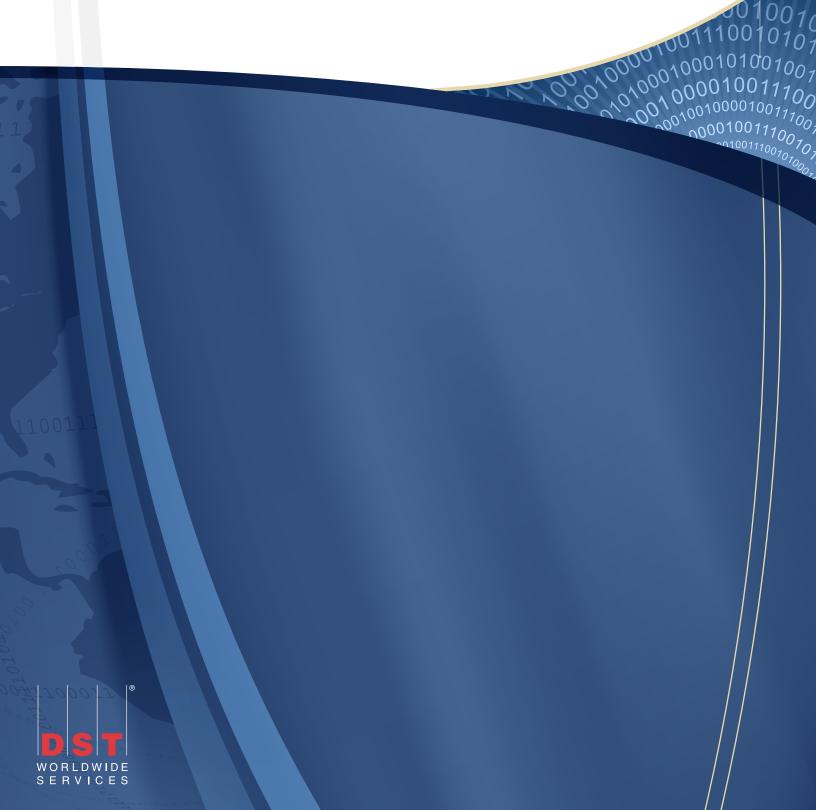# DST Worldwide Services
Testing Automation and Assurance Services (TAAS)
Case Studies

DST Worldwide Services
Test Automation & Assurance Services

Test automation and assurance services (TAAS) is a competency unit of DST Worldwide Services providing independent testing, and enterprise assurance services. TAAS offerings include regression, functional and performance testing, test automation, and consulting services. **All of our offerings are built on an in-depth vertical knowledge of a wide range of industries, including financial services, healthcare, insurance, retirement, and business process management.**

We work collaboratively with our clients to understand their objectives, tailoring solutions as needed. Our testing solutions are built upon industry standard processes, frameworks combined with products and best practices to help ensure systems and data security. We also offer flexible engagement models to meet changing business demands.

Why Use TAAS?

- Expertise in managing and delivering large-scale testing initiatives

- Proven automation framework provides faster script development

- An impressive repository of testing methodologies, baseline scripts, tools, and templates

- Internationally recognized certifications and accelerated process adoption with ISO 9001: 2008, CMMi Level 3 and PCMM certified processes

- 24x7 project progression with E2E transparency in operations

- Faster test cycles with managed costs

- Consulting services with expertise in a wide range of industries

Committed to Excellence

DST Worldwide Services is committed to delivering excellence in test automation and assurance services. Contact us today to discuss your project or to learn more about how the DST Worldwide Services TAAS team can become an asset to your business.

For more information please contact one of our Client Relations Managers at **info@dstworldwideservices.com**, call **1.855.809.5505**, or visit our Web site **www.dstworldwideservices.com**.

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Functional Testing for Healthcare System Upgrades

Business Situation

A large healthcare company needed to migrate from HP® 3000 to HP® 9000 with two major enhancements: a database update from flat files to Oracle®, and an upgrade from a character interface to a graphical user interface (GUI).

This company's product supported four application series with 35 sub-systems, and was extremely complex. Additionally, the product consisted of 10,000 functional test cases, and 7,500 regression test cases.

