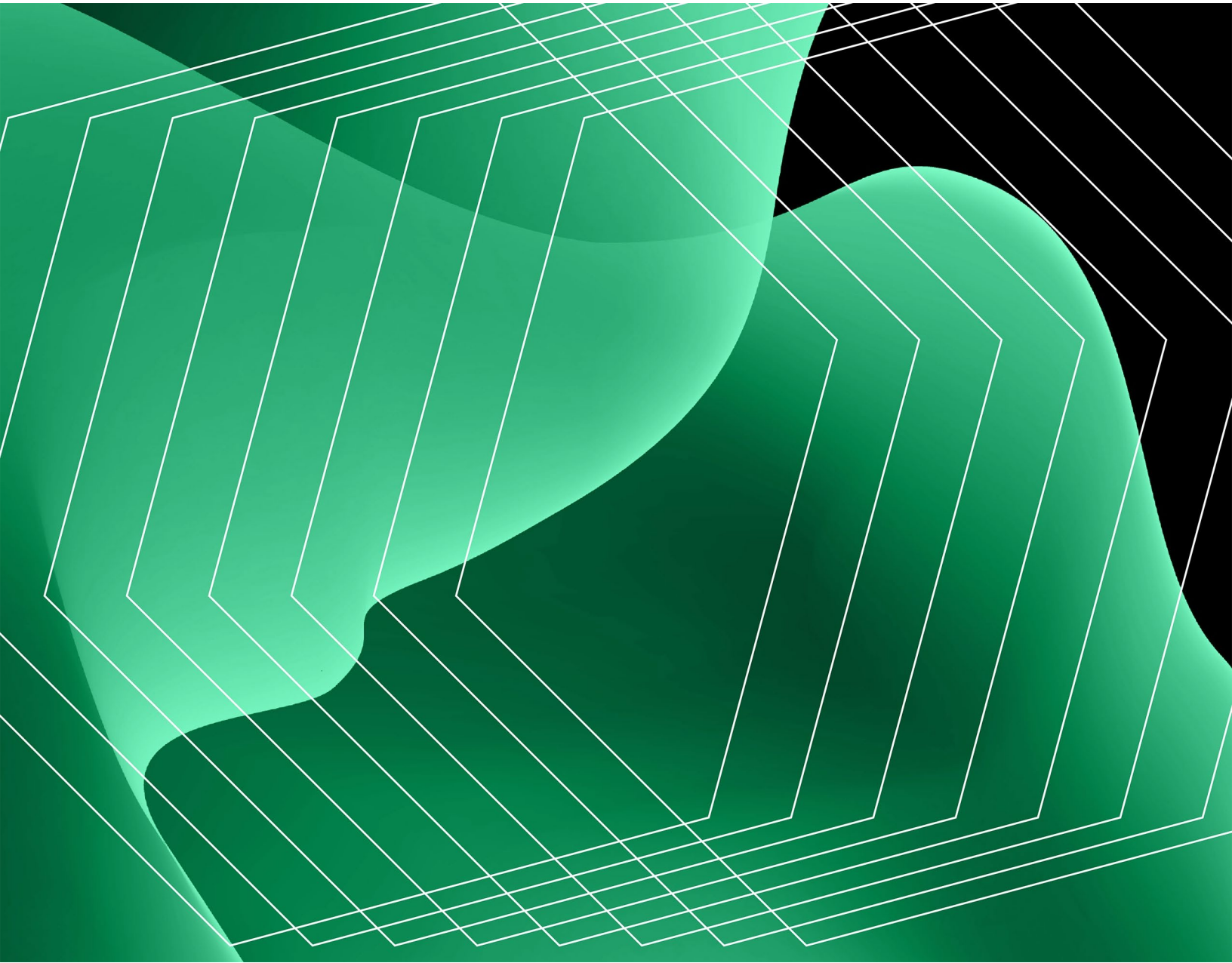
FORRESTER®

The Total Economic Impact™ Of TestRail

Cost Savings And Business Benefits Enabled By TestRail

A Forrester Total Economic Impact™ Study
Commissioned By TestRail, January 2025



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ABOUT FORRESTER CONSULTING

Forrester provides independent and objective research-based consulting to help leaders deliver key outcomes. Fueled by our customer-obsessed research, Forrester's seasoned consultants partner with leaders to execute their specific priorities using a unique engagement model that ensures lasting impact. For more information, visit forrester.com/consulting.

Executive Summary

Modern software testing requires a technology environment that enables seamless navigation across different testing capabilities and types, improves test information flow, and fosters tight collaboration among testing subject-matter experts (SMEs), developers, and business testers. TestRail's test management solution enables application development and delivery (AD&D) teams to organize around common metrics that focus testers, developers, and operations on business outcomes that balance speed with quality.

TestRail is a web-based test management tool designed for QA teams, developers, and project stakeholders to manage, track, and organize testing activities. It provides a centralized, user-friendly platform for creating and managing test cases, executing test runs, and generating detailed reports, which delivers needed insight into the testing lifecycle and enhances collaboration and communication within teams.

TestRail commissioned Forrester Consulting to conduct a Total Economic Impact™ (TEI) study and examine the potential return on investment (ROI) enterprises may realize by deploying TestRail.[1] The purpose of this study is to provide readers with a framework to evaluate the potential financial impact of TestRail on their organizations.

Return on investment (ROI)
204%

Net present value (NPV)
$2.24M

To better understand the benefits, costs, and risks associated with this investment, Forrester interviewed four representatives with experience using TestRail. For the purposes of this study, Forrester aggregated the interviewees' experiences and combined the results into a single composite organization that is a B2B company in a tech or tech-adjacent industry with $1.5 billion in annual revenue and 5,000 employees in locations around the world.

Interviewees said that prior to using TestRail, their organizations' QA operations relied on a variety of commercial tools, spreadsheets, open-source plug-ins, and tools developed in-house for test management, which led to disjointed test management practices and processes. Legacy

tools were often inflexible, lacked important features, and were difficult for users to learn, which caused some to abandon them for inefficient spreadsheet-based processes.

After adopting and deploying TestRail, the interviewees' organizations derived test administration productivity gains from streamlined test setups and executions. Standardizing on TestRail provided better visibility into testing progress for all stakeholders involved, and it especially improved collaboration between testers and developers. This, in turn, shortened development lifecycles. As a result, the organizations were able to reduce the incidence and cost of repairing production bugs, bring new and improved offerings to market faster, and improve satisfaction for those involved in testing.

KEY FINDINGS

Quantified benefits. Three-year, risk-adjusted present value (PV) quantified benefits for the composite organization include:

- **Gaining $1.2 million in test administration productivity over three years.** After deploying TestRail, the composite organization's test administrators set up and execute test runs faster. They take advantage of TestRail's reusability features to reuse test cases from project to project. They also filter test cases with greater granularity to execute only the tests they need for a particular code change, leading to significant time savings. Consolidation of test management in TestRail leads to better resource allocation, orchestration, and team flexibility.
- **Gaining $523,000 in software developer productivity over three years.** The composite organization integrates TestRail with its application lifecycle management and continuous software development tools to provide greater transparency in the testing process and improve collaboration between developers and testers. Software developers take more immediate action on defects, which saves time and reduces the overall development lifecycle.
- **Reducing the cost of production bugs by $381,000.** Deployment of TestRail improves the composite's awareness of production bugs. This enables its developers to catch and correct them earlier in the development process, and it reduces the cost of rework.
- **Improving time to market for new and improved offerings by three months.** The integration of TestRail with the composite organization's application lifecycle management and continuous software development tools helps its development teams

become more agile, shortening release cycles and reducing overall time to production. The value of this accelerated time to market adds up to more than $1.2 million over three years.

