Using HP Quality Center Enterprise, HP QuickTest Professional, and HP LoadRunner Within the HP Agile Development Environment to Increase IT Staff Productivity at Discount Tire Company

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Founded in 1960, Discount Tire Company has grown to become America's largest independent tire and wheel retailer — with over 800 stores in 24 states; more than 13,000 employees; approximately 40 million customers served; and annual revenue exceeding $3.0 billion.

Several years ago, the Scottsdale, Arizona–based company began transitioning to an Agile software development model to increase IT productivity, improve software application quality, and grow the business value of IT. The recent deployment of HP Quality Center (QC) Enterprise and HP QuickTest Professional (QTP) to enhance quality assurance processes and automate functional and regression testing and HP LoadRunner to provide automated performance and load testing facilitated the change to Agile development.

As a result of the HP deployments and the successful implementation of the HP tools and Agile methodology — which drove and promoted increased collaboration and teamwork and effectively allowed the company to more quickly and efficiently adopt and manage development projects — Discount Tire has realized a calculated five-year benefit of approximately $5.06 million and a return on investment (ROI) of 298%.

Implementation
Prior to the HP deployments, Discount Tire used an open source defect tracking tool. The tool was extremely limited...
and did not provide any observable defect metrics. The company had a manual process with no
standardized or centralized test repository, giving it no visibility into the various stages of the
software development life cycle. There was limited testing automation. In addition, team
members stored their test plans and results locally on their own computers, so there was little or
no reusability or information sharing. With the HP solution — HP Quality Center Enterprise,
HP QuickTest Professional, and HP LoadRunner in an HP Agile environment — the company
now has a central repository of test assets that can be shared and reused. The HP solution also
provides the visibility required to determine the health and readiness of a project or release.

The initiative for test automation came from upper management after a consultant report on the
company's IT operation recommended the change. Selecting a vendor was a challenge because
Discount Tire has a diverse IT environment with many different types of applications and
supported platforms — and management wanted a solution that would work with all of them.
After considering several vendors, Discount Tire chose the HP solution for its ease of
implementation, without the need for highly technical programmers. Also, with its open API, the
solution was easy to integrate with other applications and came with multiple applications that
were already integrated. This allowed Discount Tire to expand its tool set with the same vendor.

"In addition, QTP worked with our point-of-sale system, which wasn't easy," said Debi Smith,
Manager of Quality Assurance at Discount Tire. "We couldn't find another tool that worked
efficiently with our Java Swing environment. Also, many of the resumes we received from QA
analyst applicants noted experience with HP's QC and QTP, so there was expertise available in
the resource market."

Benefits of the HP Solution

Since the HP deployment, Discount Tire has improved IT staff productivity considerably. The
company is now able to run a significant number of extensive regression scripts with every build
in each test environment. Previously, the same volume of scripts, done manually, would have
taken "a couple of days" to accomplish.

With its central repository of test scripts, provided by the HP solution, the company can now
reuse scripts that previously had to be newly created each time a project required testing. The
central repository also provides proof of testing for financial and Payment Card Industry (PCI)
audits, reducing quarterly PCI compliance testing — which used to take several days, and
several teams, to complete — to hours. Additionally, the improved testing capability enables the
company to run an automated regression suite for every build of its store point-of-sale system.

With the metrics provided by the HP solution, the company can now demonstrate its release
readiness to the business and clearly show productivity by team. The positive impact of giving
business visibility to customer shareholders and showing them the status of a release has been
significant. "They never saw this before, so it has been a huge help in getting their support and
prioritizing things in the release," Smith explained. "We've gained their trust — they know that
we are going to deliver on our promises."

Metrics provided by the HP solution, published weekly, show test execution progress, defect
open/close ratio, test execution by type (automated or manual), deferred defects, and defects by
status and severity. The HP QC, HP QTP, and HP LoadRunner tools also supported the Agile
implementation with their easy configurability and ease of use, which enabled nontechnical
analysts to do the testing — a critical component to making the Agile implementation
successful at Discount Tire.
In addition to increasing IT staff productivity, the HP solution has reduced annual costs and enhanced end-user productivity through decreased downtime. The breakdown of the savings, described in this study, averages approximately $1 million annually.

