PLANIT TESTING INDEX 2014

the BENCHMARK *in* SOFTWARE TESTING

AND SYSTEMS ASSURANCE

VITAL KNOWLEDGE TO HELP YOU BETTER PLAN, BUDGET AND EXECUTE

IT PROJECT STRATEGIES

Planit SOFTWARE TESTING

www.planittesting.co.nz www.planit.net.au www.planittesting.co.uk

ABOUT THE PLANIT TESTING INDEX 2014

The Planit Testing Index is the leading tool for benchmarking your software development projects. It is designed to assist organisations in making well-informed strategic decisions regarding planning, budgeting and execution of quality assurance activities in IT.

Now in its eighth year, the Index continues to provide industry-leading analysis based upon an unparalleled cross-section of software projects from across Australia and New Zealand.

This report is primarily analysing the results of the 2014 Index, representing over 14,000 projects from across 291 respondents, while also drawing on a further seven years of historic data.

The 2014 Index received responses across a wide range of industries. Those best represented were software development and IT (29 percent), financial services (23 percent) and government (18 percent). These were followed by telecommunications, health, resources and utilities.

291 Respondents split by industry segment

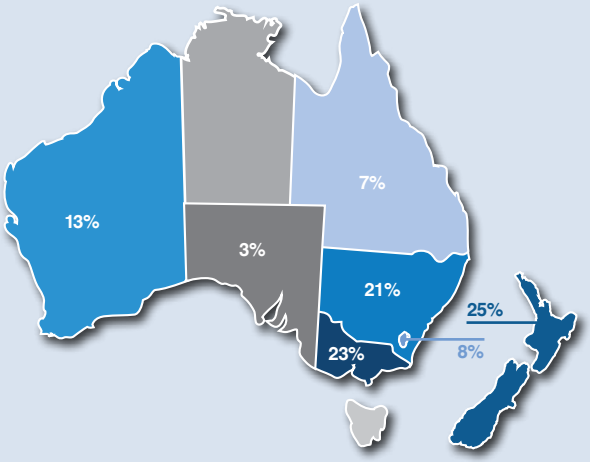
the Benchmark *in* Software Testing

In addition to representing a full cross-section of industries, the 2014 Planit Index also provides a comprehensive representation of projects across organisational sizes and regions.

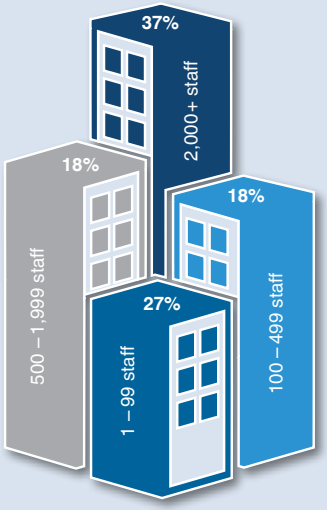
Noteworthy changes in geographic breakdown include Queensland's representation almost doubling and the continued rise of responses from New Zealand, specifically with 15 percent coming from Auckland and surrounds and 9 percent coming from Wellington and surrounds.

The 2014 Index saw a significant increase in the number of small organisations participating in the survey, with 27 percent of responses coming from companies with fewer than 100 staff (up 9 percentage points from 18 percent).

The remainder of respondents were evenly broken down between medium-sized companies of up to 2,000 staff and larger companies with over 2,000 staff, registering 36 and 37 percent respectively.



Respondents by region



Respondents by organisation size

PROJECT TYPES

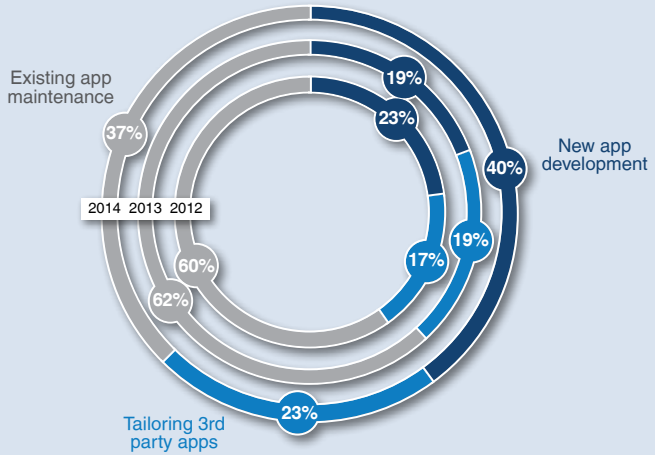
2014/15 looks to be an exciting time in local software projects, with a record level of new applications being developed, at 40 percent of active projects (5,694 projects). Moreover, this was the first year in which new applications dominated active projects, springing back from the lowest recorded figure for this category in 2013 (1,932 projects, at 19 percent).

The gains made in new application development projects was primarily at the expense of maintenance of existing apps, which plummeted by 25 percentage points to 37 percent of project activity.