Unquantified benefits. Benefits that provide value for the composite organization but are not quantified for this study include:

- **Integration.** The composite organization takes advantage of TestRail's API to integrate test management with test automation, reporting, development, and continuous integration/continuous delivery (CI/CD) tools for full visibility and traceability of projects.
- **Flexibility and functionality.** The composite organization takes advantage of TestRail's rich feature set and customization capabilities to accommodate a variety of workflows and test case types suitable for all of the products it produces.
- **Reporting.** TestRail's reporting provides real-time visibility into testing progress to stakeholders throughout the organization with easy-to-understand charts and graphs.
- **Performance and scalability.** The composite organization subscribes to TestRail's Enterprise Cloud service, which supports test and development teams working around the world.
- **User satisfaction.** The composite's users find TestRail's user interface and workflows to be easy to understand and the performance to be fast, making day-to-day testing work more enjoyable.
- **Faster onboarding.** TestRail's easy-to-use, intuitive interface makes it easier for the composite organization to onboard new users. Many new joiners arrive with prior TestRail experience.
- **Greater collaboration through more standardized test management processes.** The composite organization benefits from having a unified test management platform with defined workflows and test-related metrics. It collects test data more systematically, testers can share their work more easily, and collaboration improves between all stakeholders involved in testing.
- **Flexible billing.** The composite organization takes advantage of TestRail's flexible billing through its Enterprise Cloud subscription to easily and immediately provision new users.

- **Customer service.** The composite organization takes advantage of TestRail technical support delivered via email, often received within a few hours after the initial inquiry.

Costs. Three-year, risk-adjusted PV costs for the composite organization include:

- **TestRail licensing.** The composite organization subscribes to Enterprise Cloud licenses for 500 users. These costs total $292,000 over three years.
- **Planning, implementation, and ongoing management.** Planning and implementation — including migration of existing projects — takes three months to complete and involves four data architects working part-time during that period. Moving forward, one data engineer spends no more than 10% of their time maintaining the TestRail platform, including onboarding new users, setting up new projects, and adding integrations. These costs total $197,000 for the composite organization over three years.
- **Training.** Test administrators receive 40 hours of initial training on TestRail, while other users receive 8 hours. Moving forward, all users are invited to quarterly "brown bag" sessions to review new product features, functionality, and test management processes. These activities cost the composite organization a total of $609,000 over three years.

The representative interviews and financial analysis found that a composite organization experiences benefits of $3.34 million over three years versus costs of $1.10 million, adding up to a net present value (NPV) of $2.24 million and an ROI of 204%.

> "There is no product that TestRail does not play a very significant role in helping us understand what the quality of the product is and whether it's ready for release and launch. It is part of our quality culture top to bottom every day [for] every reporting [and] testing all throughout. We've built an entire QA culture around it."
>
> **QA LEAD, TECHNOLOGY**

Return on investment (ROI)

204%

Benefits PV

$3.34M

Net present value (NPV)

$2.24M

Payback

14 months

Benefits (Three-Year)

TEI FRAMEWORK AND METHODOLOGY

From the information provided in the interviews, Forrester constructed a Total Economic Impact™ framework for those organizations considering an investment in TestRail.

The objective of the framework is to identify the cost, benefit, flexibility, and risk factors that affect the investment decision. Forrester took a multistep approach to evaluate the impact that TestRail can have on an organization.

DISCLOSURES
Readers should be aware of the following:

This study is commissioned by TestRail and delivered by Forrester Consulting. It is not meant to be used as a competitive analysis.

Forrester makes no assumptions as to the potential ROI that other organizations will receive. Forrester strongly advises that readers use their own estimates within the framework provided in the study to determine the appropriateness of an investment in TestRail.

TestRail reviewed and provided feedback to Forrester, but Forrester maintains editorial control over the study and its findings and does not accept changes to the study that contradict Forrester's findings or obscure the meaning of the study.

TestRail provided the customer names for the interviews but did not participate in the interviews.

Due Diligence
Interviewed TestRail stakeholders and Forrester analysts to gather data relative to TestRail.

Interviews
Interviewed four representatives at organizations using TestRail to obtain data about costs, benefits, and risks.

Composite Organization
Designed a composite organization based on characteristics of the interviewees' organizations.

Financial Model Framework
Constructed a financial model representative of the interviews using the TEI methodology and risk-adjusted the financial model based on issues and concerns of the interviewees.

Case Study
Employed four fundamental elements of TEI in modeling the investment impact: benefits, costs, flexibility, and risks. Given the increasing sophistication of ROI analyses related to IT investments, Forrester's TEI methodology provides a complete picture of the total economic impact of purchase decisions. Please see Appendix A for additional information on the TEI methodology.

The TestRail Customer Journey

Drivers leading to the TestRail investment

Interviews			
Role	**Industry**	**Revenue**	**Number of users**
QA architect	Financial services	$1B - $5B	~125 users
Director of quality engineering and automation	Technology	$1B - $5B	~300 users
Head of test and quality digitization	Technology	$10B+	~175 users
QA lead	Technology	$10B+	~3,000 users

KEY CHALLENGES

Prior to selecting TestRail, most of the organizations' QA operations relied on a variety of commercial tools, spreadsheets, open-source plug-ins, and tools developed in-house for test management. This led to disjointed test management practices and processes.

The interviewees noted how their organizations struggled with common challenges, including:

- **Legacy tools were inflexible and lacked features.** According to the QA architect at a financial services company: "[The legacy tool] did not offer many different types of test cases, it was lagging in terms of automation and integration with CI/CD, and it was not user-friendly. Users were unable to import and export information. They were spending a lot of time writing scripts instead of doing real work."

  The head of test and quality digitization at a technology company said legacy tools' limited ability to handle different workflows was a source of frustration. This interviewee gave an example of an internal test management tool designed for a specific project involving embedded software, but they noted the tool wasn't customizable, so its workflows could not be adapted to other projects.

- **Legacy tools were hard for new users to learn, leading some to abandon them.** Several interviewees described resistance from users because legacy test management tools weren't user-friendly. The QA architect at a financial services company told Forrester: "The previous tools were not intuitive, so onboarding a new person took a lot of time for them to understand the flow and design. It was so painful creating a project and onboarding the team members. Unfortunately, some people were not happy with the [previous tool] so, most of the time, they used spreadsheets."
- **Performance of tools developed in-house was poor.** The head of test and quality digitization at a technology company noted that their organization's in-house test management solution had latency problems: "Performance was very bad in the case of the in-house test management system running in a client-server environment hosted in one country with clients worldwide. The further you went from that country, the more terrible the performance was. Teams in other countries experienced really bad performance."
- **Lack of standards led to chaos.** Prior to organizing test management on a common platform, interviewees' organizations struggled to manage multiple test management tools across different business units and application teams. The head of test and quality digitization at a technology company told Forrester: "We had 10 different solutions in place for 20 projects. Some were using an internal tool. Some were using spreadsheets. Others were using almost nothing. It was a really chaotic situation before TestRail. [It was] terribly inefficient, and [there were] no quality standards. We had a large number of customer issues, which was another reason why upper management said we had to make changes."