With these challenges in mind, they sought out a consultant with expertise in healthcare, and the technical knowledge to create a quality, cost-effective solution.

Solution Summary

- Met with stakeholders in a consultant capacity, and analyzed the situation.

- Identified the need for ISEB and AHM-250 qualified resources to better understand the client requirements.

- Followed the *Waterfall* model for the project execution.

- Implemented automation and performance testing tools.

- Expanded the testing team and utilized job shadowing to cross-train and enable the development of subject matter experts (SMEs) in core areas.

Tools/Best Practices

- Implemented *HP® QuickTest Professional* software for functional automation testing and *Micro Focus® QALoad* for performance testing.

- Utilized data collection forms (DCF) and metrics analysis reports (MAR) for productivity analysis.

- Implemented automated scripts allowing an additional 15 client change requests without affecting the project schedule.

- Best practices were collected and shared across on-site and off-site teams improving quality and productivity.

Business Benefits

Our process benefited the client in many ways, including cost and time savings. Also they were able to establish an on-demand resource with knowledge and experience unique to their product.

- **ROI:** Achieved 40-45% savings of regression effort for each execution.

- **Flexibility:** Provided on-demand scalability for testing team size.

- **Quality:** Reduced defect leakage from 18% to 10%, and production defects from 12% to 5% for sub-systems.

- **Test Coverage:** Expanded testing coverage from 70% to 90%.

Regression Testing for
Consumer Directed Health Plans

Business Situation

Multiple clients of a large healthcare technology services provider were challenged by a growing demand for custom requirements. Some of their unique business challenges included the execution of 4,000 functional test cases and 2,500 regression test cases for each major product release. They were also burdened by a lack of resource scalability and proficient technical support.

Solution Summary

- Performed project management and testing activity functions, including resource planning, estimation, and release schedules, while adhering to the client's original completion date.

- Developed and implemented the following testing methodologies:

    - **Build verification Test** for validation of application stability

    - **Regression testing** for verification of existing functionality

    - **EDI testing** of 834 and 837 files

    - **Parallel testing** for database comparisons before and with pre- and post-batch execution files

    - **End-to-end testing** of workflows, including third-party systems

- Guided the on-site user acceptance testing team through the execution of complex scenarios.

Tools/Best Practices

- Implemented *HP® QuickTest Professional* software for functional automation testing and *HP® Load Runner* for performance testing.

- Utilized data collection forms (DCF) and metrics analysis reports (MAR) for productivity analysis.

- Employed *Microsoft® Excel* macro scripting for database comparisons.

- Participated in production data analysis and validation of data correction scripts.

Business Benefits

- **ROI:** Automated the regression suite with savings of 200 hours per regression cycle.

- **Reduction of Production Defects:** Streamlined processes and improved test coverage.

- **Improved Turn-Around Time:** Multiple cross-functional groups supported various clients' releases.

- **Complete Ownership:** Tested complex business modules including enrollment, contributions, and claims.

Functional Testing for Print and Mailing Services

Business Situation

An industry leading Printing and Mailing services company continually received a large amount of customer data from its clients. This data required processing and formatting to be able to print and mail to each clients' respective customers. Resource flexibility, productivity, and cost of testing were all seen as major challenges.

Solution Summary

- Performed a requirement analysis providing application knowledge.

- Helped identifying data for multiple clients, as part of the consulting process.

- Developed a model providing the flexibility for resources to work on multiple projects while adhering to shifting priorities.

- Trained teams on products, processes, and migrations while developing SMEs in mission critical areas.

- Created a resource pool by forming primary and secondary teams to ensure maximum coverage.

Tools/Best Practices

- Utilized *HP® Quality Center* as a test management tool.

- Worked in a *UNIX®* environment to test the processing of client statements.

- Identified the requirement gaps in controlling rework and project cost.

- Identified the common code between report packages, and set up the test lab accordingly.

Business Benefits

- **ROI:** Increased client's testing productivity by 10%.

- **Quality:** Reduced the client's user acceptance testing defects leakage from 2% to 0.84%.