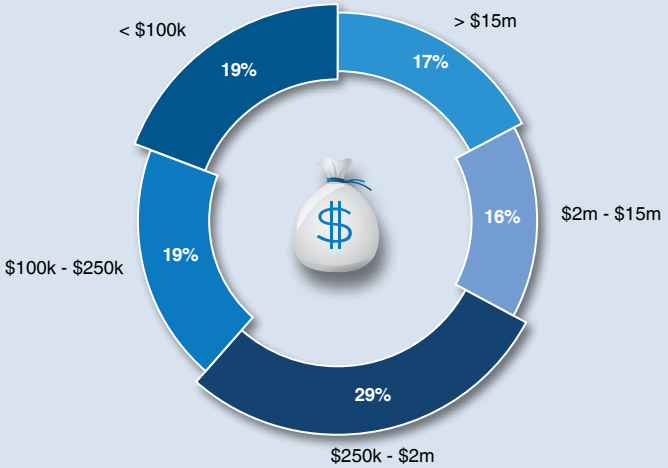
PROJECT BUDGETS

Given the significant shakeup in types of projects recently commenced, it is logical that breakdown of projects by budget also shift towards the more expensive end of the scale.

At the top end of the scale, we saw an 11 point increase in projects with budgets over $15 million (to 15 percent), taking projects exceeding $2 million in budget to a third of all projects. At the same time, projects with budgets up to $250k has declined by 13 percent to 38 percent.



Project breakdown by type



Projects breakdown by budget

ORGANISATIONAL VIEW OF TESTING

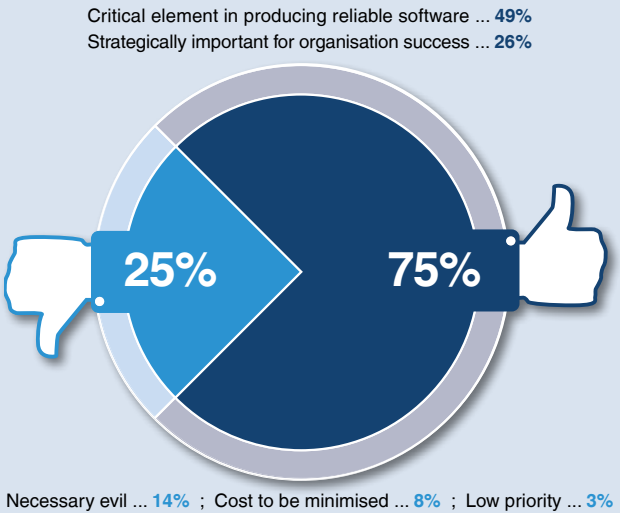
For the third consecutive year, positive opinion of software testing has grown to 75 percent, posting the second most positive sentiment in the history of the Index, only surpassed in 2009 (at 79 percent).

Still, a quarter of the respondent organisations possess a relatively negative view of testing. This includes a 4 percentage point decrease in the number of organisations considering testing as a cost to be minimised (down from 12 percent).

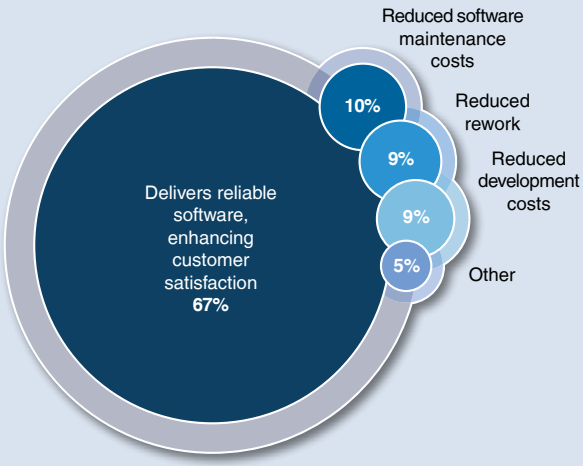
BUSINESS CASES FOR TESTING

The ability to deliver reliable software that enhances customer satisfaction remains the primary justification for software testing, being the primary business case among two thirds of respondents, a figure that has held steady for the past 3 years.

Remaining justifications are evenly balanced between reducing software maintenance costs, development costs and rework, with 19 percent of organisations pushing cost savings as their primary business case.



Organisational view of testing



Primary business case justifications for testing

BUDGET ALLOCATION

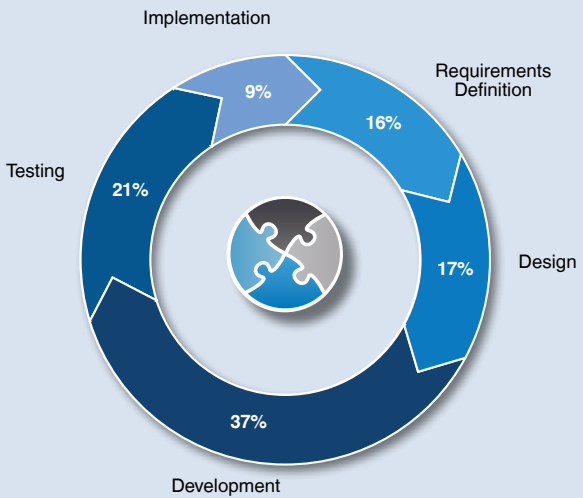
The past year saw some minor movements in project budget allocation, with a small win for testing increasing to 21 percent of overall project budget. Development also saw a small boost, up 3 points to 37 percent.

