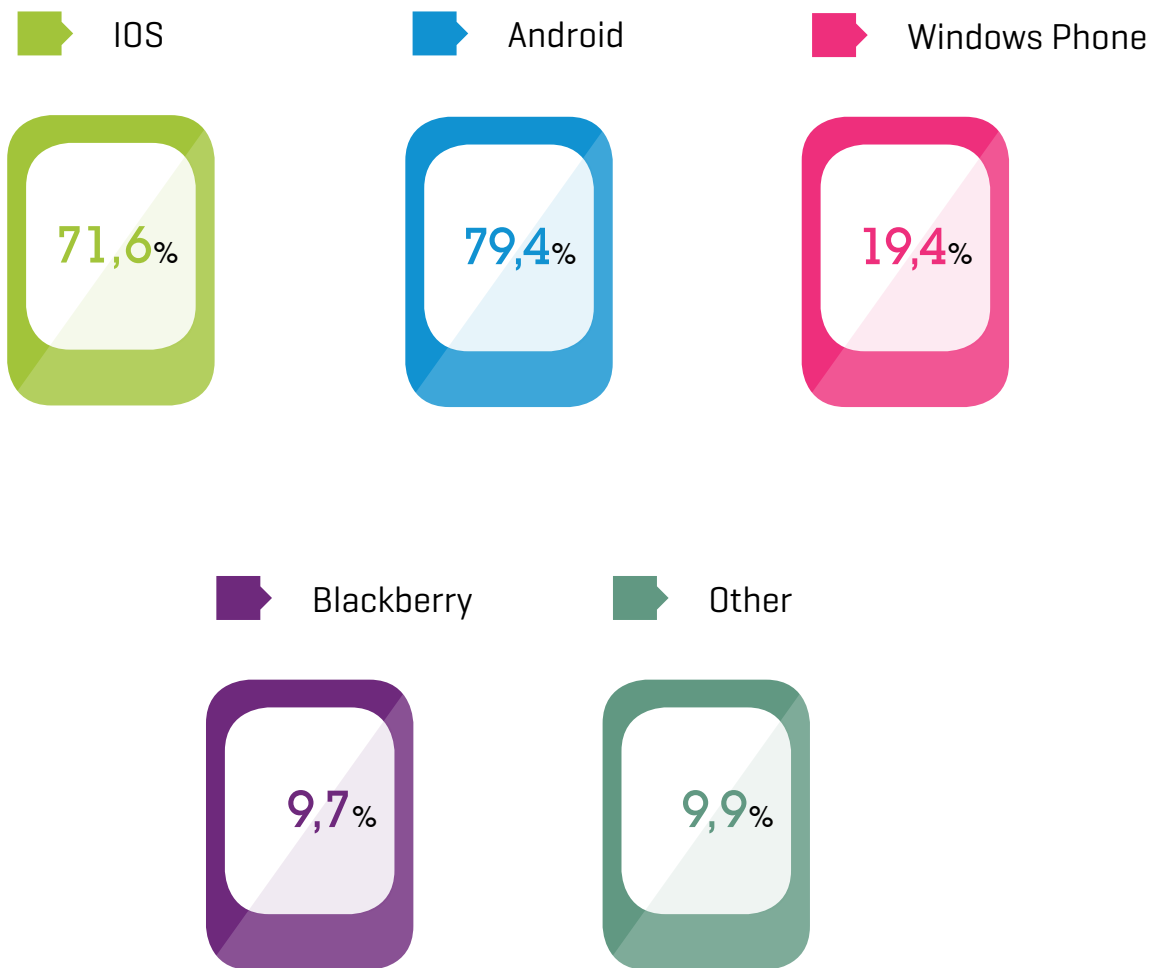
Future predictions

As we see in the analysis of the current situation, in the mobile world asking the right question is much more important than in the old economy. Asking the wrong questions and coming up with right answers to these questions is the biggest dilemma in C-levels' agenda. What we can say about the future of mobile operating systems is that we will experience more and more convergence among mobile operating systems and we predict that only two or three of them will survive in the coming five years.

How do you handle device diversification challenge?

Analysis of the current situation

Emulator and simulator usage and renting devices for testing show us that mobile testing is still done inside company premises, in controlled environments. Testers and testing community still lacks close interaction with its users and mobile world's real environment.

