

HP Business Process Testing software: test automation focused on your business

White paper



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Abstract: HP Business Process Testing software is the industry's first complete role-based test automation system that enables subject matter experts to build, data-drive, execute and document tests without any programming knowledge.

This paper presents a brief overview of the HP Business Process Testing concept and its advantages for businesses and test teams. It also summarizes the key functions and benefits of HP Quality Center software offerings, quality accelerators from HP and TurnKey Solutions, and professional services offerings that will help enterprises implement HP Business Process Testing quickly and cost-efficiently.

Introduction

HP Business Process Testing software is the first complete role-based test automation system to bridge the quality chasm by enabling business analysts and quality engineers to collaborate effectively. HP Business Process Testing enables non-technical subject matter experts to build, data-drive, execute and document test automation without any programming knowledge, allowing them to focus on creating high-level test flows that mirror actual business process while quality engineers concentrate their efforts on areas that facilitate automation.

HP Business Process Testing provides capabilities and benefits no other product on the market can match. It:

- Greatly simplifies and speeds up the test design process by using “components” (business process building blocks)
- Allows QA and testing teams to start the test design process much sooner—during system design—accelerating time-to-deployment for high-quality software
- Generates automated tests and test case documentation in a single step, eliminating the expensive and time-consuming processes of creating and maintaining test records

- Enables QA teams to use prepackaged test assets and best practices to implement test automation for leading enterprise resource planning (ERP) and customer relationship management (CRM) applications, saving time and leveraging the knowledge of experts
- Raises the adoption rate for test automation because it is so easy to deploy and use

HP Business Process Testing can also help enterprises get more out of the tools they have already purchased. It is part of HP Quality Center, an integrated set of software, services and best practices for automating key quality activities, including requirements management, test management, defect management, functional testing and business process testing. HP Business Process Testing integrates smoothly with any work already done with HP QuickTest Professional software or HP WinRunner software. HP Quality Center products support more than 90 percent of the Fortune 500 and more than 65 percent of all automated software quality initiatives.

In short, HP Business Process Testing is capable of increasing the productivity of subject matter experts and QA/test engineers alike—not by small increments, but by quantum leaps. Enterprises can expect high ROI and fast payback from their transition to HP Business Process Testing.

Limitations of traditional automated testing

Automated software testing has come a long way in a short period of time. Each successive generation of products has solved significant challenges, yet each advance has also introduced a new set of issues that needs to be resolved.

First-generation products, introduced about 15 years ago, were hardware-based capture/playback systems that recorded keystrokes and replayed them on demand. These tests were easy to create, but they provided limited validations and checkpoints, and they were difficult to maintain and document as changes occurred.

Second-generation solutions, which appeared about ten years ago, were software-based capture/playback systems that recorded test cases and represented them as scripts. This approach provided wider test coverage and more robust checkpoints and validations, but it required specialized development skills and did not completely solve the maintenance challenge. Every time an application changed, the test scripts had to be updated. This resulted in modifications to many lines of code and created the necessity to continually update the documentation to reflect these changes.

Third-generation automated testing solutions, called “test frameworks,” have been on the market since 2001. Test frameworks added a layer of abstraction over the scripting process so that non-technical people could build tests. With this approach, subject matter experts (also called business analysts) could draw on a library of pre-built “keywords,” which implemented a specific action against the application (for example, “click the OK button”). Keywords provided the ability to develop automated test cases with no procedural programming experience.

Test frameworks led to dramatic productivity increases for many software testing teams, but they still had many shortcomings. For example:

- The operations performed by any particular keyword tended to be very fine-grained or atomic. Designing a test for an entire business process required the use of hundreds of individual keywords—a time-consuming process.
- Since test framework solutions consist of files with keywords and their associated data elements, subject matter experts found that they were still creating scripts, despite promises by some vendors of “scriptless” test design.

