

WHITE PAPER

The *Transformative* Power of Software Testing

Optimized software testing can put your organization on track for greater innovation, growth and success

Software makes up the nervous system of any organization, but too often applications are found lacking or even high risk after they've been deployed. A high-quality Test Center of Excellence approach to software can assure CIOs that IT is bringing business value to the enterprise. With optimized testing, CIOs can be confident that IT projects will be developed rapidly to respond to opportunities and shifts in the market. This white paper describes how to achieve software test transformation in the enterprise.





Rebecca (Becky) Wanta is an experienced IT transformation senior executive with CIO appointments and consulting experience with Fortune 50/100 firms. When IT transformations require software test transformation, Becky reaches out to partner with SDT. SDT has worked closely with Becky to transform testing at PepsiCo, Wells Fargo, Southwest Airlines, State Compensation Insurance Fund, and WellPoint.

She says: “As an IT transformation executive, my software testing partner decision is critical. I trust Software Development Technologies to deliver the right senior consultants and test project teams. With SDT’s proven intellectual property and experienced consultants, we rapidly developed and implemented a clear strategy and automation framework that is efficient and repeatable. Using SDT’s testing approach, there is now a centralized infrastructure to rapidly test and deploy our highly customizable global systems. This will greatly reduce our manual testing workload and maintenance costs. SDT has implemented practical solutions that build on and improve our existing infrastructure both onshore and offshore, while implementing new approaches that streamline our processes. The resulting lower costs, higher quality and strong teamwork provide the right return on investment, with the right projects being processed the right way through the Test Center of Excellence.”

In summarizing the IT organization’s performance over the past year, the CIO of a large financial services firm cited a critical achievement. For the first time, the CIO said, IT had the technology it needed to meet business requirements. The right applications were being delivered rapidly, and their quality was excellent. In fact, the percentage of application defects discovered by users had dropped to 5 percent from 24 percent. Production was keeping up, delivering IT projects in an average of 79 days, with failures reduced by 40 percent. Overall, business value had improved, and IT was able to respond quickly to meet new business demands.

What sparked such a dramatic turn of events? Two years earlier the CIO had green-lighted two key initiatives. First was the completion of a highly adaptable technology platform designed to help the IT organization respond to the needs of the company. Second—and perhaps more important—was the implementation of an enterprise software Test Center of Excellence that brought significant improvements in test effectiveness. With better software testing, the IT organization was able to identify post-release risks, increase quality and achieve faster time to market; to greatly reduce user-discovered defects; and to validate the new technology platform and the key applications being built on it.

THE NEED FOR TRANSFORMATION

Hired three years earlier, the CIO’s first step was to evaluate the critical issues facing the firm. At the time, many IT projects were stalled or taking longer than planned. In some cases, the delays threatened revenue opportunities; in others, longer timelines meant out-and-out application failure.

Within the group was a team of application testers with mixed skills who were struggling to share environment resources with the developers. Test automation was limited, and processes were inconsistent and poorly defined.

It wasn’t long before the CIO realized that outside help was necessary to turn things around. With hundreds of complex and diverse projects in progress, and with the financial services industry reeling from the troubled economy and increased government regulation, the company needed a centralized infrastructure for application testing—fast.

This CIO’s challenge wasn’t unusual. In the last several “State of the CIO” surveys conducted annually by *CIO* magazine, IT leaders have clearly stated their desire to establish themselves as transformational leaders, capable of strategically guiding their organizations through tumultuous times. And to be transformational, they say, they must implement new systems and overhaul business processes.

What’s needed is a transformation strategy that ensures the right technology foundation is in place—a core that enables an enterprise services-oriented architecture and technology refresh strategy, that also smoothes the adoption of cloud computing, Web 2.0/3.0 and social networking technologies. Senior test architects are needed, as well, to provide proven design and automation frameworks that can effectively test all required technology core foundation types. Frameworks for function and performance testing for each technology type must be included too.

It’s a tall order. When IT transformation includes software test transformation, finding a testing partner that can deliver the right senior consultants and test project teams is critical. Over the past 20 years, many CIOs have found that partnership with Software Development Technologies (SDT).



ESTABLISHING A CENTER OF EXCELLENCE

For ongoing success, it's vital to build and maintain a software Test Center of Excellence. The CoE ensures the professionalism of testing; standardization of roles, tools, metrics, labs and processes; centralization of key expertise; and the improved coordination of testing across projects and locations, onshore and offshore.

SDT works hand-in-hand with its clients to build an enterprisewide testing facility that hosts shared environments for application readiness testing, and that validates the functionality and performance of a new application or ongoing changes once in the production environment. With SDT consultants at their side, clients test the quality of their CoE by implementing, validating and refining the new approach with their own application projects.