SOLUTION REQUIREMENTS

The interviewees recognized the need for a more sophisticated solution and searched for a test management tool that delivered:

- **Better functionality and flexibility.** According to the QA architect at a financial services company: "We wanted a solution that was at the enterprise level rather than basic. We had a lot of parameters [and] lists of requirements from different teams. One category was customization: being able to change things [and] add fields [and] new parameters.

Another was the ability to create a dataset in one location and use it everywhere. Third was sharing test steps between projects so multiple projects could be under one roof. Another was automation. Integration with multiple tools like plug-ins was another so we could execute test cases and see the results in TestRail."

- **User-friendliness.** The director of quality engineering and automation at a technology company explained: "Test case management tools should be self-explanatory. You should be able to figure things out without having any type of training or predefined courses that you need to complete before you can start to use the tool. Ease of use was very important."
- **Scalability.** The QA lead at a technology company said that after adopting and using an on-prem version of TestRail for several years, their organization migrated to a cloud version (hosted on its own instance for data security reasons): "What prompted the migration to cloud was scalability. We needed to scale, and we were not able to scale on a non-cloud internal premises environment. We had a growing number of users, our dataset was growing astronomically, and we were struggling with maintaining backup infrastructure failover. Our on-premises environments were not designed to handle it."
- **Support for agile teams.** According to the director of quality engineering and automation at a technology company: "When I was brought in, one of my primary objectives was to unify the different testing teams we have. Over the past years, we acquired numerous companies that function under one umbrella. Each team had a separate engineering department for testing with their own tools and test case management system and their own way of managing the software development life cycle. My job was to come up with a solution that would be common across all the different engineering teams so we could operate as one unit."

The interviewees' organizations typically evaluated a handful of tools and often ran a pilot using a trial license as proof of concept before making the selection decision.

- The head of test and quality digitization at a technology company described their organization's selection process: "First, there was an evaluation phase where we analyzed different tools — some on the market, some internal. We were very happy with TestRail's support because they provided a cloud environment for us to play around in. We then moved forward with a pilot, selecting projects of different sizes in different

locations representing different scenarios and workflows so we could make sure the solution we selected would fit for the majority."

Evaluation criteria included performance and usability (i.e., whether the tool is easily customizable to fit the needs of testers). Another important criterion was integration with the existing tool landscape. The interviewee explained: "We use tools to manage our product backlogs. For the sake of traceability, it is crucial to see the mapping with test items like test cases, test plans, etc. We were looking for a tool that enables traceability in both directions."

- Other interviewees said their organizations used similar criteria for their evaluation processes. For the director of quality engineering and automation at a technology company, key factors were functionality and ease of use: "Test case management tools should be self-explanatory. You should be able to figure things out without having any type of training or predefined courses to use the tool."

  Evaluations of functionality extended to integrations with Jira, as well as the organization's test automation framework. The interviewee said TestRail had the necessary API and offered extensive customization options, which was important to their organization, and price also played a major role in the decision. According to the interviewee: "TestRail came out ahead, and that's when we acquired it."

Once the interviewees' organizations made their decisions, they deployed TestRail. The director of quality engineering and automation at a technology company explained: "When I came in, we had just gotten a trial license for 50 users. The engineering department got approval for some budget to spend on a test case management tool, and they were still shopping around. [After the pilot,] we ended up going to 250 users because I was able to get the budget for all the different engineering teams and use TestRail throughout the organization."

> "Before [using TestRail], we had nothing. No tools were being used. We're talking about the building of an entirely new QA organization. As part of the building of this new department, the team needed a more sophisticated solution. TestRail was the first solution internally, and it's the one that we have been using ever since."
>
> QA LEAD, TECHNOLOGY

> "The best results were provided by TestRail in terms of integration capabilities, customization capabilities, and user feedback. That was very important for us. We wanted to make our testers happy."
>
> HEAD OF TEST AND QUALITY DIGITIZATION, TECHNOLOGY

COMPOSITE ORGANIZATION

Based on the interviews, Forrester constructed a TEI framework, a composite company, and an ROI analysis that illustrates the areas financially affected. The composite organization is representative of the interviewees' organizations, and it is used to present the aggregate financial analysis in the next section. The composite organization has the following characteristics:

Description of composite. The composite organization is a global, business-to-business organization in a tech or tech-adjacent industry with 5,000 employees and $1.5 billion in annual revenue. The organization has operations in several countries, providing goods and services to a growing number of customers around the world. A 500-person engineering/tech team is responsible for software product development and QA/testing. Prior to implementing TestRail,

this team relied on a variety of commercial tools, spreadsheets, open-source plug-ins, and tools developed in-house for test management.

Deployment characteristics. After selecting TestRail, the organization takes three months to deploy the solution, migrate existing test cases, and train users on test management processes leveraging TestRail.

Key Assumptions

$1.5 billion revenue
5,000 employees
500-person engineering/tech team
3-month rollout following proof of concept

Analysis Of Benefits

Quantified benefit data as applied to the composite

Total Benefits						
Ref.	**Benefit**	**Year 1**	**Year 2**	**Year 3**	**Total**	**Present Value**
Atr	Test administration productivity gains	$236,925	$473,850	$789,750	$1,500,525	$1,200,349
Btr	Software developer productivity gains	$111,881	$238,680	$298,350	$648,911	$523,121
Ctr	Reduced cost of production bugs	$67,129	$143,208	$268,515	$478,852	$381,119
Dtr	Value of faster time to market for new and improved offerings	$263,672	$562,500	$703,125	$1,529,297	$1,232,846
	Total benefits (risk-adjusted)	$679,607	$1,418,238	$2,059,740	$4,157,585	$3,337,435

TEST ADMINISTRATION PRODUCTIVITY GAINS

Evidence and data. After deploying TestRail, testers experienced faster test creation and test executions compared to with their inefficient legacy tools and spreadsheet-based processes. Interviewees said TestRail's dashboards — especially its Traceability Matrix — let testing teams immediately see the status of test cases against requirements. They also explained that TestRail categorizes and segments test cases with greater granularity, enabling testers to execute a fraction of tests needed to get jobs done and leading to significant time savings for some organizations. Testers also took advantage of TestRail's reusability features to reuse test case steps from project to project. Interviewees said TestRail easily and flexibly integrated with test automation tools their organizations used to create automated test runs that would have been almost impossible to create manually. Consolidation of test management in TestRail led to better resource allocation, orchestration, and team flexibility.

- The QA architect at a financial services company said: "One of the best features is the Traceability Matrix, which shows requirements versus test cases. Before, our testers were using spreadsheets to try to track the testing process."
- The director of quality engineering and automation at a technology company confirmed the usefulness of TestRail's dashboards: "TestRail is the tool where people go to figure

out what the status of the project is, as well as the quality. It's the tool that they do their work from. Everything is driven from TestRail."

- The same interviewee also explained how their testers became more efficient at testing code changes after embracing TestRail: "[Previously,] they couldn't easily filter and execute only test cases as it related to a particular feature or component. With TestRail, they're able to categorize and segment test cases very granularly. Rather than executing 300 test cases to validate a couple of lines of code change, they only had to execute 25. That was one of the biggest savings we were able to gain. The teams became a lot more efficient [and] a lot more productive."
- The QA lead at a technology company said TestRail's ability to be customized with integrations through TestRail's API enabled their organization to create automated test runs involving thousands of test cases that would be almost impossible to create manually: "It's way too labor-intensive, and nobody in their right mind would ever try to create these massive test plans without using TestRail's API and without using the customization that we've developed."