Legend:
- Using Simulators
- Using Emulators
- Purchasing / Renting Physical Devices
- Bring Your Own Device Methods
- Using Cloud Services
- Other
- Crowdsourcing (Community Testing)

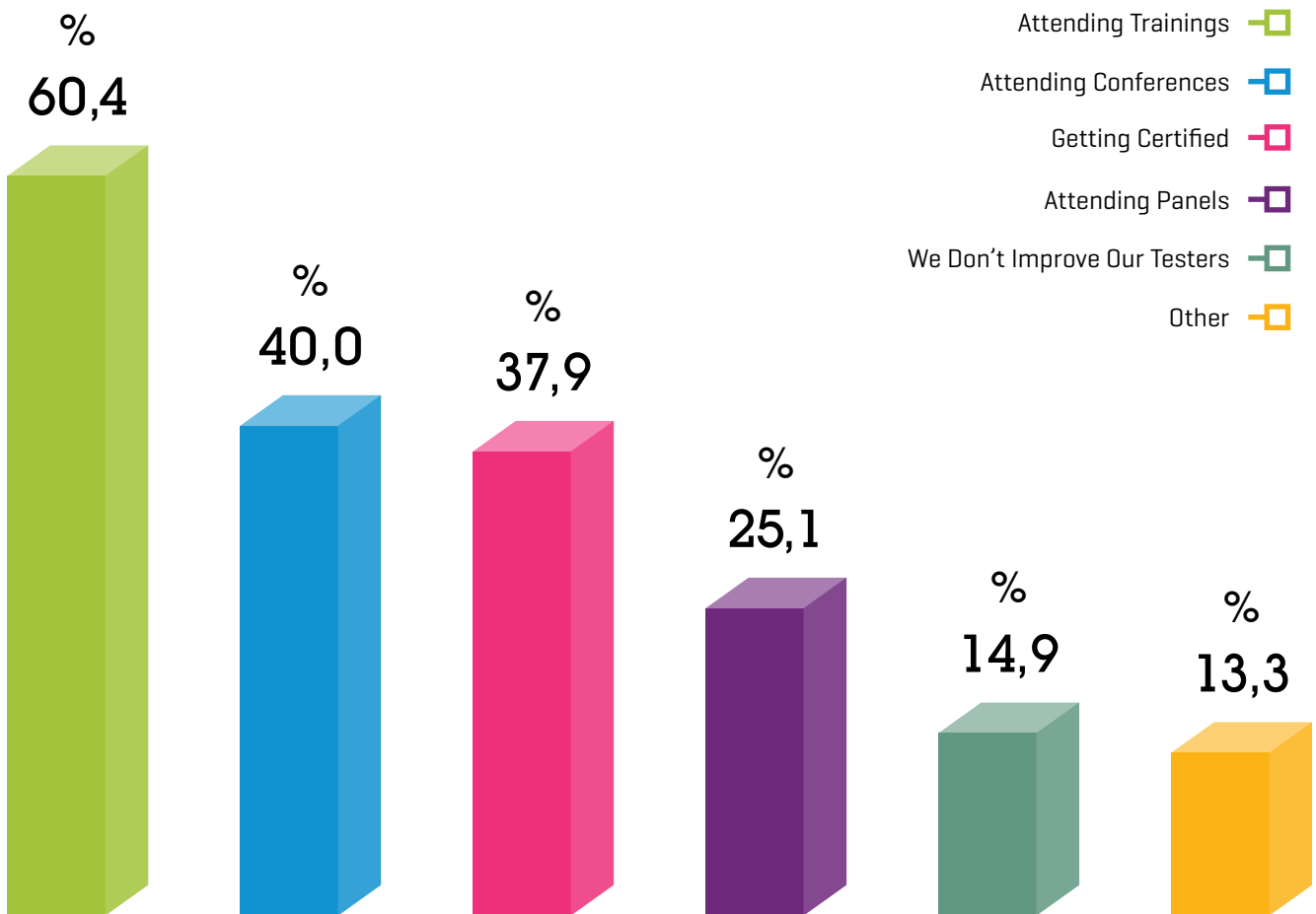Values: % 40, % 38,1, % 37,3, % 25,1, % 16, % 14,3, % 7,8

Future predictions

Although crowd sourcing is the least selected answer, as there happens more diversification in device types and brands, and there is more need to be closer to users, crowd sourcing will appear to be the most effective solution in near future.

