HURWITZ & ASSOCIATES

Segue Software Customer Benefit Study

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A GreenPaper™ Customer Benefit Study

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Introduction and Summary

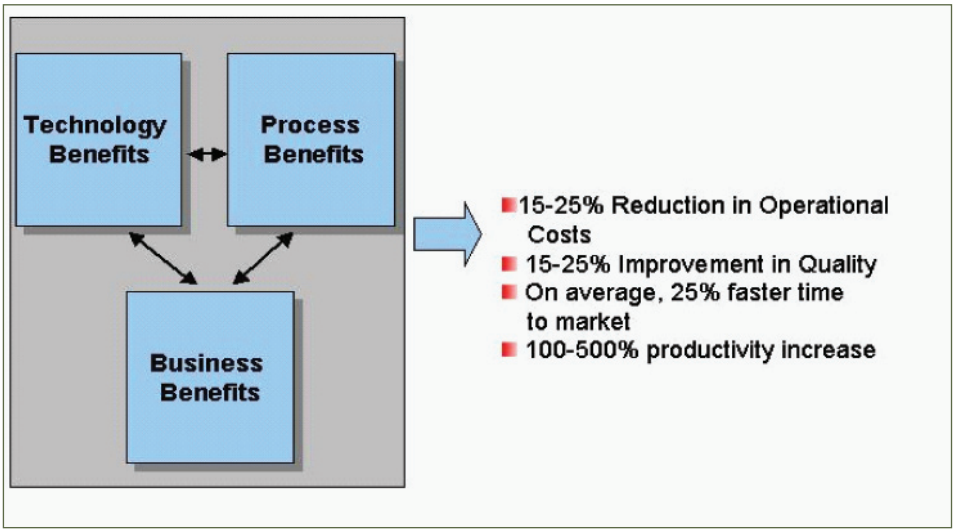
As part of a growing trend among organizations to develop a stronger link between IT and broad corporate strategic initiatives, many companies have recognized and articulated the importance of software quality in achieving business goals such as improving customer service, increasing speed to market, and increasing overall productivity. This is true for companies who develop and sell software products as well as for companies who use software to assist them in the production of other goods and services. The companies exhibiting the most significant advances in software quality have moved towards testing earlier in the production cycle and towards increasing the standardization and automation of the testing process.

Segue Software has been providing quality assurance solutions since 1993 and is one of the most prominent vendors that organizations turn to when they look for solutions to improve the quality and reliability of their software. Today Segue provides a comprehensive product line for software quality optimization, including SilkTest for automated functional and regression testing and SilkPerformer for load and performance testing.

Hurwitz & Associates conducted in-depth interviews with ten of Segue Software's customers in order to identify patterns of success, specifically the business, technical, and process benefits these companies were experiencing using Segue's testing products. All customer data was treated in the aggregate so that their information could be used without having to disclose company names and proprietary customer data. Primarily, interviewees were either independent software vendors – companies whose life or death depends on software quality – or financial services firms, another group where quality is critical. This group also represents some of the more advanced users of testing technology.

Respondents noted very tangible benefits using the Segue products (Figure 1). These included reductions in operational costs, improvements in quality, faster time to market, and significant increases in productivity.

Figure 1. Overall Benefits from Segue Software



"...the use of the product significantly helped this company in terms of deploying a fully functional application the first time."

In many cases, an interrelated set of technical and process benefits resulting from use of the Segue product drove these impressive business benefits. For example, Segue's automated testing capability helped customers improve quality and reduce time to market. In one instance, an ISV implemented Segue software in order to put a coherent testing strategy in place and recognized the potential of automated testing. Use of Segue software significantly impacted quality and productivity as well as decreasing time to market by 10%. It has also helped this company shave 10% - 15% off deployment time by enabling them to meet their release criteria more quickly. And, the use of the product has significantly helped this company in terms of deploying a fully functional application the first time. According to this company, they could not have high availability of their software without Segue unless they had unlimited resources for manual testing.