Modeling and assumptions. Based on the interviews, Forrester assumes the following about the composite organization:

- The number of software testers and administrators in the composite organization remains constant as their work shifts onto TestRail following a three-month deployment period.
- These software testers and administrators spend 65% of their time on test administration tasks.
- TestRail immediately improves productivity by 10%, which saves the composite 10,140 hours in Year 1.
- Productivity improves 15% in Year 2 and 25% in Year 3, which saves the composite an additional 54,080 hours over that time.
- Of the time saved, 50% is recaptured for work on other tasks and initiatives.
- The fully burdened annual salary for a software tester/administrator is $108,000.

Risks. Organizational differences that may impact test administration productivity gains include the number and compensation of software testers and test administrators and their prior state of

efficiency. These time savings can be even greater for testers who leverage TestRail features and functionality more proficiently.

Results. To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year, risk-adjusted total PV (discounted at 10%) of $1.2 million.

64,220 hours

Test administration time saved over three years

"The impact [of TestRail] was huge, especially for those projects not doing proper test management. It was a huge leap forward to start having a process and start having defined workflows."

HEAD OF TEST AND QUALITY DIGITIZATION, TECHNOLOGY

"Everything is being done now on TestRail. If you compare it to how things were done previously by some of the teams on spreadsheets, it's night and day."

QA ARCHITECT, FINANCIAL SERVICES

Test Administration Productivity Gains					
Ref.	**Metric**	**Source**	**Year 1**	**Year 2**	**Year 3**
A1	Software testers/administrators	Composite	100	100	100
A2	Percent of time spent on test administration tasks	Composite	65%	65%	65%
A3	Time TestRail is deployed (months)	Interviews	9	12	12
A4	Percent of time saved attributable to TestRail	Interviews	10%	15%	25%
A5	Percent of time recaptured	Forrester standard	50%	50%	50%
A6	Fully burdened annual salary for a software tester/administrator	Forrester standard	$108,000	$108,000	$108,000
At	Test administration productivity gains	A1*A2*(A3/12)* A4*A5*A6	$263,250	$526,500	$877,500
	Risk adjustment	↓10%			
Atr	Test administration productivity gains (risk-adjusted)		$236,925	$473,850	$789,750
	Three-year total: $1,500,525			**Three-year present value: $1,200,349**	

SOFTWARE DEVELOPER PRODUCTIVITY GAINS

Evidence and data. Interviewees said that as a result of TestRail's integration with application lifecycle management and continuous software development tools across the DevOps and test tech stack, developer productivity significantly improved. Software developers experienced faster comeback times, gained the ability to see results directly, and were able to take faster action accordingly. Collaboration also improved between developers and testers, resulting in shorter development lifecycles.

- The head of test and quality digitization at a technology company explained how their organization collected test data more frequently and made it available to all stakeholders, including upper management, through dashboards leveraging TestRail's API. This led to much better collaboration between developers and testers: "Now with TestRail, they have the same access. They have transparency, and they are more interested in looking at what is planned for upcoming releases. What are other testers doing? What is the testing doing for our project?"

- The QA architect at a financial services company also remarked on the positive impact TestRail had on developer productivity: “It has improved productivity. The comeback time means developers directly see the results in TestRail — the defects and everything — immediately, so people are taking action immediately. The development lifecycle improved a lot. They reduced it. A lot of wastage was reduced, and now they are so happy they can easily see what’s [happening on] the testing side.”

Modeling and assumptions. Based on the interviews, Forrester assumes the following about the composite organization:

- The number of software developers in the composite organization remains constant as they are platformed onto TestRail following a three-month deployment period.
- These developers spend 65% of their time on development activities, 25% of which is spent on testing activities.
- TestRail immediately improves these developers’ test-related productivity by 5%, which saves 5,070 hours in Year 1.
- The composite’s productivity improves 8% in Year 2 and 10% in Year 3, which saves the organization an additional 24,336 hours over that time.
- Of the time saved, 50% is recaptured for work on other tasks and initiatives.
- The fully burdened annual salary for a software developer is $108,000.

Risks. Organizational differences that may impact software developer productivity gains include the number and compensation of software developers, the nature of the development environment, and their prior state of efficiency. These time savings can be even greater for developers who work in agile environments and leverage TestRail features and functionality more proficiently.

Results. To account for these risks, Forrester adjusted this benefit downward by 15%, yielding a three-year, risk-adjusted total PV (discounted at 10%) of $523,000.

29,406 hours

Development time saved over three years

> "It's allowing us to ship our products, which is the most important thing for our company. Without TestRail, we cannot do that."
>
> QA LEAD, TECHNOLOGY

Software Developer Productivity Gains					
Ref.	**Metric**	**Source**	**Year 1**	**Year 2**	**Year 3**
B1	Software developers	Composite	400	400	400
B2	Percent of time spent on software development	Composite	65%	65%	65%
B3	Percent of software development time spent on testing activities	Composite	25%	25%	25%
B4	Time TestRail is deployed (months)	Interviews	9	12	12
B5	Percent of time saved attributable to TestRail	Interviews	5%	8%	10%
B6	Percent of time recaptured	Forrester standard	50%	50%	50%
B7	Fully burdened annual salary for a software developer	Forrester standard	$108,000	$108,000	$108,000
Bt	Software developer productivity gains	B1*B2*B3*(B4/12)*B5*B6*B7	$131,625	$280,800	$351,000
	Risk adjustment	↓15%			
Btr	Software developer productivity gains (risk-adjusted)		$111,881	$238,680	$298,350
	Three-year total: $648,911			**Three-year present value: $523,121**	

REDUCED COST OF PRODUCTION BUGS

Evidence and data. Interviewees said the deployment of TestRail improved awareness of production bugs, enabling their organizations to catch and correct them earlier in the development process. This reduced the cost of rework associated with emergency fixes and patches, and it also reduced the risk of reputational harm to the organizations.

- The head of test and quality digitization at a technology company told Forrester: "We get notified if there is a problem, if there is a test that is not running, or [if] there is a test that is providing us results indicating a quality issue in our product. In the past, we sometimes just simply missed this information. It was not transparent. That is the biggest benefit."
- The director of quality engineering and automation at a technology company agreed: "The number of patches and emergency fixes has drastically gone down. Previously, they did not occur often, but they did happen once every couple of months or so. Once we implemented this process, it was more like once every six to 12 months."

Modeling and assumptions. Based on the interviews, Forrester assumes the following about the composite organization:

- The number of software developers in the composite organization remains constant as they are platformed onto TestRail following a three-month deployment period.
- These developers spend 65% of their time on development activities, 15% of which is spent on rework related to production bug fixes.
- TestRail reduces the time spent on rework by 5% in Year 1, which saves 3,042 hours.
- Time spent on rework is reduced 8% in Year 2 and 15% in Year 3, which saves the composite an additional 18,658 hours over that time.
- Of the time saved, 50% is recaptured for work on other tasks and initiatives.
- The fully burdened annual salary for a software developer is $108,000.

Risks. Organizational differences that may impact the reduced cost of production bugs include the number and compensation of software developers, the number of production bugs experienced, and their prior state of efficiency addressing them. The value of this benefit also doesn't factor in the avoided costs of reputational harm to the organization, which could be substantial for widely used mission-critical applications.

Results. To account for these risks, Forrester adjusted this benefit downward by 15%, yielding a three-year, risk-adjusted total PV (discounted at 10%) of $381,000.

21,700 hours

Production bug rework time saved over 3 years

"We are able to catch issues earlier because we have that transparency."