On the flipside, requirements definition saw a 3 point decrease in share of project budgets to 16 percent, a concerning figure given the long documented role of poor requirements in causing project failure.

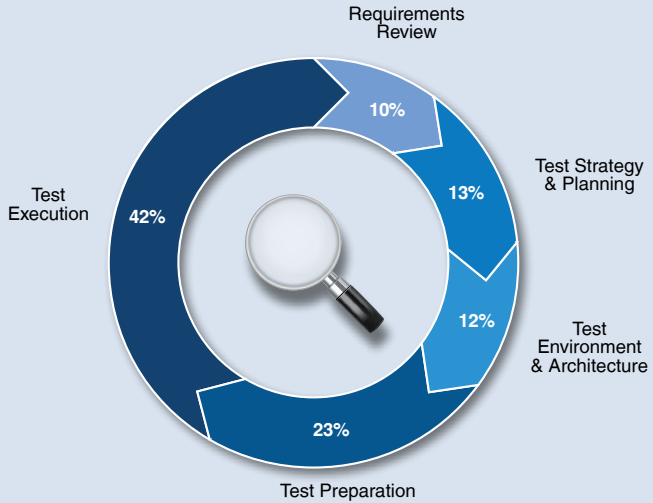
TESTING ACTIVITY

The Index continues to document incredibly consistent market conditions in the breakdown of testing activity, with the most dominant category, test execution, edging forward by 3 points to 42 percent.

Counter-balancing this gain was a 2 percentage point dip in allocation to test strategy and planning (to 13 percent) as well as a further 1 point decrease registered in requirements reviews (to 10 percent).



Budget allocation across project phases



Breakdown of Testing Activity

BENEFITS OF TESTING

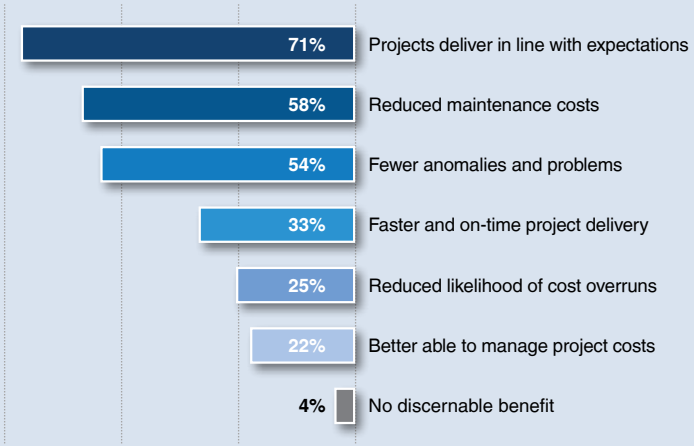
2014 respondents reported significant benefits from software testing, with 75 percent sighting multiple observable benefits and just 4 percent seeing no discernible benefit from an increased investment in testing.

The three most commonly observed benefits, indicated by over half of respondents, are project delivery in line with expectations, reduced maintenance costs and fewer anomalies.

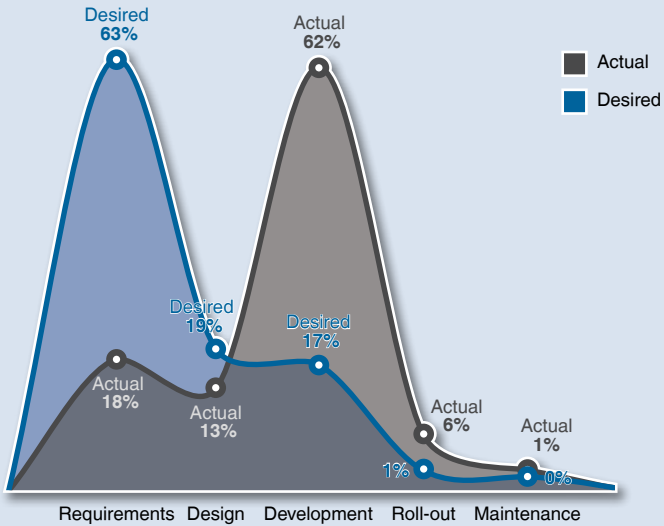
WHEN TESTING STARTS

As in years gone by, there remains a clear discrepancy between when organisations are commencing testing and when they would like this to occur, with the majority starting testing in the development phase (62 percent) rather than their desired requirements phase (63 percent).

