

The Forrester Wave™: Continuous Functional Test Automation Suites, Q2 2020

The 15 Providers That Matter Most And How They Stack Up

by Diego Lo Giudice

June 18, 2020

Why Read This Report

In our 26-criterion evaluation of continuous functional test automation (CFTA) providers, we identified the 15 most significant ones — ACCELQ, Broadcom, Cyara, Eggplant, Experitest, IBM, mabl, Micro Focus, Parasoft, Perforce Software, Ranorex, Sauce Labs, SmartBear Software, Tricentis, and Worksoft — and researched, analyzed, and scored them. This report shows how each provider measures up and helps application development and testing professionals select the right one for their needs.

Key Takeaways

Eggplant, Tricentis, Parasoft, And ACCELQ Lead The Pack

Forrester's research uncovered a market in which Eggplant, Tricentis, Parasoft, and ACCELQ are Leaders; mabl, Broadcom, Micro Focus, Sauce Labs, Perforce Software, IBM, and SmartBear Software are Strong Performers; Cyara, Worksoft, and Experitest are Contenders; and Ranorex is a Challenger.

A Smart, Integrated Test Experience Is The Key Differentiator

Smart, integrated suites of testing tools outperform the less effective, siloed best-of-breed ones. On top of the typical integration and maintenance functions, capabilities like AI and machine learning (ML) infused in test automation design and execution, combined heterogeneous channels, and API testing dictate which providers will lead the pack. Vendors that can provide a smart, integrated suite with seamless access to an extended set of capabilities position themselves to successfully deliver faster, lower-cost, and smarter testing to their customers.

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by [Diego Lo Giudice](#)

with [Christopher Mines](#), [Julia Caldwell](#), Sara Sjoblom, and Kara Hartig

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Related Research Documents

[The 12 Must-Dos For Achieving Continuous Software Testing](#)

[Now Tech: Continuous Functional Test Automation Suites, Q1 2020](#)

[Now Tech: Shift-Left Performance Testing Suites Of Tools, Q4 2019](#)



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Test Automation Becomes Smarter, Autonomous, And Universal

The pandemic, recent financial crises, and market volatility are forcing enterprises to become adaptive. Adaptive companies move fast and deliver software quickly and continuously to react to market-changing conditions while keeping a strong focus on customer experience.¹ Automation is at the core of being adaptive. While test automation is not new, past automation approaches have not helped app dev teams keep up with increased demands of modern delivery.² Testing becomes *strategic* in new areas like automation (e.g., testing of robotic process automation [RPA], low-code, and AI-infused apps); *smarter* with infusion of AI and ML; and *more efficient* by converging different types of nonfunctional and functional testing. With business, technical, and developer personas all stewards of quality, modern software testing requires a technology environment that enables collaboration and easy navigation from one type of testing to another and among the different persona testers.

As a result of these trends, CFTA customers should look for providers that:

- › **Make functional test automation smarter and more autonomous.** In the past 12 to 18 months, vendors have made progress in infusing AI and especially ML to augment user testing intelligence. From infusing natural language processing (NLP) in testing domain-specific languages to supporting automated self-healing of UI object recognition and turning testing results data into insights, expect help from CFTA to address many use cases.³
- › **Provide multiple testing capabilities plugged into functional test automation.** As continuous delivery matures and Agile teams compress sprints, time for testing shrinks. Functional testing is converging with load and performance testing to save time in creating duplicate test cases and automation bots. Look for CFTA suites that provide converged types of functional automated testing, with load-speed performance testing, API testing, service virtualization testing (SVT), and more.
- › **Provide an engaging, uniform, and straightforward test experience.** The best tools provide a uniform, consistently easy-to-use experience: an environment that facilitates collaboration across the software development lifecycle (SDLC) and testing stakeholders but within which is always straightforward to operate. All testing personas should be able to smoothly navigate across the different testing types (e.g., functional, nonfunctional, API, web, and mobile) without feeling that they are moving to a different tool. Forty-four of the 56 reference customers we interviewed for this evaluation prefer an integrated suite versus a bunch of best-of-breed tools.