HEAD OF TEST AND QUALITY DIGITIZATION, TECHNOLOGY

Reduced Cost Of Production Bugs					
Ref.	**Metric**	**Source**	**Year 1**	**Year 2**	**Year 3**
C1	Software developers	Composite	400	400	400
C2	Percent of time spent on software development	Composite	65%	65%	65%
C3	Percent of time spent on rework related to production bug fixes	Composite	15%	15%	15%
C4	Time TestRail is deployed (months)	Interviews	9	12	12
C5	Percent of time saved attributable to TestRail	Interviews	5%	8%	15%
C6	Percent of time recaptured	Forrester standard	50%	50%	50%
C7	Fully burdened annual salary for a software developer	Forrester standard	$108,000	$108,000	$108,000
Ct	Reduced cost of production bugs	C1*C2*C3*(C4/12)*C5*C6*C7	$78,975	$168,480	$315,900
	Risk adjustment	↓15%			
Ctr	Reduced cost of production bugs (risk-adjusted)		$67,129	$143,208	$268,515
	Three-year total: $478,852			**Three-year present value: $381,119**	

VALUE OF FASTER TIME TO MARKET FOR NEW AND IMPROVED OFFERINGS

Evidence and data. Interviewees said deployment and integration of TestRail into their organizations' application lifecycle management and continuous software development tools helped software development functions become more agile and shift left, shortening release cycles and reducing overall time to production.

- The QA architect at a financial services company gave an example of how TestRail enabled faster throughput by shortening steps in the testing process: "The moving left actually started with TestRail. There is a concept called 'code first' where we write the code in automation, and the results are published directly into TestRail. There are two technologies. 'Spec first' is the general method with test cases that convert into automation. The second option is to write automation directly, without any specs, and just publish the results in TestRail. The second option is nothing but shift left. It's really helpful. It improved [throughput] a lot because we're thoroughly testing up front, rather

than waiting to write the documentation. Testing is improved and documentation is reduced. It's cut down the time spent on documentation."

- The head of test and quality digitization at a technology company also credited TestRail with helping their development organization to shift left: "Our developers are more involved in the test process. Some of them didn't even have access to test management before. Now, test management is integrated with CI/CD, which helps us to implement shift left. We have continuous testing in place for the majority of our projects, which means, basically, for every build, tests are running and documented in TestRail. This was a big step for us."

Modeling and assumptions. Based on the interviews, Forrester assumes the following about the composite organization:

- The composite organization's annual revenues are $1.5 billion, with 25% of that revenue driven by new and improved offerings.
- Following the deployment of TestRail, time to market is reduced by three months, 5% to 10% of which is attributable to TestRail.

Risks. Organizational differences that may impact the value of faster time to market for new and improved offerings include the organization's size in terms of revenue, net margin and growth trajectory, and its ability to effectively drive new business development faster after shifting testing to earlier stages of the development cycle.

Results. To account for these risks, Forrester adjusted this benefit downward by 25%, yielding a three-year, risk-adjusted total PV (discounted at 10%) of $1.2 million.

Time to market reduction
3 months

> "The release to production has significantly increased by having those capabilities in place."
>
> DIRECTOR OF QUALITY ENGINEERING AND AUTOMATION, TECHNOLOGY

Value Of Faster Time To Market For New And Improved Offerings					
Ref.	**Metric**	**Source**	**Year 1**	**Year 2**	**Year 3**
D1	Annual revenue	Composite	$1,500,000,000	$1,500,000,000	$1,500,000,000
D2	Percent of revenue driven by new and improved offerings	Composite	25%	25%	25%
D3	Revenue per month driven by new and improved offerings	(D1*D2)/12	$31,250,000	$31,250,000	$31,250,000
D4	Time TestRail is deployed (months)	Interviews	9	12	12
D5	Time to market reduction with TestRail (months)	Interviews	3	3	3
D6	Reduction in time to market attributed to TestRail	Interviews	5%	8%	10%
D7	Revenue recognized from faster time to market	D3*(D4/12)*D5*D6	$3,515,625	$7,500,000	$9,375,000
D8	Net profit margin	Composite	10%	10%	10%
Dt	Value of faster time to market for new and improved offerings	D7*D8	$351,563	$750,000	$937,500
	Risk adjustment	↓25%			
Dtr	Value of faster time to market for new and improved offerings (risk-adjusted)		$263,672	$562,500	$703,125
	Three-year total: $1,529,297			**Three-year present value: $1,232,846**	

UNQUANTIFIED BENEFITS

Interviewees mentioned the following additional benefits that their organizations experienced but were not able to quantify:

- **Integration.** Each interviewee called out TestRail's extensive integration capabilities. Their organizations took advantage of TestRail's API to integrate test management with test automation, reporting, development, and CI/CD tools to report on production, preparation, and process (3P) system information from a centralized place.

  The director of quality engineering and automation at a technology company said they like that TestRail's integration with their organization's project management platform provided a full traceability matrix. The company also integrated TestRail with its test automation framework to get the full picture of where they were with projects. The interviewee said: "[We have visibility] not only from the manual side, but [also] from the automation side. It gives the full, overall picture of where we are at."

  According to the QA lead at a technology company: "The TestRail API is pretty powerful, and there are very few things that it cannot do. We're a very sophisticated user of the TestRail API. That integration is certainly there. I find the integration [and] the flexibility [to be] good."

- **Flexibility and functionality.** Interviewees said TestRail is both feature-rich and customizable for a variety of workflows and test case types. When asked which TestRail feature sets they like best, the QA lead at a technology company noted: "TestRail does test case development very well, and [it] allows a lot of flexibility in customization and how you develop your test cases. It's very, very strong in test case development."

  The interviewee went on to explain that customization is a very important aspect of how their organization uses TestRail: "We customize TestRail more extensively than most companies. It's a crucial part of our operations, and we've built significant integrations around it. This customization is unique to our usage, allowing us to scale effectively. It supports the addition of new products and features. Whenever we introduce a new device or project, we tailor TestRail to accommodate it."

  The head of test and quality digitization at a technology organization called out TestRail's flexibility: "It's really a flexible system. Everybody is able to tailor it to their own needs. Every organization is probably using it a little bit differently. Those customization capabilities make this tool really great."

The director of quality engineering and automation at another technology company noted: "[TestRail] is very rich in functionality, so it's important to fully utilize its features beyond simple test management cases. For instance, you can leverage its reusability features to reuse test case steps. If a login is required before any other action in an app, you can write that step once and reuse it across multiple test cases. Features like that are very useful and powerful. It took several presentations and workshops to make sure that users understood and fully took advantage of these capabilities."

- **Reporting.** Interviewees regard TestRail's reporting as good and strong, and they said it provides real-time visibility into testing progress. Although some noted there was room for improvement. The QA lead at a technology company remarked, "I would actually love to see more development and potential integration, but it does provide sufficient and good reporting."

  The QA architect at a financial services company noted: "TestRail provides good dashboards for quarterly and weekly reports and email communication, so we can send reports directly to stakeholders. Previously, the communication was a little late, and it required manually preparing all the reports that were segmented. Now, managers can create their own reports and see what's going on."

- **Performance and scalability.** Most interviewees said they find TestRail's performance and scalability satisfactory, although one from an organization working with very large data sets said their company struggled and had to work with an IT consultant with insider knowledge of architectural details to explain the nature of the performance problems. According to the QA lead at a technology company: "We were running into a brick wall with the way we were managing the data. The product would allow you to use it in a way that would become very non-performant if you scaled it."