- Traditional test framework products were not always backwards-compatible with previous-generation technology—such as recorders—limiting their flexibility. With some framework products, engineers couldn’t get under the hood and modify the code that was underlying the keywords even if they wanted to.
- Test frameworks and keyword-based products still didn’t function at the business process level, forcing subject matter experts to think like programmers, which constrained adoption rates.
- Test frameworks did not assist in the creation of test documentation, and therefore required the investment of many man-hours to create the detailed information required for compliance with several of today’s legislative acts regulating data access, including Sarbanes Oxley and the Health Information Portability and Accountability Act (HIPAA).

HP Business Process Testing: a transformation, not a technology

HP quickly recognized that solving the challenges of traditional test automation required a completely new approach, not simply modifications or updates to existing third-generation solutions. In response to the needs of the industry, HP has developed a fourth-generation approach that radically streamlines test design, test automation, test maintenance, and the expensive and time-consuming test documentation processes.

How HP Business Process Testing works: a brief overview

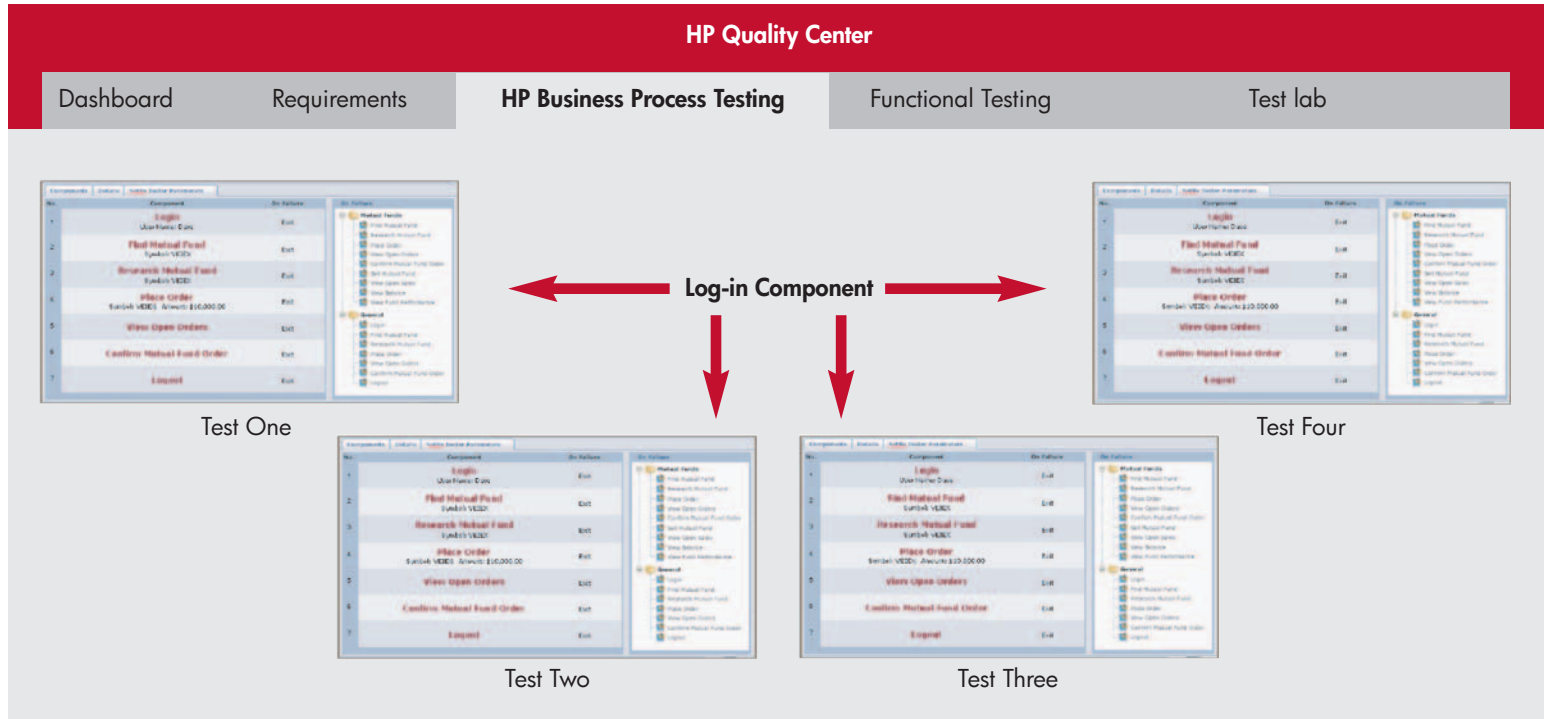
The transition from table-driven testing frameworks to HP Business Process Testing is evolutionary in terms of technology, but revolutionary in terms of capabilities. The next sections describe the core concepts underlying HP Business Process Testing, followed by a brief discussion of the benefits realized by subject matter experts, QA and test engineers, and for the business as a whole.