Nonetheless, the 2014 Index showed some marginal but promising signs of testing commencing earlier in this cycle, with a 4 point gain in testing commencing in the requirements or design phases.



Benefits observed when increasing investment in testing



When testing started - Actual vs. Desired

PROJECT CONDITIONS

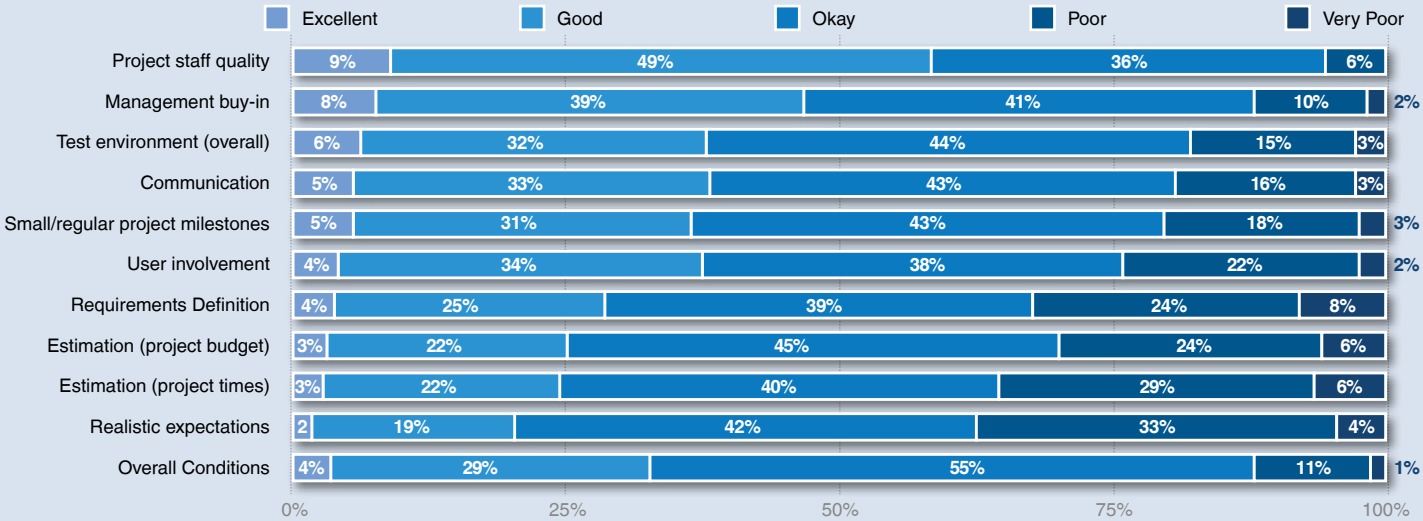
In 2014, the project conditions were considered to be average overall, with over half indicating their overall conditions to be just 'okay', and a third reporting 'good' or 'excellent' conditions.

As in past years, the top two project conditions were project staff quality and management buy-in, registering 94 percent and 88 percent satisfaction levels respectively. In fact, project staff quality remains the sole condition that is considered to be 'good' or 'excellent' by more than 50 percent of respondents.

At the other end of the scale, the most troubling project conditions were:

- Realistic expectations - 37 percent poor/very poor;
- Project timeline estimation - 35 percent poor/very poor;
- Requirements definition - 30 percent poor/very poor;
- Project budget estimation - 33 percent poor/very poor.

Interestingly, the positive conditions registered a less positive response than previous years while the negative responses were also less negative.



How would you generally rate the conditions for your software development projects in terms of the following criteria?

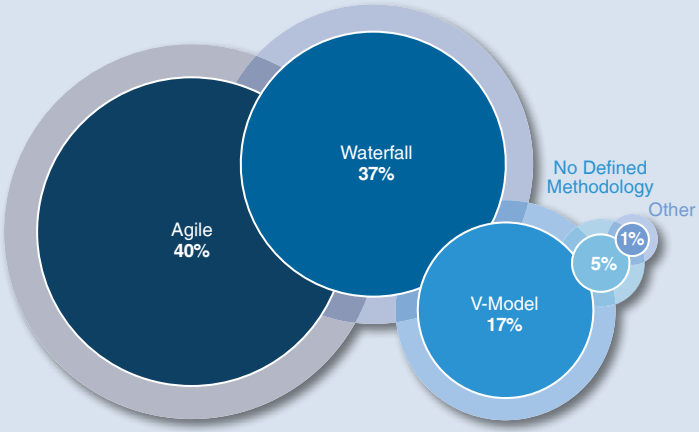
PROJECT METHODOLOGIES

The upward trajectory of Agile continued in 2014, achieving a 7 percentage point increase in total project utilisation, surpassing Waterfall for the first time to take top spot among methodologies. With that said, it should be noted that 45 percent of these projects applied Agile in a hybrid capacity.