STEP 1: ASSESSMENT

“CIOs must get the necessary pieces in place in order to limit the potential for mishaps or missed business opportunities,” says Edward Kit, CEO of Los Altos, Calif.-based SDT. “There is a real need to redefine the value placed on testing and to realize that structural changes will likely be required. The CIO at this financial services firm appreciated the value of testing, and understood the necessity to invest.”

The objective is not just recovery from a single application failure or testing problem. To transform and accelerate the business, the fabric of the test organization must be changed.

That's where SDT comes in. A recognized, world-class expert in software testing, SDT provides expertise and intellectual property that enables the creation of a well-conceived and managed test organization.

The first step toward this transformation is to assess the client company's software development and testing processes, organization and technologies—making sure “the right people and concrete processes are in place,” says Kit. “We look at the tools, environments, onshore and offshore models, provider relationships and much more. We complete a very detailed assessment that provides a clear understanding of the rationale behind the process, with visibility into the end goal so that the entire enterprise can embrace a new direction.”

STEP 2: TEST TRANSFORMATION GOALS

SDT's assessment highlights the client company's IT strengths as well as areas needing improvement, and helps to define strategic objectives. The result is a customized, long-term road map for software test transformation that includes a Test Center of Excellence.

The goals that will shape the test transformation road map include:

- >> A systematic, defined testing process that is consistently deployed across the IT development and deployment life cycle.
- >> The creation of a dynamic and flexible approach for managing the test environment.
- >> A test design and automation framework that is responsive to the iterative development process and time-to-deployment goals.
- >> Implementation, validation and refinement of the Test Center of Excellence using the client's own application projects.
- >> The standardization of metrics and dashboards for the formal documentation of errors.
- >> The establishment of automated test regression libraries to increase productivity.
- >> Effective knowledge transfer (mentoring, coaching and training) that will enable the client company to run the test center on its own.
- >> An emphasis on test design in order to create effective test cases and achieve increasing degrees of test coverage.

“As we develop the road map, we give people—often for the first time—a defined process with the necessary templates for training, mentoring and metrics. With that, senior management knows what they have and whether it is being applied appropriately,” says Kit.



LEARN MORE

Software Testing in the Real World is an informational guide that is essentially a toolkit for continuous, sustainable improvement of the software testing process. Written by Edward Kit, CEO of Software Development Technologies, *Software Testing in the Real World* addresses the most frequently asked questions about methodologies, tools, technology and organizational issues being posed in the testing community today.

To request a discussion with Kit and gain insights into how your company can achieve enterprisewide test transformation, please call James Wright, SDT's General Manager, Test Service Operations, at 405-232-6000 x11. To find out more about Software Development Technologies, visit www.sdtcorp.com.

STEP 3: ACCELERATION AND DEPLOYMENT

This is where SDT's expertise and intellectual property make the difference. Having spent more than 20 years implementing test transformations, SDT has developed a comprehensive, predefined yet customizable set of methodologies, training, courseware and software lifecycle testing templates.

"SDT has the unique knowledge and experience needed to avoid rebuilding the test architecture from scratch," Kit says. "We bring the best practices, organizational plans, techniques and training classes, and we customize them for our client's environment. In most cases, CIOs simply don't have the in-house expertise necessary to get this done in a timely, effective way."

SDT's experience includes unit, integration, function, system and user acceptance test methodology; detailed test design and test automation framework processes; technical reviews; templates to guide test strategy, risk assessment, metrics, test planning and test cases; detailed job descriptions for all test-related roles; and sample test reports.

To accelerate the transformation, SDT provides consultants and professional testers to get the work underway while simultaneously mentoring the client's testers.

"Our mentoring model starts with shadowing at first, where the client's IT staff watches SDT's senior team members, followed by reverse shadowing to make sure that the client's team is prepared for continued success," Kit explains. "We provide the people to immediately work on projects, while empowering the company's personnel with mentoring and training."

STEP 4: RESULTS

Clients know they have transformed their software testing processes when they see:

- >> **Improved quality of the applications delivered**, including increased user and customer satisfaction, lower application development costs, greater operational efficiencies in development and high process quality early in the development life cycle.
- >> **A centralized, consistent, roles-based testing organization**, including test architects, designers, automation engineers, test executors and managers. It will have the right mix of onshore and offshore capabilities, and will yield better coverage and testing throughout the development life cycle.
- >> **The successful training and mentoring of key personnel** in specific roles, with these individuals using an efficient testing process.
- >> **Automation frameworks** that can effectively test all the required core technology foundation types.
- >> **New test environments in place.**
- >> **All top-tier application test projects being processed** through the enterprise Test Center of Excellence.

With all the risks inherent in deploying software that hasn't been tested appropriately for the enterprise, it's clear that a well-conceived software testing strategy can put an organization on track for greater innovation, growth and success. And the CIO can rest assured that existing and new IT projects will be deployed with higher quality and fewer post-release defects, and be secure in the knowledge that the company's investments are demonstrating a significant return.