Non-technical “building-block” approach to test design

One of the key advances HP Business Process Testing provides to subject matter experts is the ability to assemble business processes on the fly via components. Components are simply modules of a business process. Using components, subject matter experts can quickly create multiple user scenarios, validate each one of them, and optimize the business process flow without ever having to touch any procedural code or keywords.

For example, in many applications, users need to log on before they do anything else. With the HP Business Process Testing approach, the “Log On” function is available as a component that can be dragged and dropped into a test script. The Log On component would include the various user steps in the log on process—

Figure 1. Each component can be used and reused in any number of test cases, so the more overlap you have in processes, the more you benefit from HP Business Process Testing.



for example, launching the application, entering the user name, entering a password and clicking the submit button.

To create an entire business process test, the subject matter expert simply selects the desired component from a tree-structured list (like the File Manager in Microsoft® Windows®), then drags and drops the components into the HP Business Process Testing Workspace. For example, the Log On component described above could be the first step of a business process for placing a mutual fund order. Other components might include: Find Mutual Fund; Research Mutual Fund; Place Order; View Open Orders; Confirm Order and Log Out.

Prior to execution, components are eventually implemented by subject matter experts using keywords, or by QA engineers using the recorder and script commands. But the implementation of the components is separated from their design and use in creating scripts, so the subject matter experts can focus on the business processes.

Each component can be used and reused in any number of test cases, so the more overlap you have in processes, the more you benefit from HP Business Process Testing.

Reusable components for project acceleration

Once the components have been built, they can be used and reused in every test case that requires similar functionality—enabling testers to use a single component in hundreds of different test cases with little or no extra effort. By simply selecting the appropriate component via drag-and-drop, subject matter experts can mix and match components to create multiple scenarios and test sets for different needs. This eliminates the thousands of lines of redundant script code that used to be created, stored and maintained for each application. The result: project teams can now build automated tests for complete business processes in a fraction of the time previously required.

Integrated test automation and documentation

Many companies are currently devoting hundreds of man-hours and spending thousands of dollars creating and maintaining detailed test documentation. This documentation is essential, not only for recording the company's testing processes for test tracking, but also for meeting the requirements of many of the recent legislative acts affecting data access and retention, including Sarbanes-Oxley and HIPAA. Previous generations of test automation solutions suffered from a lack of integration between the test automation and

documentation processes. These early tools did not have the ability to automatically create detailed test records at the same time tests were being created.

With HP Business Process Testing, documentation is automatically created while the testing team is designing the tests. HP has developed the capability to export test documentation into simple-to-access word processor formats, including Microsoft Word. Once the testing team defines the test definitions in the system, HP Business Process Testing generates a document that describes every business process, all steps taken, all data used to certify the process, every data element used and the results of each action taken. These records provide complete and accurate test information in an easy-to-read format, with a table of contents and relevant appendices. By providing the ability to create documentation automatically, HP Business Process Testing can save organizations hundreds of man-hours and free up valuable IT expertise for other, more strategic testing activities.