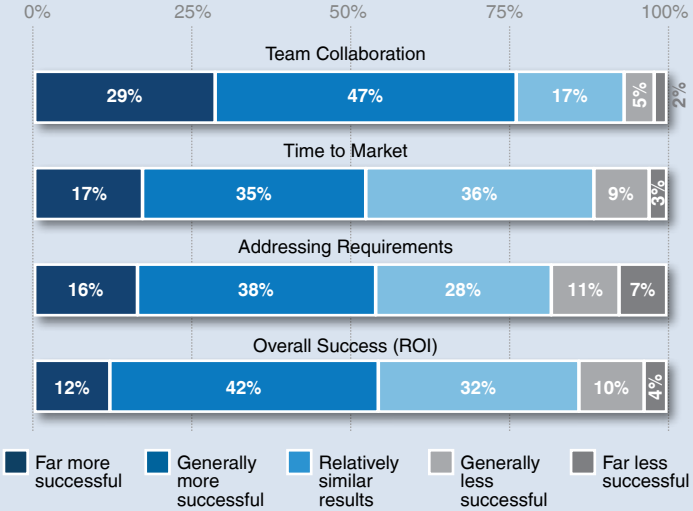
Upon closer inspection of who is practicing Agile, it was interesting to see that 89 percent of organisations are now applying Agile methods in some portion of their software projects. By comparison, Waterfall was applied in 64 percent of organisations while V-Model plummeted to 29 percent.

Market sentiment for Agile continues to be positive, with 86 percent of respondents considering Agile to be as successful as, if not more successful than, other methodologies overall. When breaking this down into key areas, Agile continued to receive excellent feedback:

- Improved team collaboration - 76 percent;
- At least as quickly to market - 88 percent;
- Addressing requirements as well if not better - 82 percent.



Software development projects by methodology



Success of Agile vs. other methodologies

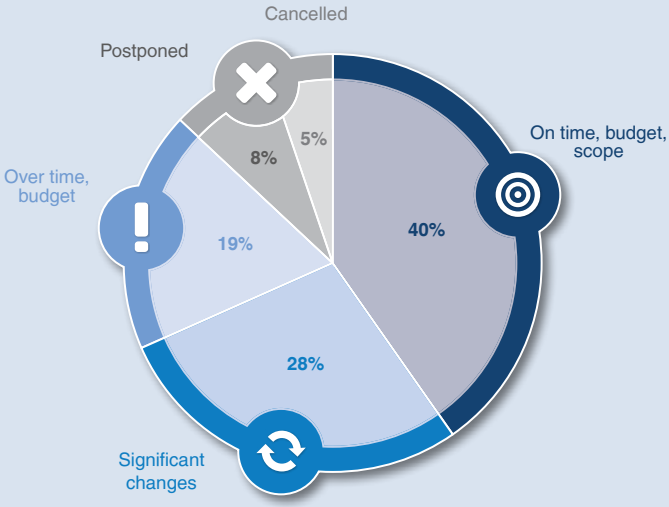
PROJECT OUTCOMES

The past year saw a slip in project outcomes, with less projects completing on-time, budget and in-line with scope, falling by 12 percentage points. These points were distributed among projects that completed with significant changes to scope (up 7 points) and the far more concerning categories of project postponement and cancellation (up 2 and 3 points respectively).

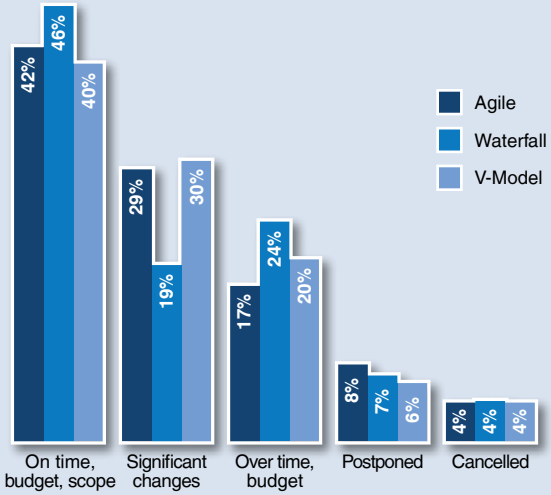
When examining outcomes against primary project methodology, both Agile and V-Model reflected the aforementioned trend, while Waterfall registered fewer differences in project outcomes year-on-year.

Projects following V-Model saw the most significant dip in performance, with a 15 point dip in those completed on time, budget and scope, with 11 of those points being redistributed to 'significant changes' and the further 4 points falling into cancellations and postponements.

Agile again registered a high level of projects completed with a significant change in scope, actually increasing by 7 points. Given that this category can arguably be excluded from consideration as a negative outcome in the context of Agile, one could make the case for Agile being the most successful project methodology.



Project outcomes, last 24 months



Project outcomes, by primary methodology

PROJECT FAILURE

The 2014 Index reported that 36 percent of respondents encountered project failure over the past two years, amassing 741 cancelled projects.