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Evaluation Summary

The Forrester Wave™ evaluation highlights Leaders, Strong Performers, Contenders, and Challengers. It's an assessment of the top vendors in the market and does not represent the entire vendor landscape. You'll find more information about this market in our [“Now Tech: Continuous Functional Test Automation Suites, Q1 2020,”](#) report as well as [“The 12 Must-Dos For Achieving Continuous Software Testing”](#) report.⁴

We intend this evaluation to be a starting point only and encourage clients to view product evaluations and adapt criteria weightings using the Excel-based vendor comparison tool (see Figure 1 and see Figure 2). Click the link at the beginning of this report on Forrester.com to download the tool.

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FIGURE 1 Forrester Wave™: Continuous Functional Test Automation Suites, Q2 2020

THE FORRESTER WAVE™ Continuous Functional Test Automation Suites Q2 2020



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FIGURE 2 Forrester Wave™: Continuous Functional Test Automation Suites Scorecard, Q2 2020

	Forrester's weighting	ACCELQ	Broadcom	Cyara	Eggplant	Experitest	IBM	mabl	Micro Focus
Current offering	50%	3.67	3.85	1.87	4.47	2.63	2.85	2.94	2.85
Operating environments	10%	4.00	3.00	2.50	4.00	4.00	3.00	2.50	3.50
GUI design and automation	10%	3.66	3.02	1.66	3.66	4.34	3.00	3.66	3.00
API test design and automation	10%	3.00	5.00	1.00	4.00	1.00	5.00	2.00	4.00
Test and automation design	15%	4.00	4.00	2.00	5.00	1.00	2.00	2.50	3.00
Packaged application testing	10%	5.00	3.00	1.00	3.00	1.00	3.00	3.00	3.00
Automation execution/continuous testing	15%	5.00	5.00	1.00	5.00	5.00	3.00	3.00	1.00
Testing of BP and RP automation	10%	1.00	5.00	3.00	5.00	1.00	1.00	1.00	3.00
Qualities and integration	20%	3.25	3.00	2.50	5.00	3.00	3.00	4.50	3.00
Strategy	50%	3.80	3.00	3.60	4.40	2.40	2.60	4.00	4.00
Product vision	20%	5.00	3.00	3.00	5.00	3.00	3.00	3.00	5.00
Execution roadmap	20%	3.00	3.00	3.00	5.00	1.00	3.00	3.00	3.00
Innovation roadmap	20%	5.00	3.00	3.00	5.00	5.00	1.00	5.00	5.00
Partner ecosystem	20%	3.00	3.00	5.00	3.00	1.00	3.00	5.00	5.00
Market approach	10%	3.00	3.00	5.00	5.00	1.00	3.00	5.00	3.00
Commercial models	10%	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00
Market presence	0%	1.50	4.50	1.50	3.00	2.50	5.00	1.00	4.50
Revenue	50%	1.00	4.00	2.00	3.00	2.00	5.00	1.00	4.00
Customers	50%	2.00	5.00	1.00	3.00	3.00	5.00	1.00	5.00

All scores are based on a scale of 0 (weak) to 5 (strong).

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FIGURE 2 Forrester Wave™: Continuous Functional Test Automation Suites Scorecard, Q2 2020 (Cont.)

	Forrester's weighting	Parasoft	Perforce Software	Ranorex	Sauce Labs	SmartBear Software	Tricentis	Worksoft
Current offering	50%	3.50	2.82	1.35	2.09	2.60	4.52	3.08
Operating environments	10%	3.50	4.00	1.50	4.00	2.50	3.50	2.50
GUI design and automation	10%	3.02	3.68	3.00	2.36	3.02	3.66	2.32
API test design and automation	10%	5.00	1.00	1.00	1.00	5.00	4.00	2.00
Test and automation design	15%	4.00	2.00	1.00	2.00	4.00	5.00	3.00
Packaged application testing	10%	1.00	1.00	1.00	1.00	1.00	5.00	5.00
Automation execution/continuous testing	15%	5.00	5.00	1.00	3.00	1.00	5.00	3.00
Testing of BP and RP automation	10%	1.00	1.00	1.00	1.00	1.00	5.00	5.00
Qualities and integration	20%	4.00	3.50	1.50	2.00	3.00	4.50	2.50
Strategy	50%	4.00	3.00	1.60	4.40	2.80	3.60	2.20
Product vision	20%	3.00	3.00	1.00	3.00	1.00	3.00	3.00
Execution roadmap	20%	5.00	3.00	1.00	5.00	1.00	3.00	3.00
Innovation roadmap	20%	3.00	3.00	1.00	5.00	3.00	3.00	3.00
Partner ecosystem	20%	5.00	3.00	3.00	5.00	5.00	5.00	1.00
Market approach	10%	5.00	3.00	1.00	5.00	5.00	5.00	1.00
Commercial models	10%	3.00	3.00	3.00	3.00	3.00	3.00	1.00
Market presence	0%	2.00	3.50	3.50	3.50	4.00	4.00	2.00
Revenue	50%	2.00	3.00	2.00	3.00	3.00	4.00	2.00
Customers	50%	2.00	4.00	5.00	4.00	5.00	4.00	2.00