The use of Segue's products also helped improve quality that impacts customer experience and satisfaction. For example, one financial services company uses Segue's products to test online applications that service several million customers a day. Changes to these applications can happen as frequently as once every two weeks. Without Segue, the company would not realistically be able to test these applications, a situation which could potentially have a huge impact on customer service. Use of the Segue product has significantly impacted quality.

This increase in quality also drives decreasing costs because companies are not constantly fixing defects. A number of companies reported that they have been able to shift resources from fixing bugs to developing new features to support new business initiatives. Finally, Segue software helped many companies put a standardized testing process in place, which helped to drive these other benefits.

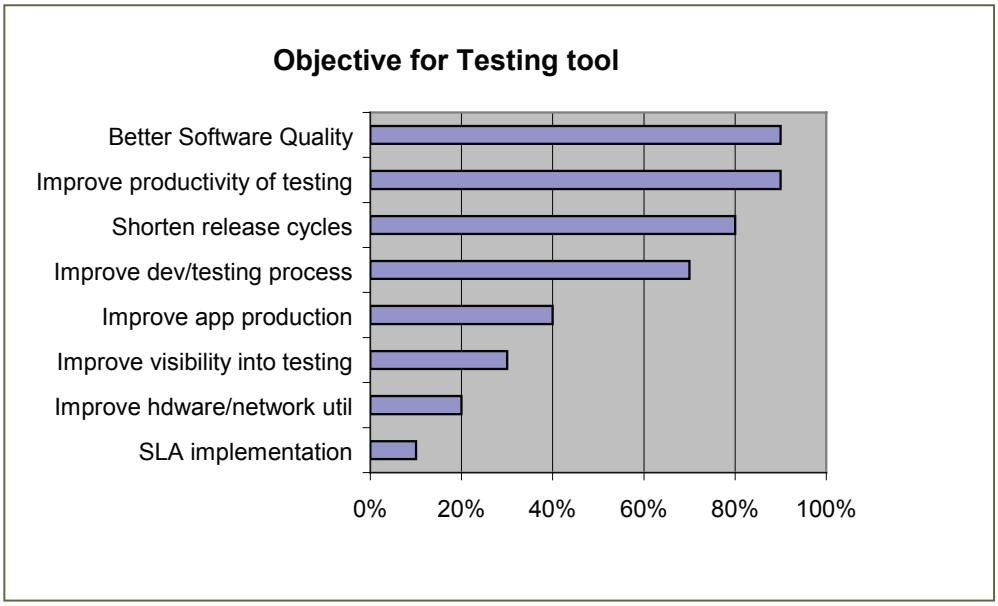
Overall, the vast majority of companies surveyed said that Segue software products met or exceeded their expectations.

"...better software quality and improvements in development productivity were the top two reasons cited...for purchasing a test product."

Testing and the Importance of Quality

A large majority of respondents stated that improved software quality was a key driver in their decision to purchase a testing tool. In fact, better software quality and improvements in development productivity were the top two reasons cited by the respondents for purchasing a testing product (Figure 2). However, quality can mean different things to different organizations. As previously stated, the large majority of respondents were either software companies or financial services organizations — two verticals where software quality is directly linked to the viability of the business.

Figure 2. Reasons for Purchasing a Testing Tool



Hurwitz and Associates asked the respondents how they defined quality and how they measured quality. Their responses are outlined in Table 1. Most companies measured quality either by monitoring the number of bug reports or by customer feedback on product satisfaction and the end-user experience. Companies that did not already have a comprehensive approach for measuring quality were engaged in the process of redefining their quality metrics. As one company stated: "Defect rates are not the complete picture."

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Table 1. Quality Definition and Measures

What Is Quality?	How Is Quality Measured?
• Customer satisfaction • End user service – providing service that the user is expecting without issue • Bugs – 99.9% defect free, 100% tested • Availability – user experience is always present and no down time • Meeting SLAs and uptime	• Pre-release: Throughout the development process through quality release and testing plans; bugs reported, test cases • Post release: Feedback from customer/user base; customer/user support calls, bug reports, bug trending, SLAs

An organization's approach to quality and testing played a role in the technical and business benefits that these companies experienced.