  However, other interviewees said scaling was not an issue. The QA architect in financial services told Forrester their company has 11,000 test cases and teams with as many as 60 people and that the organization has never had an issue: "Because it's SaaS (software as a service), there is no downtime. My teams are working across the world in different time zones, and we never had a single complaint about the tool."

- **User satisfaction.** Each interviewee noted how much users like working with TestRail. The director of quality engineering and automation at a technology company told Forrester: "I can see that the tool is being used based on user activity and the questions and feedback I get. It's clear that people are happy with it. That's important because

testers use it daily. It's where they get all of their work done, so it's important that it's fast and easy to use. It's a great tool for them."

The head of test and quality digitization at a technology company explained: "After the pilot, we conducted a survey to gather feedback on working with TestRail. We surveyed various stakeholders, including scrum masters, developers, and product owners — not just testers. The feedback was entirely positive. [Stakeholders said] user-friendliness is great, it's easy to use, [it has] great structure to organize test cases, [and that it's] faster than the previous tool."

The QA lead at a technology company added: "A lot of people like TestRail. They look at the UI that TestRail provides, and they want to use TestRail. It has nice graphs and charts. It has a better workflow. They're not wrong."

- **Faster onboarding.** Interviewees said TestRail has an easy-to-use and intuitive interface, and they credited it for faster onboarding of new users. The QA architect at a financial services company observed: "The previous tools were not intuitive, so onboarding a new person took a lot of time for them to understand the flow and design. With TestRail, it takes a little more than two weeks for each team [to come up to speed]."

  The QA lead at a technology company noted that many new joiners to their company come with prior TestRail experience: "One benefit that we get is that many people have used TestRail in previous jobs. At least 50% of new hires who come to our company have some familiarity with TestRail or can learn it quickly." The interviewee added: "TestRail has a really nice workflow built into it. It's something that a lot of people intuitively understand or can learn quickly."

- **Greater collaboration through more standardized test management processes.** Several interviewees noted how collaboration between all stakeholders involved in testing has improved since implementing TestRail. The director of quality engineering and automation at a technology company told Forrester: "It's a very useful tool for collaboration because it allows you to see each team's testing progress without having to chase people down. Managing this across 17 different teams can be chaotic, but TestRail has helped in a big way because we are able to drive the status of each project we're working on."

  The interviewee added: "The great benefit of standardizing on TestRail is that you can swap out resources from one project to another with minimal ramp-up time. New team members become productive almost immediately because they are familiar with the

tools and processes. They know how things are done and the documentation that needs to be prepared. Expectations are clear from the start. This makes communication easier and increases efficiency."

- **Flexible billing.** The director of quality engineering and automation at a technology company said they like TestRail's flexibility when it comes to billing: "One of the great things about the cloud version is that if you need additional users, you just create them and at the end of the month, you'll get the bill for them. It makes my job a lot easier."
- **Customer service.** According to interviewees, TestRail's customer service has gotten better but there is still room for improvement. The director of quality engineering and automation at a technology company called attention to changes in TestRail's customer service model: "They switched over from phone support where you could call and talk to moving completely over to email. But they're very responsive. If you put in a ticket, they'll get back to you within the same day, sometimes within the same hour."

  The QA lead at a technology company observed: "Over time, we've seen [TestRail] become a better professional services organization, but it took a lot of work on our part. … We're there now, and we're in a much better place. But we had to lean in and say, 'We need to work together,' and we saw over time that it is improved."

> "[It's] one-stop shopping for everything. That's the main value proposition. We created a value proposition document that we presented to different team members and project team members that we used to explain why we need TestRail, the advantages over other tools, the cost effectiveness, and how easy people can adopt it."
>
> QA ARCHITECT, FINANCIAL SERVICES

> "Everything is being done now on TestRail. If you compare it to how things were done previously by some of the teams on spreadsheets, it's night and day."
>
> DIRECTOR OF QUALITY ENGINEERING AND AUTOMATION, TECHNOLOGY

> "[My organization is] an avid user of the product. I'm really happy with where we are today, how far we've come, how much we've been able to learn about the product, [and] how much we've been able to improve performance. It did take some very key learnings and understandings, but we're there now, and high performances are there, and all of TestRail's own cloud services are also available to us should we ever need them. They run this space very, very well."
>
> QA LEAD, TECHNOLOGY

FLEXIBILITY

The value of flexibility is unique to each customer. There are multiple scenarios in which a customer might implement TestRail and later realize additional uses and business opportunities, including:

- **Expanding numbers of users and projects.** Interviewees discussed plans to expand the use of TestRail throughout their organizations. The director of quality engineering and automation at a technology company said, "We're definitely growing in the number of users."

- **Upgrading to the Enterprise version.** The same interviewee added their organization is considering an upgrade to the Enterprise version of TestRail: “Enterprise is a little bit more expensive, but I’m trying to get that budget to secure it. It gives you more flexibility in terms of how you can use it with automated test cases because you can do data parameterization with the Enterprise version. Also, the SSO (single sign-on) option is available only on the Enterprise license. It’s easier to use and one less step having to log into TestRail.”
- **Expanding use of TestRail functionality.** The QA lead at a technology company told Forrester their organization is researching newer features coming online soon: “We’re looking at the new features in [version] 8.0 and beyond [with] things like webhooks so how we can integrate their web hooks into our internal infrastructure to shift reporting left, if you will. That’s where we might gain some benefits.”
- **Expected impact of generative AI (genAI).** Interviewees said their organizations are following developments in genAI closely and are looking for TestRail to stake out a clearer position. The QA lead at a technology company said, “We need generative AI that can actually look at our test data and help to shift left and help us build faster and better and more strategically when it comes to our planning and testing.”

  The director of quality engineering and automation at another technology company speculated: “AI can support me in generating different test scenarios. Previously, I would have to figure out all of those different permutations and combinations myself. AI can provide a baseline that I can review to ensure that it covers everything. Tasks that would have taken hours to get the base test cases ready now can be done in seconds. AI enables things to be done in a more efficient way, freeing up time to develop other complex scenarios or other complex integration points to test, which wouldn’t be possible without this initial efficiency.”

Flexibility would also be quantified when evaluated as part of a specific project (described in more detail in Appendix A).

Analysis Of Costs

Quantified cost data as applied to the composite

Total Costs							
Ref.	**Cost**	**Initial**	**Year 1**	**Year 2**	**Year 3**	**Total**	**Present Value**
Etr	TestRail licensing	$0	$117,600	$117,600	$117,600	$352,800	$292,454
Ftr	Planning, implementation, and ongoing management	$153,698	$20,493	$16,394	$14,345	$204,930	$196,654
Gtr	Training and change management	$430,560	$71,760	$71,760	$71,760	$645,840	$609,016
	Total costs (risk-adjusted)	$584,258	$209,853	$205,754	$203,705	$1,203,570	$1,098,124

TESTRAIL LICENSING

Evidence and data. TestRail offers three pricing plans that scale to organizations' needs. Trial licenses are available for Professional and Enterprise Cloud plans.

- Professional Cloud starts at $408 per user per year and includes traceability and coverage reporting; test cases and suites; test runs, plans and milestones; defect and requirements integrations; and access to the TestRail API for customized integrations.
- Enterprise Cloud starts at $826 per user per year and includes everything in the Professional Cloud plan plus automatic daily backups; SSO; advanced auditing; test case version control and approvals; test parameterization; project administration permissions; and priority support.
- Enterprise Server is a self-hosted option available for organizations with teams of 20 or more users, and it includes everything in the Professional Cloud plan plus on-premise hosting; SSO; advanced auditing; test case version control and approvals; test parameterization; project administration permissions; and priority support.