Centralized test maintenance

One of the leading causes of “shelfware” or abandoned application projects is the inability to keep up with automated test maintenance requirements. With HP Business Process Testing, when testers make changes to applications, HP products provide the ability to show the QA engineers or subject matter experts which test components and tests must be scanned for any needed updates. Changes are isolated to components, so there are fewer total changes and the changes are populated to test cases automatically. And since test case documentation is also generated automatically, there is no longer a constant struggle to synchronize changes to the test automation script with the documentation.

Quality accelerators for HP Business Process Testing

To further expedite projects involving popular ERP and CRM applications, HP and TurnKey Solutions have introduced “quality accelerators” or prepackaged test scripts, components and best practices for testing and maintaining leading solutions, including Oracle® applications. Quality accelerators make it simple to automate the testing of typical functions, such as general ledger (GL) transactions, accessing customer records, approving requisitions and so on. Quality accelerators provide most frequently used test components and test cases, so test teams can accelerate their testing efforts and implement test automation faster and less expensively than ever before.

Testing at a higher level: two simple examples

The examples below contrast how a test automation project might proceed—with and without implementation of HP Business Process Testing.

Example 1: The CIO wants to add online filing of expense reports to the company’s current HR portal—and wants the new capability up and running as quickly as possible.

- *With HP Business Process Testing:* Most of the functionality involved in online filing of expense reports has already been componentized and automated in previous projects: the log-on process for accessing HR resources; launching the expense report template; creating a new expense report; submitting documents to HR for approval; etc. Subject matter experts can now quickly assemble the new business process tests by selecting needed components, build and verify multiple test cases and scenarios, and mark the new or changed components for implementation or updating. The entire testing process is completed in just a few days. No additional time is required to create or update complete test documentation records, since these

reports are automatically generated by HP Business Process Testing and formatted in an easy-to-read MS Word document.

- *Without HP Business Process Testing:* Even though similar functionality was developed for other online HR services, the new testing effort will require a new test automation script development effort, as well as extensive new test documentation—and will require considerable technical expertise for automated test script creation that is currently in short supply. The testing process will take several months and the documentation process will add many additional weeks. As a result, time-to-deployment will be several months longer than the CIO has asked for and the costs will be two to three times those incurred through the HP Business Process Testing approach.

Example 2: A key automation engineer leaves the company unexpectedly at the beginning of a critical project, taking her programming skills and intellectual capital with her.

- *With HP Business Process Testing:* Specialized test automation expertise is not required on the part of subject matter experts for HP Business Process Testing, so the departure of this employee does not prevent other qualified subject matter experts from creating and modifying test components and test cases, allowing them to make significant contributions quickly.
- *Without HP Business Process Testing:* IT management must quickly find another individual within or outside the company with similar expertise, incurring the considerable expense of recruiting, hiring and paying the high salary demanded by the person with the appropriate skill set. Test automation on the project languishes until the new employee is on the job and adequately trained.

HP Business Process Testing benefits

The following sections will describe some of the key features and benefits of HP Business Process Testing:

For subject matter experts

- Easily builds tests by dragging and dropping components, eliminating the need for business process experts to acquire programming skills
- Designs tests, automates tests and generates documentation simultaneously, reducing the time required for separate design, scripting and documentation processes
- Reuses single components throughout hundreds of test cases, streamlining the test creation process

For QA/test engineers

- Reduces duplicate script maintenance by isolating changes to a single component that is reused by all test scripts, cutting the time and effort required for test maintenance
- Eliminates the need to develop and maintain test documentation, freeing up valuable IT resources for other more strategic activities

For the CIO

- Gets testing projects started and finished sooner, delivering higher quality, thoroughly tested software to end users and customers faster
- Streamlines and simplifies test automation processes, improving the morale of testing teams while decreasing testing costs

- Enables lines of business (LOBs) to participate in and sign off on testing projects sooner, increasing the probability of success of testing initiatives
- Integrates with HP Quality Center, including the latest version of HP QuickTest Professional, helping to leverage the use of existing testing tools across the enterprise

For the CFO

- Reduces testing and test maintenance time, increasing staff efficiency and enabling organizations to achieve a quantum leap forward in test productivity for only a small incremental investment
- Integrates with other HP solutions, helping increase the ROI of products and processes the company has already implemented