Customer Benefits from Segue Software Purchase

Hurwitz & Associates studied benefits across three strongly linked categories:

- Technical Benefits
- Business Benefits
- Process Benefits

Importantly, technical and process benefits drive business benefits. We also noted some intangible benefits, as well. These are all described in the discussion that follows.

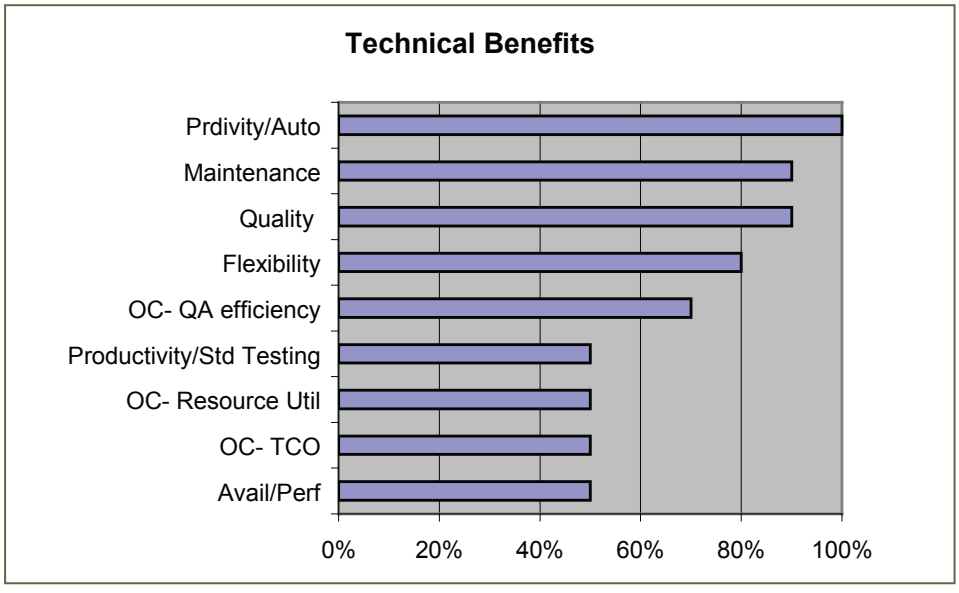
Technical Benefits

Customers mentioned a number of key technical benefits that derived from their use of the Segue Software product (Figure 3). The most important benefits included:

Productivity Improvements. All of the respondents said that their productivity had improved; 80% of them reported that this improvement was dramatic. In most cases, the productivity was due to the use of automated testing. Companies using automated testing techniques use programs to provide test input, generally for functional and regression testing. These programs provide automated test input to other programs that run the test and verify the results. In fact, respondents saw a 100% - 500% improvement in productivity because of automation. One large financial conglomerate commented on the rigorous testing process required to maintain bi-weekly updates to the consumer online banking website. The IT department manager said: "We couldn't hire enough people to run these tests every two weeks." Many companies in the study reported reducing testing time from weeks to days or even hours. The reduction in time required for testing is particularly impressive given that that time must be allotted to construct the automated tests. And while not all testing can be automated, in areas where it applies the testing reliability improves by eliminating errors that might be overlooked during a manual process.

"...respondents saw a 100%-500% improvement in productivity because of automation."

Figure 3. Technical Benefits Cited from Use of Segue Products



Decrease in Maintenance Expense. Ninety percent of the customers interviewed found that there was a decrease in maintenance expenses resulting from the use of Segue's testing products. In fact, some respondents reported a decrease in maintenance expenses of 15% - 20%. There were a number of

reasons cited for this. Some respondents said that the automation capability helped them become more efficient. Others said that because of the Segue product, they had fewer bugs to fix. Finally, others said they were saving money on servers and the software running on these servers. According to one participant in the study: "Maintenance is now more about enhancements and improvements than bug fixes."