All scores are based on a scale of 0 (weak) to 5 (strong).

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Vendor Offerings

Forrester included 15 vendors in this assessment: We invited ACCELQ, Broadcom, Cyara, Eggplant, Experitest, IBM, mabl, Micro Focus, Parasoft, Perforce Software, Ranorex, Sauce Labs, SmartBear Software, Tricentis, and Worksoft (see Figure 3).

FIGURE 3 Evaluated Vendors And Product Information

Vendor	Product evaluated	Product version evaluated
ACCELQ	ACCELQ Automate	4.2
Broadcom	BlazeMeter Continuous Testing	N/A
Cyara	Cyara Automated CX Assurance	2020.1
Eggplant	Eggplant Digital Automation Intelligence	4.1
Experitest	Experitest SeeTest	20.2
IBM	IBM Rational Test	10.0.2
mabl	mabl	N/A
Micro Focus	Micro Focus UFT Family	15.0
Parasoft	Parasoft SOAtest, Parasoft Virtualize, and Parasoft Selenic	9.10.8
Perforce Software	Perfecto Suite	20.3
Ranorex (Idera)	Ranorex Studio	9.3.0
Sauce Labs	Sauce Labs Continuous Testing Cloud	N/A
SmartBear Software	SmartBear Suite	N/A
Tricentis	Tricentis Continuous Testing	N/A
Worksoft	Worksoft	N/A

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Vendor Profiles

Our analysis uncovered the following strengths and weaknesses of individual vendors.

Leaders

- › **Eggplant augments testers with AI and automation to help clients improve CX.** Eggplant has strengthened many of its core capabilities. Its scriptless AI model-based language has matured as more clients use it, and its functional testing includes more customer experience (CX) testing. It has also doubled down on its business process and testing of RPA applications because captive clients use Eggplant for simple task automation. Eggplant is one of the few tools that offers an easy-to-use modeling language capability based on sophisticated ML algorithms; this enables powerful application and process test scenarios with straightforward graphical representation. This is totally abstracted from the underlying technology, making test change and automation reuse a strength. Eggplant was one of the first tools to have a strong UI image-based approach with similar abstraction capabilities and AI test modeling language, allowing the tool to test a broad range of software on the most disparate technologies like ATMs, points of service, or proprietary devices. Eggplant also offers a competitive mobile testing solution.

Clients have found clear business benefits in using Eggplant for their mobile application testing. As one client put it: “Our mobile app was previously rated 1.9 in the Apple Store and 2.8 in the Android Play Store. We now have an industry-leading rating of 4.7.” Eggplant has a strong testing vision with clear execution and innovation roadmaps. If successfully implemented, it will stay ahead of competition, confirm itself as a strong choice for enterprise testing clients, and remain well suited to Agile-plus-DevOps transformations.

- › **Tricentis stretches Tosca in all automation directions and starts a deeper AI journey.** Tricentis has kept its multipronged market leadership approach to continuous testing, addressing both the packaged and custom development worlds. It has shown not only a dynamic capability in acquiring good-fit companies but also a strong engineering capability in integrating the acquired technologies with the goal of offering consistent multipersona collaborative test management and automation tools. Tosca has extended its offer with multiple automation capabilities, multiple-languages support (SpecFlow and Gherkin), and a test management environment (qTest). The integration of qTest seems to be going in the right direction, offering a common test management workspace with a smooth test experience to and from various test creation and automation capabilities. Tricentis offers one of the most complete and mature integrated continuous test automation platforms on the market. Tricentis has also beta-released its AI-based tool NEO that leverages deep learning for UI functional testing, with goal of making automation easier to build (offering testing even before UI implementation) and resilient to changes.