For the CEO

- Gets innovative new application services up and running sooner, bringing in new customers and creating new revenue streams
- Leverages state-of-the-art testing technology, providing an edge over competitors who are still doing things the old, slow, expensive way
- Enhances application quality, helping enterprises avoid the costs of software defects and reap the rewards of consistently excellent applications and web services—greater customer satisfaction and loyalty, more repeat business, and higher revenue and profits

Making the decision to implement HP Business Process Testing

One of the most important advantages of HP Business Process Testing is that it leverages the tools, technologies, and skill sets many companies have already invested in, such as HP QuickTest Professional, HP TestDirector for Quality Center software, and HP WinRunner. That means the incremental cost of transitioning to HP Business Process Testing is likely to be small, while the potential benefits to testing teams and business are substantial.

HP Business Process Testing checklist

Whether your software testing is currently manual, automated or a mix of both, there is a good chance your business could benefit by transitioning to HP Business Process Testing. Here are a few guidelines for evaluating the extent to which HP Business Process Testing can help you cut costs and improve efficiency.

In general, your business is a candidate for HP Business Process Testing if...

- **There is overlap among your processes.** If many of your business processes share common elements or steps, HP Business Process Testing will enable you to use—and reuse—common components and prepackaged content for common ERP applications. The more overlap your processes have, the more you can reuse components over and over, resulting in greater efficiency of your testing efforts.

- **You are currently transitioning to automated testing.** Automation is the key to improving the speed, accuracy and flexibility of the software testing process, and can give your company the ability to find and fix more defects earlier. If you're currently in the process of moving to automated testing, you may have already purchased the basic tools needed for HP Business Process Testing. Establishing HP Business Process Testing as your next milestone can help accelerate your company's adoption of automated testing practices and their benefits.
- **You are evaluating or moving toward the Quality Center of Excellence model.** This model is becoming increasingly popular because it provides a centralized source of testing expertise as well as standardized quality management and optimization best practices. While the Quality Center of Excellence model is not required for HP Business Process Testing, centralizing your company's test automation expertise can be an effective way to optimize the efficiency and consistency of your test projects.

How to get started: five steps to transformation

The effort required to transition to HP Business Process Testing may only be a matter of a few hours or a few days, in many cases. This section summarizes five easy steps to get up and running with HP Business Process Testing.

Step one: get the tools

Many companies already have licensed and installed some or all of the key tools needed for HP Business Process Testing. The complete set of tools is contained within HP Quality Center, described later in this document. If you're using HP QuickTest Professional and other HP

Quality Center applications, you already have most of the skills you will need to move up to HP Business Process Testing.

Step two: get some additional training

To jumpstart your productivity using HP Quality Center, you may need a small amount of additional training. Subject matter experts who are adept at using HP TestDirector or HP QuickTest Professional may require as little as two to three hours of additional training. Those who need to develop skills using HP basic test automation tools can get fully trained in two- to three-day workshops offered by HP or third-party training vendors.

Step three: start creating your test components

With proper tools and training, you are ready to begin laying out actual test cases using the keyword-driven, component-based approach. At this point, you will need to make decisions about the scope of specific components (e.g., decide what level of functionality is to be included within each one), and begin creating your components.

Step four: start creating actual business process tests

Using drop-down lists of components, you can now begin assembling actual user flows. If you're missing a needed component, you can use HP Quality Center to create one and add it to the business process flow on the fly (of course, each component needs to be "stepped out" or broken out by the individual steps that comprise the process).

Step five: automate your components

Once the subject matter expert has filled out the business process template with stepped-out components, these components are ready to code and can be forwarded to your QA or test engineers. These engineers can then automate the components, adding detailed checkpoints, error handling capability and so on.

Products and services supporting HP Business Process Testing

HP Business Process Testing integrates smoothly with existing tools such as HP QuickTest Professional, HP TestDirector and HP WinRunner. The complete set of tools and technologies required for HP Business Process Testing is contained within HP Quality Center and is supported by a broad spectrum of consulting and training services from HP.