The interviewees' organizations used a mix of all three license types. Two of the organizations started with on-premises licenses and later moved to the cloud. Regarding the Enterprise Cloud

license, the QA architect at a financial services company said: “It is a little bit expensive, of course. [There’s] no doubt about it. But comparing the cost of this tool to other enterprise tools, this is a lot better and less expensive. It is a somewhat better price apples to apples compared to other testing tools.”

Modeling and assumptions. Forrester assumes the following about the composite organization:

- The composite organization purchases Enterprise Cloud licenses for 500 users (100 testers and test administrators plus 400 software developers) for three years.
- Pricing may vary. Contact TestRail for additional details.

Risks. Organizational differences that may impact the costs associated with TestRail licensing include the size and scale of deployment and the license type deployed.

Results. To account for these risks, Forrester adjusted this cost upward by 5%, yielding a three-year, risk-adjusted total PV (discounted at 10%) of $292,000.

TestRail Licensing						
Ref.	**Metric**	**Source**	**Initial**	**Year 1**	**Year 2**	**Year 3**
E1	TestRail licensing costs	TestRail		$112,000	$112,000	$112,000
Et	TestRail licensing	E1		$112,000	$112,000	$112,000
	Risk adjustment	↑5%				
Etr	TestRail licensing (risk-adjusted)		$0	$117,600	$117,600	$117,600
	Three-year total: $352,800		**Three-year present value: $292,454**			

PLANNING, IMPLEMENTATION, AND ONGOING MANAGEMENT

Evidence and data. Interviewees said initial planning and implementation of TestRail, including migration of existing test cases and projects, took the equivalent of four FTEs working 75% of the time for three months on average. This varied depending on the size and scope of each organization’s testing operations. Most of the organizations handled the implementations themselves, although one brought in a consultant who specializes in TestRail to manage the

engagement. Interviewees' organizations took a phased approach to adoption and worked with different test and development teams to facilitate change management. Ongoing maintenance was minimal, involving tasks such as onboarding new users and setting up additional projects and integrations.

The director of quality engineering and automation at a technology company told Forrester their organization managed the setup itself: "Internally, it was very straightforward. [TestRail has] extensive documentation available, whether you want to run it on Windows-based machines or Linux-based machines, which was our case. The initial setup was very straightforward. You just follow the instructions and you will be up and running in less than a day."

The interviewee continued: "The migration effort varied from team to team. I put the procedure for importing test cases into TestRail and shared it with the different teams. I put it on them to import their test cases into TestRail because there are variations in how test cases can be organized in TestRail. I provided the basic guidelines of how to do it but allowed each team to organize how it wanted test plans and directory structure to look based on the features, components, and modules they wanted to use."

The same interviewee said setting up test cases in TestRail was intuitive. According to the interviewee: "Setting parameters takes the most time because it requires pre-planning, such as arranging milestones; setting up the test plan; and organizing the test runs underneath it. The initial structure will impact how reports are generated. It's important to consider how other departments will consume the information. The import process itself, even with hundreds or thousands of test cases, takes only minutes and goes very quickly."

Modeling and assumptions. Based on the interviews, Forrester assumes the following about the composite organization:

- Planning and implementation, including migration of existing projects, takes place over three months.
- Four data architects working 75% of the time are involved in the planning and implementation process.
- Moving forward, one data engineer spends no more than 10% of their time maintaining the TestRail platform over three years, growing more efficient over time. This includes onboarding new users, setting up new projects, and adding integrations to TestRail.
- The fully burdened annual salary for a data architect/engineer is $178,200.

Risks. Organizational differences that may impact costs associated with planning, implementation, and ongoing management include the amount, organization, and state of test data inside the company prior to deploying TestRail, the number of integrations made to TestRail, the efficiency of the teams involved in deploying and maintaining TestRail moving forward, and prevailing local compensation rates.

Results. To account for these risks, Forrester adjusted this cost upward by 15%, yielding a three-year, risk-adjusted total PV (discounted at 10%) of $197,000.

3 months

Time to plan and implement

"Now that we're in the cloud, management is simply marking status changes properly [and] adding new users as they come onboard or noting if somebody left."

DIRECTOR OF QUALITY ENGINEERING AND AUTOMATION, TECHNOLOGY

Planning, Implementation, And Ongoing Management						
Ref.	**Metric**	**Source**	**Initial**	**Year 1**	**Year 2**	**Year 3**
F1	Initial time for planning and implementation, including migration of existing projects (months)	Interviews	3			
F2	Data architects involved in initial planning and implementation	Interviews	4			
F3	Percent of time dedicated to planning and implementation	Interviews	75%			
F4	Fully burdened monthly salary for a data architect	Forrester standard	$14,850			
F5	**Subtotal: Planning and implementation**	**F1*F2*F3*F4**	**$133,650**			
F6	Data engineers involved in ongoing management	Interviews		1	1	1
F7	Percent of time dedicated to ongoing management	Interviews		10%	8%	7%
F8	Fully burdened annual salary for a data engineer	Forrester standard		$178,200	$178,200	$178,200
F9	**Subtotal: Ongoing management**	**F6*F7*F8**	**$0**	**$17,820**	**$14,256**	**$12,474**
Ft	Planning, implementation, and ongoing management	F5+F9	$133,650	$17,820	$14,256	$12,474
	Risk adjustment	↑15%				
Ftr	Planning, implementation, and ongoing management (risk-adjusted)		$153,698	$20,493	$16,394	$14,345
	Three-year total: $204,930			**Three-year present value: $196,654**		

TRAINING AND CHANGE MANAGEMENT

Evidence and data. Interviewees said training on TestRail typically took one to two weeks per team to explain the new workflows and how to navigate the new structure. They also said testing SMEs received more training than developers and other stakeholders. After the onboarding process was completed, one organization continued to hold quarterly sessions to review new features and reinforce best practices.

- The QA architect at a financial services company said: “Onboarding people and doing the education took almost six weeks. It was not full-time because there were different teams with different requirements, so we educated each team separately. It took a little more than two weeks for each team.”

- The head of test and quality digitization at a technology company told Forrester: “We had half-day sessions — multiple of them — for all the groups of users. I would say [it took] one week of training roughly.”
- The director of quality engineering and automation at a technology company explained: “Each team has a specific lead who is the subject matter expert with a comprehensive understanding of testing methodology and best practices. These leads are also SMEs for their specific projects and are my go-to [people] for their teams. Initial training included everyone, but afterward, the leads took on the responsibility of answering questions and helping anyone that needed it. They received more extensive training and had deeper knowledge. They mainly attended those workshops and were trained on aspects that regular users might not need for their day-to-day testing activities. It took more than a couple of weeks to get everyone up and running and fully migrated as the teams were fairly large in size.”

Modeling and assumptions. Based on the interviews, Forrester assumes the following about the composite organization:

- Test administrators receive 40 hours of initial training, while other users receive 8 hours.
- Moving forward, all users are invited to quarterly “brown bag” sessions to review new product features, functionality, and test management processes.
- The fully burdened hourly rate for one of these users is $52.

Risks. Organizational differences that may impact costs associated with training and change management include the amount of time the organization needs for up-front planning and development of training materials, the amount and familiarization time needed by users, and prevailing local compensation rates.