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While Tricentis has multiple partnerships in the mobile testing space, it does not offer its own cloud device testing, which often makes it a less suitable choice for clients with heavy and extended mobile testing requirements. On the other hand, clients with extensive end-to-end automation of functional and business process testing requirements, across packaged and custom apps, and need for testing of RPA will find a strong solution in Tricentis.

- › **Parasoft strengthens its already-rich suite of testing tools by adding smarts.** Parasoft has traditionally been a go-to testing platform for developers and still is one of their preferred choices. However, in the past 12 to 18 months, it added features to appeal to less-technical folks by baking in AI and ML to abstract away some tool usage complexity. For example, it enables testers with little coding experience to generate UI API tests and run them. Also, its new Selenic tool that improves maintenance offers some light UI self-healing automation capabilities when testing with Selenium. Parasoft is executing on its strong, committed AI roadmap that it outlined in 2018 and has plans to infuse AI and ML at all layers of the testing pyramid. Parasoft's continuous testing shines in API testing, service virtualization and integration testing, and the combined automation context. Finally, Parasoft has very strong continuous integration/continuous delivery (CI/CD) and application lifecycle management (ALM) platform integration as well as reporting through its analytics system PIE.

Enterprises that mainly do intensive testing of packaged applications should consider a solution other than Parasoft. Many reference customers raved about its partnership: "I truly believe that Parasoft is engaged in the success of myself and my company," one reference customer said, which others echoed. Being a reliable partner is an important element of the vision of Parasoft's CEO and owner of the company. So clients looking for a genuine partner in testing, with strong and long-living roots in the testing space and complex technical systems to test, should take a serious look at Parasoft.

- › **ACCELQ makes its way to the top tier of test automation suites for modern testers.** A new entrant in the Forrester Wave, ACCELQ has a strong management team that built a suite on the cloud from the ground up and integrates a seamless test management and codeless automation capability. ACCELQ's powerful Universe visual environment provides a modular description approach for testers to create scenarios that directly relate to the components of an application and the business processes. It has most of the modern features we expect: self-healing capabilities at the UI level, bots for real-time path analysis to identify change impacts, smart UI element handling and Document Object Model management, NLP-like capabilities in lieu of scripting, and test planning and management. These also align with the needs of testing management in pipelines in Agile-plus-DevOps environments. **It's a versatile tool for many contexts, both packaged and custom, with a strong Salesforce partnership that serves much of its core client base.**

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It mainly addresses mobile testing through the Browser Stack partnership but is planning a native solution. To keep its leadership position, the vendor will have to address other gaps like integrating a shift-left performance testing (SLPT) capability in the suite. **ACCELQ is a strong choice, especially for Salesforce customers. A reference client mentioned the innovation ACCELQ brings to the table, “I believe this company is on the leading edge and can go places.”**

Strong Performers

- › **Mabl enters the CFTA market with disruption potential but no mobile testing.** The ultimate goal of mabl is to offload the testing burden during development. Mabl offers a unified platform that makes it easy to automate. The approach does not require specialized technical skills and is one of the few platforms that could get broad developer support, even though the automation creation targets technical and business testing personas. In fact, in an open environment, developers can leverage the tool if they want to extend, customize, or create new tests within their preferred integrated development environment (IDE) and triage easily through both. Mabl is a full software-as-a-service (SaaS) solution with advanced record and replay, which a trainer based on ML manages and gets smarter about the UI under test. The approach is very intuitive thanks to its high level of autonomous maturity. The tool can also test PDF documents, emails, and addresses for a multitude of customer journeys over various workflows and technologies. Mabl offers capabilities across all testing personas, and its analytics reporting based on AI can predict and show planned execution time for generated automation tests.

Mabl's roadmap includes use of AI to enable the trainer living in the app under test to proactively highlight ongoing application changes and help act on them when they can't be self-healed completely. It's a true intelligent native test solution, with a strong engineering team, ample funding, and relevant known brands as adopters. However, mabl needs to work on offering all its capabilities on mobile devices too. Software product teams that are modernizing application delivery and willing to infuse intelligent automation and testing in their delivery pipelines should look at mabl. Client references raved about the great support, vision, quality, and ease of use.