How do you improve the compentency level of your testers?

Analysis of the current situation

Attending trainings is the most preferred way to improve competency level of the testers. This is followed by certification which testers are encouraged and supported for most widely known certifications like ISTQB by their companies. Attending conferences has one of the highest ranking among the answers.

%
60,4

%
40,0

%
37,9

%
25,1

%
14,9

%
13,3

Attending Trainings

Attending Conferences

Getting Certified

Attending Panels

We Don't Improve Our Testers

Other

Future predictions

In the future, trainings will still remain as a hot topic for testers to differentiate themselves from other professionals. Attending conferences and panels will be the supportive activities to trainings to learn the latest developments in the industry.

How do you develop your mobile applications?

Analysis of the current situation

According to survey results, more than 50% of respondents develop mobile web in their companies. Native application development is very close to mobile web application development with 46.3%. Although the number of existing mobile platforms lays as the biggest challenge in front of native application development, companies do not want to lose the race in mobile world and develop native apps in parallel with their mobile web as well.

- %52,2 Mobile Web
- %46,3 Native App
- %28,0 Hybrid App
- %14,1 We don't have any Mobile Apps
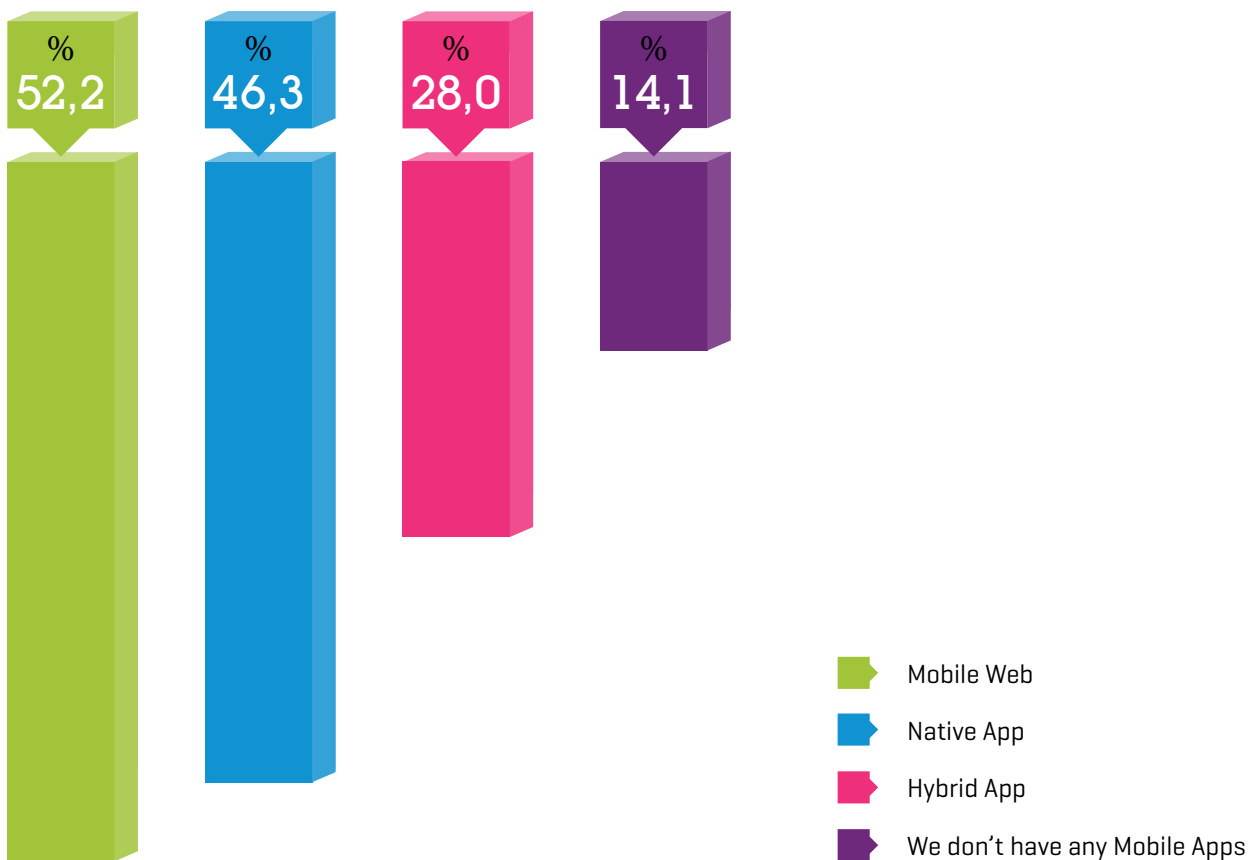
Future predictions