Results. To account for these risks, Forrester adjusted this cost upward by 15%, yielding a three-year, risk-adjusted total PV (discounted at 10%) of $609,000.

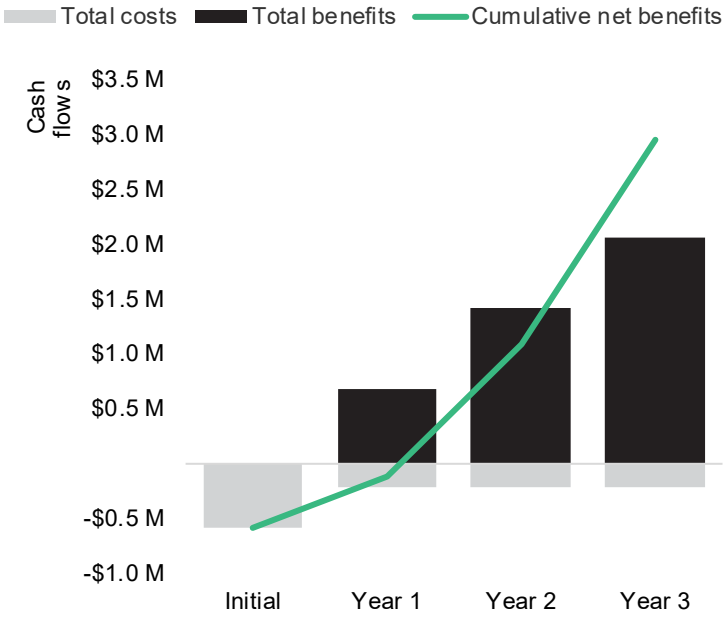
> "Importing the test cases into TestRail is a very quick and painless process but using TestRail as the driver for executing day-to-day testing activities takes a change in process, and that takes some time and effort to get that implemented and deployed through all the different teams."
>
> DIRECTOR OF QUALITY ENGINEERING AND AUTOMATION, TECHNOLOGY

Training And Change Management						
Ref.	**Metric**	**Source**	**Initial**	**Year 1**	**Year 2**	**Year 3**
G1	Software testers/administrators	Composite	100	100	100	100
G2	Time spent on training and change management per software tester/administrator (hours)	Interviews	40	4	4	4
G3	Fully burdened hourly rate for a software tester/administrator	Forrester standard	$52	$52	$52	$52
G4	**Subtotal: Training and change management costs for software testers**	**G1*G2*G3**	**$208,000**	**$20,800**	**$20,800**	**$20,800**
G5	Software developers	Composite	400	400	400	400
G6	Time spent on training and change management per software developer (hours)	Interviews	8	2	2	2
G7	Fully burdened hourly rate for a software developer	Forrester standard	$52	$52	$52	$52
G8	**Subtotal: Training and change management costs for software developers**	**G5*G6*G7**	**$166,400**	**$41,600**	**$41,600**	**$41,600**
Gt	Training and change management	G4+G8	$374,400	$62,400	$62,400	$62,400
	Risk adjustment	↑15%				
Gtr	Training and change management (risk-adjusted)		$430,560	$71,760	$71,760	$71,760
	Three-year total: $645,840			**Three-year present value: $609,016**		

Financial Summary

Consolidated Three-Year Risk-Adjusted Metrics

Cash Flow Chart (Risk-Adjusted)



The financial results calculated in the Benefits and Costs sections can be used to determine the ROI, NPV, and payback period for the composite organization's investment. Forrester assumes a yearly discount rate of 10% for this analysis.

These risk-adjusted ROI, NPV, and payback period values are determined by applying risk-adjustment factors to the unadjusted results in each Benefit and Cost section.

Cash Flow Analysis (Risk-Adjusted Estimates)

	Initial	Year 1	Year 2	Year 3	Total	Present Value
Total costs	($584,258)	($209,853)	($205,754)	($203,705)	($1,203,570)	($1,098,124)
Total benefits	$0	$679,607	$1,418,238	$2,059,740	$4,157,585	$3,337,435
Net benefits	($584,258)	$469,754	$1,212,484	$1,856,035	$2,954,015	$2,239,311
ROI						204%
Payback						14.0 months

APPENDIX A: TOTAL ECONOMIC IMPACT

Total Economic Impact is a methodology developed by Forrester Research that enhances a company's technology decision-making processes and assists solution providers in communicating their value proposition to clients. The TEI methodology helps companies demonstrate, justify, and realize the tangible value of business and technology initiatives to both senior management and other key stakeholders.

Total Economic Impact Approach

Benefits represent the value the solution delivers to the business. The TEI methodology places equal weight on the measure of benefits and costs, allowing for a full examination of the solution's effect on the entire organization.

Costs comprise all expenses necessary to deliver the proposed value, or benefits, of the solution. The methodology captures implementation and ongoing costs associated with the solution.

Flexibility represents the strategic value that can be obtained for some future additional investment building on top of the initial investment already made. The ability to capture that benefit has a PV that can be estimated.

Risks measure the uncertainty of benefit and cost estimates given: 1) the likelihood that estimates will meet original projections and 2) the likelihood that estimates will be tracked over time. TEI risk factors are based on "triangular distribution."

PRESENT VALUE (PV)

The present or current value of (discounted) cost and benefit estimates given at an interest rate (the discount rate). The PV of costs and benefits feed into the total NPV of cash flows.

NET PRESENT VALUE (NPV)

The present or current value of (discounted) future net cash flows given an interest rate (the discount rate). A positive project NPV normally indicates that the investment should be made unless other projects have higher NPVs.

RETURN ON INVESTMENT (ROI)

A project's expected return in percentage terms. ROI is calculated by dividing net benefits (benefits less costs) by costs.

DISCOUNT RATE

The interest rate used in cash flow analysis to take into account the time value of money. Organizations typically use discount rates between 8% and 16%.

PAYBACK PERIOD

The breakeven point for an investment. This is the point in time at which net benefits (benefits minus costs) equal initial investment or cost.

The initial investment column contains costs incurred at "time 0" or at the beginning of Year 1 that are not discounted. All other cash flows are discounted using the discount rate at the end of the year. PV calculations are calculated for each total cost and benefit estimate. NPV calculations in the summary tables are the sum of the initial investment and the discounted cash flows in each year. Sums and present value calculations of the Total Benefits, Total Costs, and Cash Flow tables may not exactly add up, as some rounding may occur.

APPENDIX B: SUPPLEMENTAL MATERIAL

Related Forrester Research

The 12 Must-Dos For Achieving Continuous Software Testing, Forrester Research, Inc., June 28, 2024.

Diego Lo Giudice, Announcing The Forrester Wave™: Continuous Automation And Testing Services, Q2 2024, Forrester Blogs.

Improve Developer Experience With Generative AI, Forrester Research, Inc., May 29, 2024.

Diego Lo Giudice, The Future Is Now: TuringBots Will Collapse The Software Development Lifecycle Silos, Forrester Blogs.

John Bratincevic, Diego Lo Giudice, The Rise Of Application Generation Platforms, Forrester Blogs.

Top Recommendations For Development Leaders, Forrester Research, Inc., May 6, 2024.

APPENDIX C: ENDNOTES

[1] Total Economic Impact is a methodology developed by Forrester Research that enhances a company's technology decision-making processes and assists solution providers in communicating their value proposition to clients. The TEI methodology helps companies demonstrate, justify, and realize the tangible value of business and technology initiatives to both senior management and other key stakeholders.

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