- › **Broadcom bets on cloud to offer a new CFTA suite.** BlazeMeter Continuous Testing (BlazeCT) focuses on the cloud testing technology of BlazeMeter, which Broadcom inherited from its CA Technologies acquisition. Test technologies include Agile Requirements Designer (ARD) for functional test authoring and design, DevTest for service virtualization and API testing, test data management (TDM), BlazeMeter for SLPT, and right-shift testing and monitoring (formerly RunScope). These tools have leading capabilities in the cloud-native application testing space. Most BlazeCT tools align with developer test personas especially for automation scripting/coding, API testing, and SVT. ARD provides business and technical testers with a good design and optimization tool for test cases and generation from requirements. A rich infusion of AI and ML is planned for coming releases and already appears in some capabilities like smart execution of testing.

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Broadcom needs to work on its business and technical testing personas, automation building, omnichannel testing, reporting, analytics, and (most importantly) homogeneous testing experiences across its various tools, making the suite easier and more straightforward to use. Broadcom is a strong solution for large enterprises willing to partner and tightly collaborate on the journey to continuous testing for Agile and DevOps that Broadcom has started.

- › **Micro Focus resets its effort with innovation and a revamped CFTA suite.** As a result of rationalizing in the past two years, the formerly competing offerings of Micro Focus and the Hewlett Packard Enterprise (HPE) software business are unified and converging. Service virtualization and RPA complement the functional testing family. And Micro Focus has introduced innovation based on AI, ML, and RPA. The new vision of Micro Focus is “shift everywhere,” leveraging a broad suite of tools composed of UFT One, UFT Developer, and UFT Mobile infused with AI and NLP capabilities. A simplified implementation of NLP now provides a codeless UI testing capability available only on mobile with a self-learning capability to recognize new UI objects. More self-learning technology will release in 2020 for web, desktop, and packaged apps. UFT also uses ML, computer vision, optical character recognition, and neural network technology. Also planned in 2020 is smart analysis integrated with ALM Octane, community ML, and real transaction harvesting. In addition, Micro Focus has released a new RPA tool that leverages automation capabilities from the test suite and enables RPA testing. Also worth mentioning is the new synthetic TDM tool.

Still uncertain is if these past efforts have stopped the number decline of the huge older captive HPE software testing client base. In support of Agile-plus-DevOps transformations, reference customers still expect and want more and better pervasive CI/CD of testing capabilities. Client references showed low levels of test automation, compared with peers.

- › **Sauce Labs sets an ambitious vision and now needs to execute.** In the past 12 months, Sauce Labs has gone through a lot of change, including a new management team with a new vision for the company: to help enterprises gain digital confidence. On one hand, Sauce Labs has kept its focus on its cloud roots and commitment to the open source community. On the other, its vision includes common web-plus-mobile testing with insights and services, leveraging the sea of testing data from tests run on its cloud grid. The goal is to augment developers with testing intelligence from the cloud, with AI and ML algorithms providing insights from 3 billion-plus tests run so far and millions more every day going forward. The infusion of ML in Sauce Labs’ strategy shows in the new failure analysis capability that uses ML to work with pass/fail data and Selenium command logs to uncover and aggregate common failures, providing insights into how they affect test suites as a whole. The offering has excellent integration in CI/CD pipeline automation, strong developer tester consensus, extended partnerships with third-party testing vendors and services suppliers, and a solid omnichannel testing solution.

Sauce Labs is trying to push testing behind the scenes, making it as invisible as possible for developers. While its API testing is weak, Sauce Labs has doubled down on headless testing of which it is a strong proponent. Sauce Labs is a solid choice for firms that need a high-performing

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web and mobile grid and want to be quality-insights-driven for digital products. As a reference client put it, “Sauce Labs needs to modernize to stay relevant,” and Sauce Labs seems on the way to making that happen.