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Improved Quality. Ninety percent of the respondents said that software quality improved using Segue Software. Of these, 60% said that the improvement was dramatic. Overall, respondents reported a 15% - 25% improvement in software quality. Some of the respondents said that the improvements were due to the speed with which they were now able to find and fix bugs. Others reported that the automated testing reduced the time it took to make the product error free. Those companies that were at an earlier stage in their quality journey were more likely to be able to measure the extent of their improvements. This is most likely because there is such a sharp jump in quality when a company initially moves from a non-structured testing environment to a structured and automated testing environment.

Increase in Flexibility. Eighty percent of the respondents said that Segue's products helped increase their flexibility. Some companies mentioned that they were able to respond to change more quickly because the increase in automation and standardization brought product-specific knowledge that often resided with key individuals into the mainstream knowledge base. This also means that if someone moves to another department or even leaves the company, then the crucial product knowledge remains with the team, allowing for greater long-term productivity and flexibility.

Business Benefits

There is a strong interplay between technical and business benefits. For example:

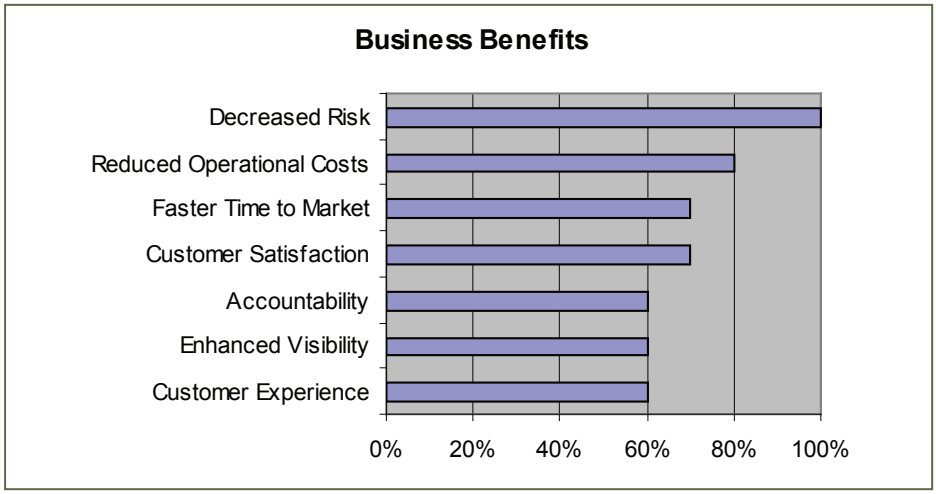
- Automation and flexibility drive faster time to market
- Improvements in quality drive customer satisfaction and decrease risk
- Decrease in maintenance costs and QA efficiency drive lower operational costs

These business benefits are described in the discussion that follows and are highlighted in Figure 4.

Decreased Risk. Fully 100% of the respondents said that the use of Segue's products helped decrease risk associated with applications that do not work properly; 80% of them said that the reduction in risk was significant. For example, one software company found that the risk reduction was significant for load- and soak-type testing where their clients were large companies with "huge amounts of transactions." Others said that having a full test suite running over their product gave them a lot of confidence. This was especially true for companies in the financial services sector dealing with complex calculations or those dealing with stock transactions. A number of respondents stated that this decrease in risk resulted in a 15% - 20% impact in terms of cost avoidance.

"In fact, respondents cited a 15% - 20% reduction in overall operational costs associated with the testing process."

Figure 4. Business Benefits Cited from Using Segue Products



Reduced Operational Costs. Hurwitz & Associates asked companies about reduced operational costs in three categories: improved efficiency, lowering the Total Cost of Ownership (TCO) and better resource utilization. Eighty percent of the respondents stated that Segue's products lowered their operational costs. In fact, respondents cited a 15% - 20% reduction in overall operational costs associated with the testing process. This was primarily due to the automation capability built into the product.