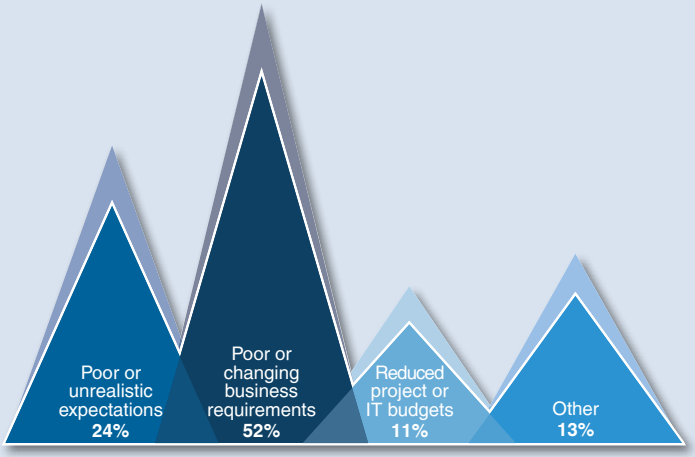
As has been the case for almost a decade, changing business requirements was the most pronounced cause of failure, being the primary culprit in 52 percent of cases. While dominant, this is a significant improvement on last year's result, dropping 18 percentage points.

Perennially the worst rated project condition, (un)realistic organisational expectations is beginning to take a toll in project failure, rising from obscurity to lay claim to around a quarter of project cancellations in 2014.

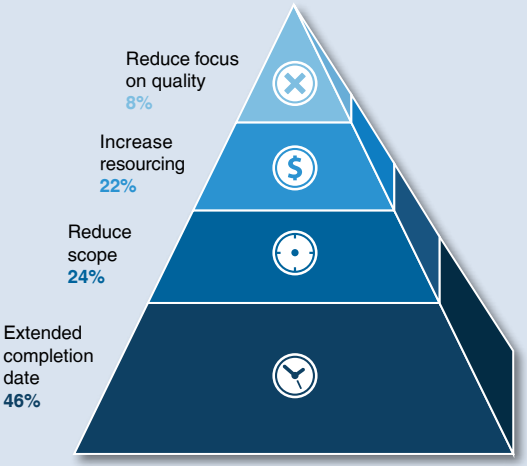
When projects come under pressure the top priority among two thirds of organisations is to maintain quality and scope, with:

- 46 percent extending project timelines (up 1 point); and
- 22 percent increasing the budget (up 4 point).

The remaining third of organisations were happier to compromise, including a quarter whose preference is to reduce the scope of project deliverables (up 4 percentage points). Promisingly, significantly fewer organisations showed a willingness to reduce their focus on quality, registering a 9 point dip to just 8 percent.



Primary causes of project failure



Strategies when a project comes under pressure

TEST AUTOMATION

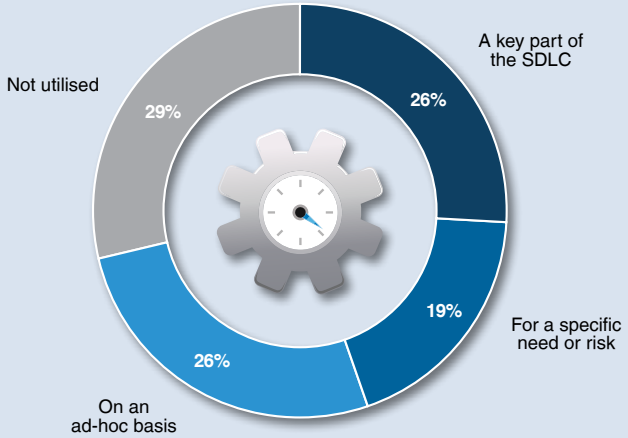
Over the past two years, the number of organisations applying test automation has increased significantly, climbing 10 percentage points in this period including an 8 point gain year-on-year. This growing popularity is certainly justified, as automation has the capacity to provide organisations with significant efficiencies and cost savings.

Considering these benefits, it is perhaps surprising that only a quarter of organisations are utilising test automation as a key part of their Software Development Life Cycle (SDLC).

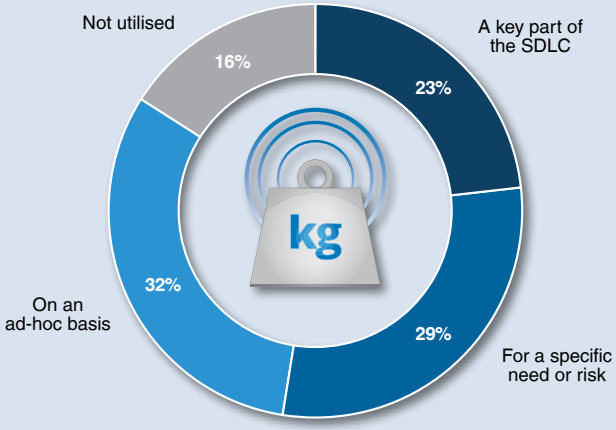
PERFORMANCE TESTING

The utilisation of performance testing in software development projects saw a minor dip in 2014, with a larger portion of organisations not utilising performance testing in any capacity (up 4 percentage points). There was also a small 1 point decrease in organisations utilising performance testing as a key part of the SDLC.