- › **Perforce’s acquisition of Perfecto bolsters API and test automation.** Perforce acquired Perfecto, enriching its broad portfolio of development tools that include Agile management, code management, and collaboration and application management with automated testing. The new collocation makes Perfecto a better enterprise citizen in an overall Agile-plus-DevOps enterprise strategy. Akana, Perforce’s API management solution, widens Perfecto’s API testing capabilities through importing mechanisms while working on an interoperable integration. The long-standing partnership between Perfecto and TestCraft also produced tighter integration with the acquisition of TestCraft’s codeless testing tool. And for test automation, TestCraft’s AI and ML not only make test creation easy but also add UI self-healing capabilities. Perfecto’s cloud device farm is still a strong enterprise choice, with improved parallel testing capabilities and high-level performance test execution at scale with enterprise-grade security. Perfecto plans to enrich its strong reporting and analytics features with more AI and ML, given the potential huge amount of testing data from its clouds.

Perforce needs to better leverage Akana’s API management capabilities within the test automation solution, but the raw material is definitely there. Once that integration comes to fruition, Perfecto will be an ideal integrated test suite option for clients focusing on web, mobile, and API testing. Technical, developer, and business testers (to a lesser extent) will find Perfecto to be a good choice. Reference clients confirm its automation strength by showing some of the highest levels of test automation.

- › **IBM reengineers its testing suite for cloud Agile-plus-DevOps and toward VSM.** As IBM continues its aggressive pursuit of the enterprise DevOps and cloud market, quality sits at the center of its strategy. IBM Rational Test has been rearchitected in Rational Test Workbench, and Rational Test Server has been reengineered for cloud as part of the vendor’s CloudPak strategy. This new architecture better suits flexible and Agile project teams and testing of cloud-native and legacy apps. The suite offers an end-to-end test automation platform for identification, design, creation, execution, and analysis of API, functional, UI, and performance testing, along with service virtualization. API testing and test asset reuse shined in this year’s evaluation. IBM Rational Test also integrates with its value stream management (VSM) offering Velocity, providing visibility into the quality of pipelines and what flows through them. IBM also distinguishes itself in its breadth of API testing and addressed technologies.

IBM has a long-term innovation roadmap that IBM research fuels. However, these efforts have a limited impact on its short-term product execution roadmap and therefore on clients’ more immediate innovation needs. Clients rave about IBM’s comprehensive support from leadership to engineers, but some complain about UI front-end design testing not being easy to do. Overall, for broad, complex enterprise-at-scale testing, ranging from heterogeneous legacy requirements to innovative API and microservices application architecture testing, IBM is a strong choice.

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- › **SmartBear keeps quality front and center while trying to integrate acquisitions.** SmartBear is a dynamic acquisition engine, bringing onboard the test management company Zephyr, the mobile application testing company BitBar, and two behavior-driven development (BDD) companies — Hiptest and Cucumber (now converged in CucumberStudio). And it most recently acquired the project management product TM4J, which complements Zephyr for Jira. Together, these moves allow SmartBear to expand its testing reach to almost all testing areas and place quality front and center. Leading areas for SmartBear in our evaluation were API testing with SoapUI, LoadUI, and ServiceV; combined automation of APIs with other technologies; and CucumberStudio and LodNinja for SLPT. All tools run in the cloud but have different models and pricing strategies (some are subscription-based). The resulting execution of the vision and strategy reads like a menu of à la carte testing offerings, targeting developers (which aligns with its inside sales strategy).

However, most Wave reference customers said they prefer an integrated suite over best-of-breed solutions. In SmartBear instead, from developer and enterprise perspectives, the test experience is not smooth when going from one type of testing task or step to another or when testing traverses different tools (especially ones from acquisitions). SmartBear has more work to do to take a leadership position in the CFTA market, coupling its dynamic acquisition engine with well-planned integration engineering efforts and providing a more uniform UI with a unified vision.

Contenders

- › **Cyara provides a CFTA suite narrowly focused on improving CX in contact centers.** Cyara's go-to-market focuses on testing contact center solutions that are modernizing delivery with Agile and DevOps, and it offers broad test automation capabilities. Its CFTA suite of products includes Velocity for discovery, functional, and regression testing; Cruncher for load testing; and Pulse for monitoring. These run as a cloud platform, and testing capabilities provide end-to-end testing, omnichannel testing (e.g., chatbots, SMS, voice, routing, and interactive voice response), and CX analytics. Cyara also offers out-of-the-box (OOTB) integrations with Jira and Micro Focus, analytics with Splunk, and issue management platforms like ServiceNow. Through a DIY approach, REST APIs expand integrations. From a continuous testing perspective, Cyara enables and supports SLPT, automated testing of functional and business processes, and testing in production.