Faster Time to Market. Time to market implies the time it takes for an enterprise to get an application into production and delivering the intended business value. Seventy percent of the respondents said that Segue's products

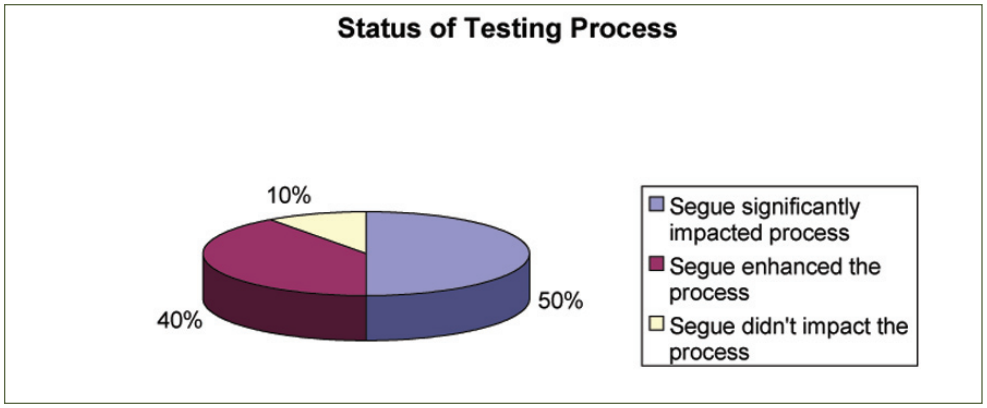
helped them get to market faster. In general this was because scripts could be standardized and errors could be identified and fixed more quickly. Automated testing also helped the products get to market faster. Additionally, customers commented on the fact that Segue's regression testing product helped them deploy fully functional products the first time out. Segue's stress testing product helped them identify problems that they may not have been aware of. Customers found that they experienced between 15% - 25% faster time to market through their use of Segue Software. While the majority felt that there was a significant improvement in time to market, one respondent noted: "We're doing more testing now than usual because we're finding more things that need to be fixed."

"...respondents stated...they were getting fewer complaints and having to fix fewer bugs. This allowed development teams to allocate more time to enhancements... resulting in a big impact on the satisfaction of both internal and external customers."

Increased Customer Satisfaction. While the respondents couldn't necessarily quantify the increase in customer satisfaction due to improved testing, the majority of them felt that using Segue's products helped to improve customer satisfaction. For example, respondents stated that they were getting fewer complaints and having to fix fewer bugs. This allowed development teams to allocate more time to enhancements rather than concentrating on bug fixes, resulting in a big impact on the satisfaction of both internal and external customers. This ability to test software using standardized and automated procedures has helped some of Segue's customers to change the end user perception that all software teams distribute their software with defects that they will fix later on.

Process Benefits. This benefit was measured by a company's ability to transform an overall business process. Of the customers interviewed, 90% said that Segue had either significantly impacted or enhanced the testing process (Figure 5).

Figure 5. Impact of Segue Software on Testing Process



Of those ninety percent, those that didn't have a testing process in place felt that Segue significantly impacted the process. Companies commented that use of the Segue product helped them make their testing process more structured. Another company commented that, "Using SilkTest has established a real need to put in place the tools and processes to leverage and understand automated testing."

"One customer commented that the tool allowed them to build a framework and standardize it, stating that Segue 'is the anchor of the process.'"

Many of those who had a process in place felt that Segue enhanced the process. For example, one customer commented that the tool allowed them to build a framework and standardize it, stating that Segue "is the anchor of the process." Segue Software has enhanced the process of developing quality applications in a way that allows software companies and IT departments to reach very high when it comes to pride in their work. Selected comments reflecting this philosophy of quality included: "let's get it out right the first time," "get it right from day one," and using Segue is "another step to deliver five 9s."