A further 61 percent of organisations conduct performance testing but not as an integral element of their projects, instead utilising it on an ad-hoc basis or for a specific need or risk.



Test Automation Utilisation



Performance Testing Utilisation

SERVICE VIRTUALISATION

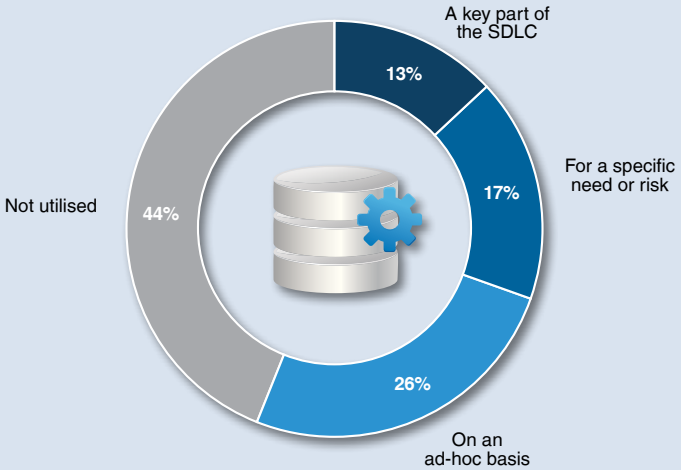
Few organisations are fully leveraging the benefits of service virtualisation, with just 13 percent applying it as a key part of their SDLC, and 44 percent not utilising service virtualisation whatsoever.

Service virtualisation is an area of immense potential for software development projects, as organisations realise its ability to resolve bottlenecks in test environments - an issue identified by the majority of respondents, with just 38 percent of respondents holding a positive opinion of their organisations' test environments. The documented move towards Agile and Dev Ops approaches also bodes well for service virtualisation, enabling earlier testing and integration.

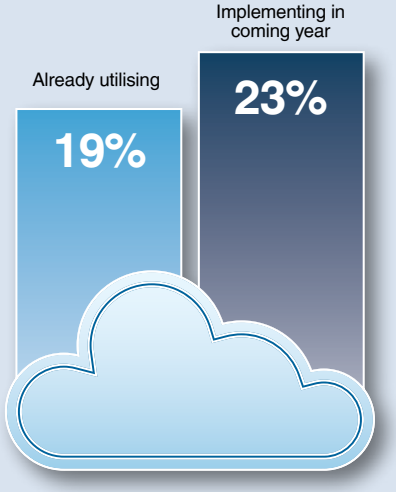
DEMAND FOR CLOUD-BASED TEST TOOLS

The past year has seen a significant increase in the number of organisations utilising cloud-based testing tools, with a 7 percentage point increase year-on-year. This equated to a third of forecasted implementations being realised.

As in 2013, 23 percent of organisations are again expecting to be implementing SaaS-based tools over the coming year. Based on the conversion rate from 'forecasted' to 'actual' uptake, if the past year's trend continues, we can expect SaaS-based tool implementation to surpass 25 percent by the end of the year.



Service Virtualisation Utilisation



Demand for SaaS Test Tools

SOFTWARE TESTING TOOLS

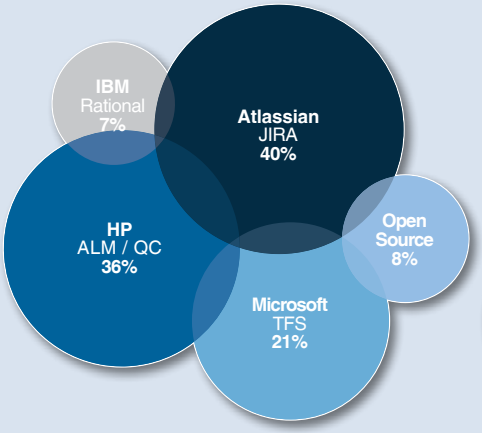
HP continues to be the most prevalent test tool provider, although its dominance seems to be declining, being supplanted as the top tool in two of three surveyed categories.

For the first time, JIRA leads the test management tool market in uptake, being utilised by 40 percent of organisations. Upon closer inspection, just half of its customers are utilising JIRA as their primary test management tool (20 percent of organisations), while 31 percent of organisations utilise HP ALM and Quality Center as their primary tool.