However, our Wave criteria focused on a broader CFTA market, so Cyara ranked as a Contender. But Cyara has a leading position in the contact center testing space and suits clients that need to test contact center apps that are running on or migrating to cloud and part of a broader enterprise digital transformation that focuses on CX. A happy reference client recommended Cyara for enterprise quality engineering teams, which is also a potential play for Cyara.

- › **Worksoft focuses on SAP testing as it expands to other packages.** Worksoft's go-to-market exclusively focuses on packaged application testing and specifically targets the SAP world, even though its capabilities are broader. But new management is extending Worksoft's product vision to broader end-to-end lifecycle business process automation. Worksoft has added technology

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for connecting the management of the full lifecycle of packaged application business processes, from automated discovery with new Capture and Analyze tools to automated testing with Certify and Execution Manager and RPA with Orchestrator for production process automation. This strengthens Worksoft's position in the end-to-end automated testing world across technologies (e.g., web, mobile, mainframe, cloud, and internet-of-things [IoT] devices) and as a potential broader enterprise automation play for its customers.

Beyond its SAP focus, Worksoft offers integration with more than 150 different types and releases of packaged application platforms including Oracle and Salesforce. Worksoft has also introduced AI and ML supporting strong design automation capabilities, UI self-healing, and record and replay for business testers. Its weakness in API testing, SLPT, and developers' consensus still exists (and in less-critical requirements for packaged apps). Forrester Wave references appreciate recent innovations but have experienced some issues. Clients that want continuous testing for SAP enterprise business applications and more automation should include Worksoft in the shortlist.

- › **Experitest emphasizes mobile as part of an all-inclusive CFTA suite.** Experitest offers a complete testing environment for both web and mobile. In the past 18 months, it has invested in building additional data centers around the world supporting its digital mobile, web, and IoT labs. SeeTest is a complete CFTA suite with automated testing of both functional and nonfunctional (performance) testing, test creation, and execution test environments with analytics and reporting. Execution engines run in Docker containers where both Appium and Selenium tests run at decent speed. SeeTest is also becoming smarter by enabling more AI-based analytics, heat maps, feature-based impact, and automated root-cause analysis. Cloud application testing, CI/CD automation, record and replay, and scripted/coding for both web and mobile serve the needs of both developers and less-technical testers. (After the evaluation period of this Wave ended and just before publication, Digital.ai acquired Experitest to expand CFTA capabilities within its broad VSM portfolio. Forrester did not factor it into this evaluation.)

Although it's a good choice for developers, it lacks native API testing capabilities, which it offers only through third-party integration. Its roots in mobile often seem more dominant than web desktop testing, which showed in demos and briefings. On the other hand, mobile-first is becoming the new normal, which might partially justify the focus. Experitest is a strong choice for clients with a mobile-first strategy and web testing requirements. Experitest has some important large clients that have adopted it at enterprise scale.

Challengers

- › **Ranorex offers strong UI automation for desktop and web only on .NET.** Ranorex has high customer satisfaction, but its exclusive focus on the .NET world is limiting. It offers stable automation for various technologies, and a few other vendors have partnered with Ranorex to fill their gaps on the .NET platform for functional automation. It offers a wide range of test creation and test automation capabilities from record and playback to a scriptless test automation and scripting/

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coding one. Those options enable some business testers but mostly technical and developer testers. Idera recently acquired the vendor and has not yet released significant innovation and evolution plans. Integration with Idera's test management tool TestRail and CI/CD TravisCI are still on the roadmap.

Ranorex could extend technology coverage outside the .NET world for less-technical personas. Its goal is to support all popular programming languages using the W3C automation standard WebDriver and offer automation support using plug-ins for the most popular IDEs. Plans also include providing seamless support for BDD. Reference clients are very happy with the automation power, stability, and ease of use but want more innovation from Ranorex to stay competitive. It is definitely a tool for .NET application development testers and enterprise goals that include complementary test vendors.

Evaluation Overview

We evaluated vendors against 26 criteria, which we grouped into three high-level categories.