HP Quality Center

HP Quality Center integrates and automates key quality activities—test management, functional testing and business process testing. It lets you share and reuse testing expertise across the quality lifecycle, and it provides a customizable workflow that easily adapts and extends to your specific quality process needs. HP Quality Center automatically generates, collects and presents quality key performance indicators (KPIs) in real time, so you can make faster, informed decisions about application readiness. And it creates a permanent audit trail to keep track of all quality management steps.

HP Quality Center includes:

- A real-time dashboard that presents KPIs from a business perspective
- Integrated applications that automate key quality activities—including test management, business process testing and functional testing
- Automatic collection of quality KPIs from multiple sources across multiple stages
- Best practices developed through more than 3,000 customer engagements
- A scalable, high-availability solution built on a proven, extensible foundation to share and reuse tests, data, scripts and reports

HP QuickTest Professional

HP QuickTest Professional, a core product of HP Quality Center, provides the industry's first-rate solution for functional and regression test automation for practically every software application and environment. With HP QuickTest Professional, companies benefit from ActiveScreen technology, which offers the industry's shortest learning curve for testers, and TestGuard technology's easy-to-maintain tests. For more information about HP QuickTest Professional and to download a free 14-day trial, visit the HP website at www.hp.com.

HP WinRunner

HP WinRunner gives your organization a powerful tool for enterprise-wide functional and regression testing. HP WinRunner captures, verifies and replays user interactions automatically to identify defects and enable that business processes work flawlessly upon deployment and remain reliable. HP WinRunner allows you to reduce testing time by automating repetitive tasks and optimize testing efforts by covering diverse environments with a single testing tool.

TurnKey Quality Accelerators

Partnering with HP, TurnKey Solutions has developed quality accelerators, which are prepackaged test assets (scripts, files and best practices) for implementing and maintaining leading ERP and CRM solutions. For example, the Oracle Applications Quality Accelerator is the definitive solution for Oracle applications testing, providing a ready-made package of individual and end-to-end test scripts specifically designed to be extensible to each client's unique Oracle applications environment.

With the Oracle Applications Quality Accelerator, your organization will be able to fully regression test your Oracle applications implementation with minimal effort

for each and every patch and upgrade; roll out new application functionality faster than ever before; and leverage your test bed for years to come.

HP and TurnKey Solutions Professional Services Offerings

Both HP and TurnKey Solutions offer a complete spectrum of consulting services to help you take full advantage of the benefits of HP Business Process Testing. Wherever you are on the path to business process testing, HP and TurnKey Solutions can help you take the next step quickly and cost-efficiently.

Summary

With the introduction of HP Business Process Testing, HP has brought test automation into a new era. No other vendor has yet introduced a test automation product, technology or capability offering the level of completeness, integration or ease of use that HP Business Process Testing provides.

HP Business Process Testing removes the technical complexity and specialized expertise from the test design process, so subject matter experts can focus on the business process rather than the test. Competitive technologies still don't address the cost and complexity of test maintenance and documentation. HP Business Process Testing centralizes and simplifies test and documentation creation and maintenance, resulting in substantial savings for today's enterprises.

HP Business Process Testing delivers a higher level of productivity to your test teams and improves the quality of your finished software applications. The transition to HP Business Process Testing is non-disruptive to your current processes, protects your previous investments in tools and training and delivers an ROI that is likely to be competitive with any other investment your business will make.

The question to ask yourself is not how you'll manage the transition to HP Business Process Testing, but how you ever managed without it.

About TurnKey Solutions

TurnKey Solutions is a leading, national provider of test automation platform products, best-practice methodology consulting and training, contract personnel, project outsourcing, personnel placements, and packaged software tools in the areas of software testing/QA and software development. Founded in 1991, TurnKey Solutions has helped companies worldwide lower costs and increase ROI while improving their development and testing processes.

To learn more, visit: www.hp.com/go/software

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