- **Domain Knowledge:** Performed detailed analysis of warehouse management system requirements, and complex calculations, which helped to identify requirement defects.

- **Flexibility:** Provided on-demand scalability for testing team size.

Test Automation Framework Benefits for Healthcare Technology

Business Situation

A large technology vendor for the health insurance field needed an automated testing solution to offer customers as part of their software product package. The vendor's customers were spending six months on testing with each new product release, with the effort to execute one full regression test cycle (comprised of 2,000 scripts) taking an average of 4,000 hours.

As this testing was not a continuous business need for the customers, they were not staffed to perform dedicated testing and quality assurance on this scale. Additionally, they were using manual test processes supported by limited automated scripts and testing tools, and lacked the resource capacity to create test scripts and support test activities, while still satisfying everyday business requirements.

Solution Summary

DST Worldwide Services developed an automated package solution that provided all of the components required to execute scripts successfully, including our test automation framework (TAF), 2,000 automation test scenarios, and sample test data.

This package solution easily adapted to different environments, provided the ability to configure multiple test data sheets, included the tools to perform global data edits, and allowed customers to share scripts.

DST Worldwide Services also continues to develop new scripts, and maintain current scripts for new functionality. Some additional benefits are:

- TAF enabled SMEs to automate manual scripts allowing them to focus on other responsibilities.

- Quick implementation of scripts with the ability to run 24x7.

- Test data can be configured in *Microsoft® Excel* format

Tools/Best Practices

- Implemented TAF for *HP® QuickTest Professional* software for functional automation testing.

- Generated detailed test reports and metrics through transparent and flexible reporting.

- Included videos and documentation for every scenario.

Business Benefits

- **ROI:** Cost of script development reduced by 30% and cost of script maintenance reduced by 60%.

- **Jump Start:** Only 1,000 hours of effort were required to understand and set up 2,000 scripts, saving more than 19,000 hours of development effort.

- **Faster Upgrades:** Eliminated 4,000 manual test hours with all 2,000 scripts being able to run in days rather than weeks, and minimized manual retesting time due to software patch upgrades.

- **High Quality:** Minimized the effort to research and report incorrect defects due to human errors or training issues with minimal human intervention.

- **More Frequent Testing**: Build once and run the scripts multiple times as needed to test major, point, patch, configuration, and environment changes.

- **Client Driven Data:** Test data can be configured and retrieved to suit the testing needs and scripts can be run with multiple data sets once configured.

- **Low Maintenance Cost:** DST Worldwide Services maintains the test cases for all release upgrades.

Performance Testing for AWD¹⁰ Business Process Management

Business Situation

AWD¹⁰ is a comprehensive Business Process Management (BPM) solution comprised of imaging, process orchestration, workflow, customer management, integrated reporting, application integration tools, and business activity monitoring tools. Facing growth and new custom requirements for their product, AWD had the following needs:

- Scalability and response time improvement for key transactions in support of an increasing user count.

- Throughput time reduction to three or less seconds for 400 concurrent users.

- Application load capability increase allowing for 600 simultaneous users.

Solution Summary

The DST Worldwide services team worked closely with the AWD product teams to understand the environment and AWD architecture, allowing identification of key transactions for performance evaluation.

- **Evaluation Phase**
  - Developed a performance strategy document to test the application for scalability, transaction response, and load capacity

  - Identified key transactions for performance testing

  - Recommended *HP® Load Runner* tool for performance testing

- **Implementation Phase**
  - **Scalability tests** were performed to determine the application behavior with increased loads

  - **Baseline tests** were performed to measure best case transaction response time and resource utilization

  - **Stress tests** were performed to measure the application load retention capacity

- **Recommendation Phase**
  - **"Baseline" performance tests** conducted with a single user before starting full scale performance testing

  - **Dynamic parameterization** using "automated data correlation" to avoid run-time errors

  - **Virtual users** distributed to all agents for accurate performance metrics

Business Benefits

- **ROI:** Improved average response time from ten to less than two seconds for a 400 users load.

- **Scalability:** Increased applications ability to handle high user loads.

- **Improved Performance:** Reduced CPU resource and memory usage on servers.

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