Mobile devices have changed our application development strategies. According to comScore, 2014 is also the year in which there will be more mobile internet users than desktop users globally. Mobile is not just another medium by which your customers interact with your brand. It is fast becoming the primary channel through which they are doing so. With increasing number of mobile applications, mobile testing strategy will be hot topic in companies. User behaviors and market evolution will be challenging. Anyways native applications and mobile webs will dominate the market in the coming next years.

What are your mobile testing priorities?

Analysis of the current situation

The survey results show that the software testing industry considers functionality, usability, efficieny/performance and security as among the highest mobile testing priorities. There are many mobile applications in the market, what differentiates one from the other is mainly the "user experience", the survey results have also proved this by giving almost the same priority to usability and functionality. Even if mobile device variety and mobile platform diversity are among key challenges in mobile applications, compatibility and installability testing are at an awareness stage.

- ▶ Functionality
- ▶ Usability
- ▶ Efficiency / Performance
- ▶ Security
- ▶ Compatibility
- ▶ Installability
- ▶ Other
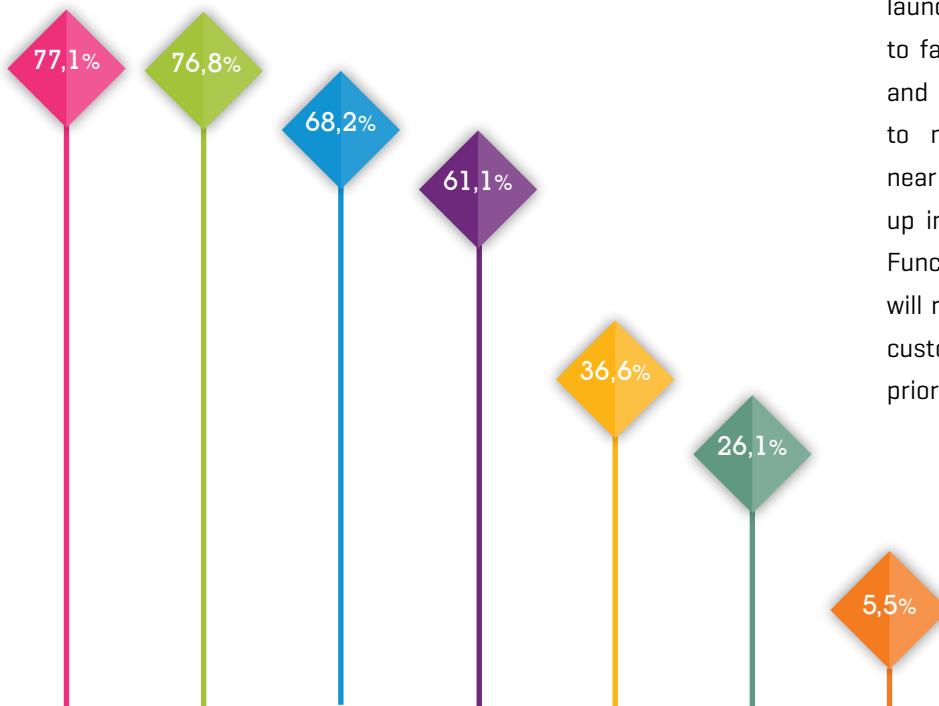
Future predictions

Mobile applications have been changing the world we live in and the way we do business. The industries that will not keep pace with this change will definitely lose the game. Mobile devices' capabilities are advancing day by day; hardware capacities are being improved, energy saving devices are available on the market, the screen sizes are getting wider, performance and memory limits are tending to be upgraded by vendor companies, wearable devices are being launched. These advancements will lead to faster shift of more mission critical and financial operations/processes to mobile environments, so in the near future the security may climb up in the mobile testing priorities list. Functionality, usability and performance will remain as key factors in the overall customer satisfaction, so are their priorities in mobile testing.

77,1%
76,8%
68,2%
61,1%
36,6%
26,1%
5,5%

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

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 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 September 2013, ISTQB has issued over 320.000 certifications in more than 70 countries

www.istqb.org

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