- › **Current offering.** Each vendor's position on the vertical axis of the Forrester Wave graphic indicates the strength of its current offering. Key criteria for these solutions include operating environments for cloud support, omnichannel and mobile devices, GUI design and scripting/scriptless automation, API test design and combined automation, test design automation, test-driven development and/or BDD, packaged application testing, automation execution (CI/CD) and continuous testing, testing of business process and RPA, and overall testing qualities.
- › **Strategy.** Placement on the horizontal axis indicates the strength of the vendors' strategies. We evaluated long-term testing vision, aligned execution innovation roadmaps, partners' ecosystems, market approach, and commercial models.
- › **Market presence.** Represented by the size of the markers on the graphic, our market presence scores reflect each vendor's CFTA revenue and customer logos.

Vendor Inclusion Criteria

Forrester included 15 vendors in the assessment: ACCELQ, Broadcom, Cyara, Eggplant, Experitest, IBM, mabl, Micro Focus, Parasoft, Perforce Software, Ranorex, Sauce Labs, SmartBear Software, Tricentis, and Worksoft. Each of these vendors has:

- › **Omnichannel testing capabilities.** These provide functional automation testing across web browsers and mobile web. They can also address at least one of the following: automation on iOS and Android mobile devices, mainframe apps, thick clients, and packaged applications.

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- › **Design, UI, and API functional test automation.** Vendors had to deliver at least one of three capabilities: UI automated testing, the ability to automate design, and the ability to create and execute API and web services tests. The tool also had to address at least two of three testing personas: business, technical, and developer.
- › **Presence in CFTA client inquiries and/or in Forrester's analyst radar.** Forrester's clients often discussed these vendors and platforms through inquiries, or they came up in advisory with testing services vendors. Alternatively, the vendor may, in Forrester's judgment, warrant inclusion or exclusion in this evaluation because of technology trends or market presence.
- › **CFTA customer references.** Vendors provided contact information for at least three customers that agreed to give feedback about their use of the CFTA suite.

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Supplemental Material

Online Resource

We publish all our Forrester Wave scores and weightings in an Excel file that provides detailed product evaluations and customizable rankings; download this tool by clicking the link at the beginning of this report on Forrester.com. We intend these scores and default weightings to serve only as a starting point and encourage readers to adapt the weightings to fit their individual needs.

The Forrester Wave Methodology

A Forrester Wave is a guide for buyers considering their purchasing options in a technology marketplace. To offer an equitable process for all participants, Forrester follows [The Forrester Wave™ Methodology Guide](#) to evaluate participating vendors.

In our review, we conduct primary research to develop a list of vendors to consider for the evaluation. From that initial pool of vendors, we narrow our final list based on the inclusion criteria. We then gather details of product and strategy through a detailed questionnaire, demos/briefings, and customer reference surveys/interviews. We use those inputs, along with the analyst's experience and expertise in the marketplace, to score vendors, using a relative rating system that compares each vendor against the others in the evaluation.

We include the Forrester Wave publishing date (quarter and year) clearly in the title of each Forrester Wave report. We evaluated the vendors participating in this Forrester Wave using materials they provided to us by April 2020 and did not allow additional information after that point. We encourage readers to evaluate how the market and vendor offerings change over time.

In accordance with [The Forrester Wave™ Vendor Review Policy](#), Forrester asks vendors to review our findings prior to publishing to check for accuracy. Vendors marked as nonparticipating vendors in the Forrester Wave graphic met our defined inclusion criteria but declined to participate in or contributed only partially to the evaluation. We score these vendors in accordance with [The Forrester Wave™ And The Forrester New Wave™ Nonparticipating And Incomplete Participation Vendor Policy](#) and publish their positioning along with those of the participating vendors.

Integrity Policy

We conduct all our research, including Forrester Wave evaluations, in accordance with the [Integrity Policy](#) posted on our website.

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Endnotes

- ¹ See the Forrester report [“Beyond Agility — Adaptive Enterprises Hold The Winning Hand.”](#)
- ² See the Forrester report [“Adopt Agile And DevOps To Drive Digital Business Success.”](#)
- ³ See the Forrester report [“The Path To Autonomous Testing: Augment Human Testers First.”](#)
- ⁴ See the Forrester report [“The 12 Must-Dos For Achieving Continuous Software Testing”](#) and see the Forrester report [“Now Tech: Continuous Functional Test Automation Suites, Q1 2020.”](#)

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