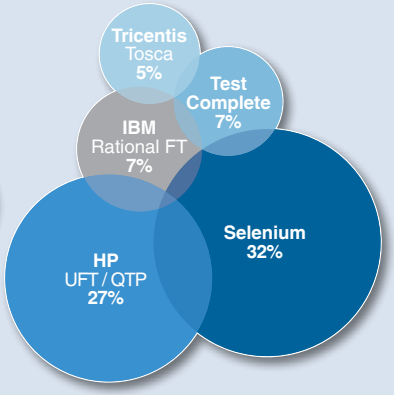
Another tool making its debut in the top spot is Selenium, being utilised by 32 percent of organisations in test automation. In similar circumstances to the test management tool sector, HP retains the top spot in terms of primary test automation tools, besting Selenium by just 4 percentage points (21 percent vs. 17 percent).

In performance testing, HP's LoadRunner/Performance Center tools lead the market with 35 percent of overall utilisation, including 30 percent who use it as their primary performance testing tool. Competing in this space is JMeter, utilised by a quarter of organisations including 15 percent overall who use it as their primary performance testing tool.

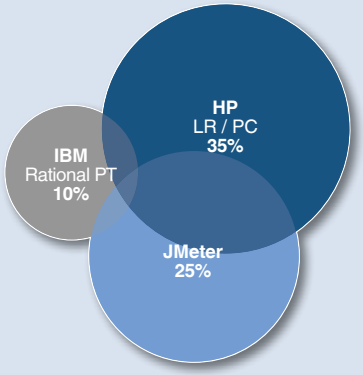
The charts below depict overall organisational utilisation, combining primary and secondary applications of the surveyed toolsets.



Test management tool utilisation



Test automation tool utilisation



Performance testing tool utilisation

INVESTMENT IN TESTING

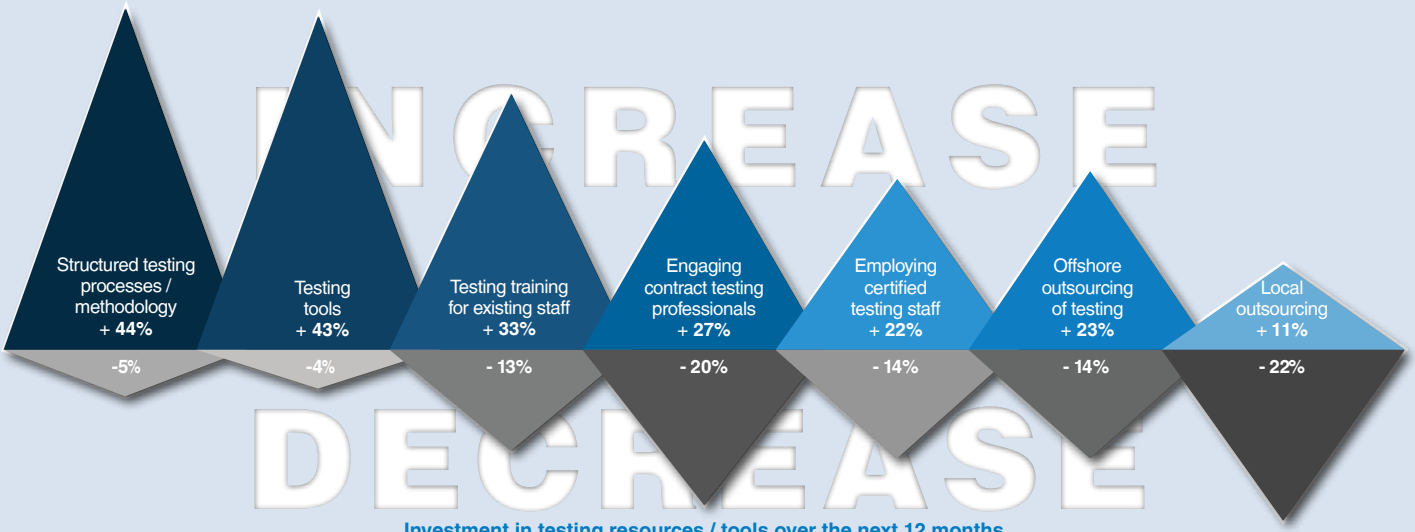
In 2014, actual project activity closely matched the prior year's forecast with 55 percent of organisations registering growth in activity while 20 percent saw a dip. Looking ahead, similar changes are expected for 2015.

For the eighth consecutive year, the category forecast to receive the most significant growth in investment was structured testing processes and methodologies, moving in parallel with the shift to Agile practices.

Closely challenging for the top spot is the perennial runner-up, testing tools, reaching a five-year high with 43 percent of organisations forecasting an increased investment (up 4 percentage points) while only 4 percent see their investment decreasing over the coming year.

Taking third place was training, with a third of organisations forecasting a growth in training for their testing team.

While organisations continue to prefer to increase investment in current staff, tools and processes rather than external capability, there has been a marked growth in the number of organisations investing in these external resources. In fact, net forecasted external investment reached an all-time high, with a 5 percent growth across engaging contract testing professionals, offshoring and local outsourcing of testing. This represents a significant 19 percentage point growth in organisational investment over the past two years.



Investment in testing resources / tools over the next 12 months