Intangible Benefits. The use of the Segue product also resulted in some intangible value-added benefits for the organizations interviewed. These fell into two categories: raising the visibility of the QA organization, and raising the morale of the organization. For example, a number of respondents said that the use of a structured testing product like Segue gave them results that raised the visibility of testing in their organization. People now knew that testing was being formalized and that business, development and testing were working together. As one respondent noted: "We have been able to produce results that are a singular message to the business." A number of respondents also stated that use of the Segue product improved morale, because testing was no longer considered a "bottleneck" and the testing group was now able to build up their skills and become more creative in the types of tests that they could run. One respondent put it this way: "Segue has helped to take testing from something that is monotonous to something that is creative."

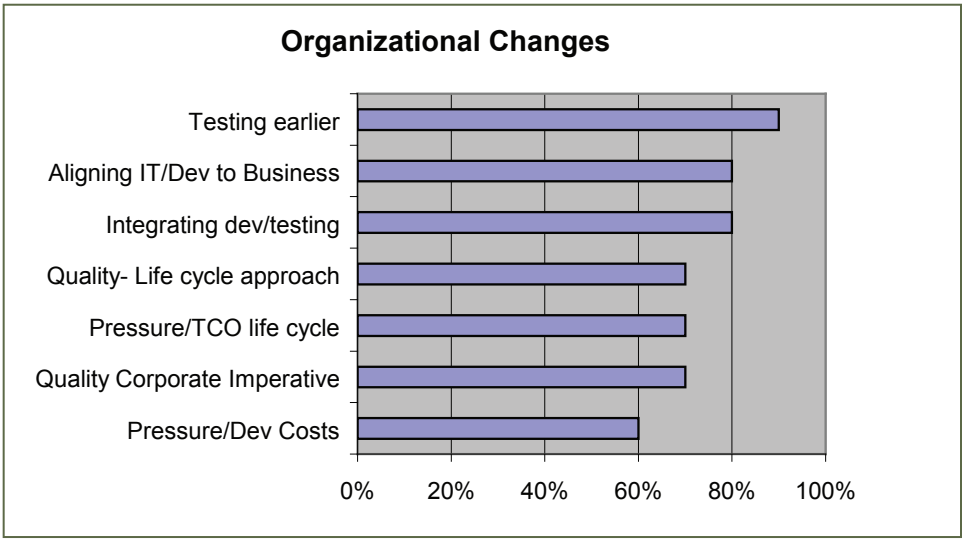
Best Practices

Testing practices are still evolving in organizations. Hurwitz and Associates asked respondents questions about a number of organizational practices and issues (Figure 6). Fully 90% of the respondents claim that they are testing earlier in the process. Eighty percent are linking development and testing and linking IT to the business need. A number of the respondents said that, even if development and testing weren't in the same organization, they were now working closely together.

Based on our research, Hurwitz & Associates has identified the top ten best practices followed by companies that put a high premium on software quality. These are shown below grouped into five technical best practices and five business best practices.

"If you take on a new application, start building the test plan and scripts on day one."

Figure 6. Trends in Testing at Companies



Technical Best Practices

1. *Test early and test often using a life cycle approach to quality.* If you take on a new application, start building the test plan and scripts on day one. This will ultimately lower costs and increase quality. Companies should consider taking a lifecycle approach to quality. They should consider pre- and post-release measurements for quality and determine whether the quality of software impacts customer satisfaction.

2. *Create a center of excellence.* Several companies spoke of the benefits they have experienced from creating a center of excellence (COE) around automated testing. A center of excellence generally starts with a core group and some associate members, whose mission it is to build knowledge in order to provide competitive advantage. A COE could start as simply as a group of people getting together at lunch to compare notes. This gets the knowledge transfer started and the center can grow from there.

3. *Build frameworks.* Segue's SilkTest provides a development environment for building testing frameworks that can provide users with the ability to run their own tests. This means that business people can also get involved with the testing. Once the framework is in place, it allows users to make changes to the framework without having to make changes to the test cases. This can help speed time to market.

4. *Create and use early warning systems.* Consider running your builds and testing overnight and then checking the results first thing in the morning. One company we spoke with termed this an "early warning system" and said it shaved up to 3 hours off time on testing a day.