**Increased IT Staff Productivity**

The automation and standardization provided by the comprehensive HP solution have made the company's 20 QA analysts and 22 software developers more productive and shortened the time to market for new applications. Releases are more predictable — which has helped the business. By running automated rather than manual tests, the company's analysts are saving 20% of their time. "We found that they weren't just more efficient but that the quality of their work was better," Smith said. "There is less rework." In addition, the three test automation engineers who write the automated scripts are also saving time because they can reuse earlier scripts and avoid creating new ones. "I'd put the savings at 35%, and that's conservative," Smith said.

With the HP tools and Agile methodology, visibility into the various stages of the software development cycle is particularly helpful to the developers. "The teams are working much closer together to develop software in a two-week time frame," Smith said. "Their understanding of what defects are out there and what tests are being run is more critical today than ever before. It probably saves them an hour a week."

Visibility is also critical to the analysts and saves them about an hour a week because they can now see how close they are to completing the testing of their backlog. "Before, they might be doing projects that would last a year and only at the end realize they didn't have all of the right test scripts because they didn't have that visibility," Smith said. According to customer data, the decrease in rework saves developers another hour a week and the analysts two hours a week.

"HP tools with Agile methodology have also significantly changed our development process. We now release core business applications every quarter and weekly releases for the Web site," Smith said. "Before, it might take from a week to two years to release a project, and one-third of what we released would require rework." When the company made the transition to HP tools and Agile methodology, the flexibility of HP QC and QTP made the process much easier.

IDC calculates that based on the customer data provided, the savings from increased IT staff productivity is approximately $988,228 annually.

**Cost Reduction**

By eliminating the previous very limited automation tool, Discount Tire was able to save the cost of the software and its associated support. The company also saved on the upkeep costs for the open source defect tracking tool. As a result, the additional average cost reduction from the purging of these previous tools totals $18,413 annually.

**Enhanced End-User Productivity**

Before the HP deployment, application defects would occasionally go undetected in the test cycle and get into production. "Before moving to HP tools and Agile methodology, we released whenever the project was ready, and then 30% of the time we had to put out an emergency fix because of a defect," Smith described.

On average if there was a corporate change, 20 to 30 end users could be impacted, with the problem apparent almost immediately. If there was an issue with the store system, the impact would be much larger.
With the HP solution, defects are tracked and reported on more efficiently during the software development life cycle and before release, bringing higher visibility to the business and IT. IDC calculates that the average savings in enhanced end-user productivity from avoiding downtime due to defects amounts to $6,373 annually.

**Return on Investment**

IDC projects that Discount Tire will realize a five-year ROI of 298% from the HP software development solutions and the move to an Agile development methodology. Payback on the investment occurred within 7.24 months after the deployment was completed (see Table 1).

<table>
<thead>
<tr>
<th>Five-Year ROI Analysis</th>
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<tr>
<td>Benefit (discounted)</td>
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<td>Investment (discounted)</td>
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<td>NPV</td>
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<td>ROI</td>
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<tr>
<td>Payback</td>
<td>7.24 months</td>
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<tr>
<td>Discount percentage</td>
<td>12%</td>
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</tbody>
</table>

Source: IDC, 2010

**IDC ROI Methodology**

IDC conducted an interview with Discount Tire to quantify the benefits and investment associated with its deployment of the HP software solution. IDC then created an ROI analysis from the results. IDC calculates the ROI and payback period in a three-step process:

1. Measure the benefits from increased IT staff and end-user productivity and other cost savings since deployment.
2. Ascertain the total investment.
3. Project the investment and benefit over five years and calculate the ROI and payback period. The ROI is the five-year net present value of the benefit divided by the discounted investment. To account for the time value of money, IDC bases the ROI and payback period calculations on a 12% discounted cash flow.

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