5. *Use load and stress testing.* A number of the organizations we spoke with were just starting to consider load testing. Hurwitz & Associates believes that this type of testing should not be dismissed as expensive and unnecessary. A number of companies we spoke with said that load and stress testing helped avoid complete implementation failures on some projects, and improve application response on others.

"...this type of testing should not be dismissed as expensive... A number of companies we spoke with said that load and stress testing helped avoid complete implementation failures on some projects..."

Business Best Practices

1. *IT and the business must be aligned.* Business goals need to drive what IT is doing and IT and the business must work hand-in-hand. This sounds obvious, but is often harder to do than it appears. At ISVs, engineers are typically, by definition, aligned with the business. This is not always the case at other types of companies.

2. *QA and development need to work closely together.* Hurwitz & Associates believes that successful organizations have bridged the gap between QA and development. In companies that are successful in deploying applications that work right the first time, QA is highly visible. The organizational structure needs to support this whether the two groups are actually following a similar reporting structure or not.

3. *QA needs to be visible.* A litmus test for companies serving customers is whether QA has evolved to a core function. QA cannot be put in the basement. As we discussed, success did occur when QA was a visible part of the organization. If people have a problem with the term QA, then rename the group something such as a "product readiness team." Some people believe

that this puts a more positive spin on the term "quality assurance."

4. *Standardizing the testing process improves quality.* All too often, development and testing are forced to take short-cuts in order to get a product out when product management wants them to. Sometimes, this is not even the date that was originally agreed upon. There is a lot of pressure on developers to move product to market faster. However, ad hoc processes tend to backfire. As we've seen in this study, a standardized testing process, using commercially available tools, can often improve quality and decrease time to market. Development and QA need to push to make this happen. They also need to understand that change will not happen overnight.

5. *Determine whether the quality of software impacts customer satisfaction and user experience.* Companies need to link their software-quality metrics to business-level measures like customer satisfaction or customer experience. This is a win-win situation. Development and testing wins and gains leverage because the business can see first hand the importance of quality. Customers win because the software they receive is high quality. The business succeeds because customers are happy — which drives more revenue.

"The business succeeds because customers are happy — which drives more revenue."

Conclusion

Hurwitz & Associates interviewed ten of Segue Software's customers to evaluate and demonstrate the impact that testing can have on software quality. The customers in the study provided detailed feedback on the business challenges they face in today's market and how elevating the importance of software quality within their organization has placed them in a stronger position for achieving business goals. The customers in this study were either software vendors or financial services organizations, but in all cases responses were aggregated across the group so we could focus on patterns of success and identify trends rather than company-specific details. The organizations purchased Segue SilkTest and/or Segue SilkPerformer to improve software quality and reliability and to improve developer productivity.

The companies in the study generally defined quality by measuring the number of bug reports and defect rates or by evaluated end-user feedback on product satisfaction. Regardless of how quality was measured at an organization, at least 60% of the organizations in the study observed dramatic improvements in software quality after implementing the Segue solution. Companies reported that automating the testing process allowed them to find and fix bugs more

quickly, reducing the time to develop an error-free product. Productivity improvements were consistently in the range of 100% - 500%, with typical testing times shrinking from weeks down to days. Overall, adding automation and standardization to the testing process increased a company's ability to respond with agility and flexibility within a competitive environment and to get products and services to market more quickly. The software quality improvements were seen as a key driver to increase customer satisfaction, lower operational costs, and decrease risk.

About Hurwitz & Associates

Hurwitz & Associates is a strategy, analyst, and customer benefit research company focused on understanding the value of emerging software technologies including service oriented architectures, data integration, web services, and the overall manageability of a highly distributed computing environment. A GreenPaper is the culmination of customer benefit research and analysis that focuses on the tangible technical, financial, and business benefits of adopting pragmatic solutions. Additional information on Hurwitz & Associates can be found at www.hurwitz.com.

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