



WHITE PAPER **Scaling and Accelerating QA Efforts with Outsourced Software Testing**

Before you assume that hiring in-house is the best way to go to cover your software QA needs, consider outsourcing. Be sure to weigh all factors carefully when making your decision, and only go with an outsourced team that has the right experience and process controls to meet your needs.



Table of Contents

Overview.....	3
Challenges in the Modern SDLC.....	4
The Challenges of In-House QA.....	5
The Benefits of Outsourced QA.....	6
Three Pertinent Case Studies.....	8
Software Quality Validation for International Company.....	8
Website Testing for a High-Growth, Agile Team.....	10
Medical Center VoIP Fax QA.....	12
QualityLogic Engagement Model.....	14
Summary.....	15



Overview

Outsourcing is one of the of the most difficult decisions a company can make. Whether you're an established brand or a start-up, your goal is to intelligently deploy capital on 'things' that grow your business. Make the wrong decisions and you risk losing revenue. Make the right decisions and your business will grow.

In the past, the decision to outsource rested largely on attempts to reduce business costs. Now, outsourcing considerations have shifted from being solely cost-driven to include valuation of strategically leveraged partnerships constructed from an understanding of the benefits of specialization. It's no longer enough to view outsourcing as simply a 'cost-saving' method. Now, any decision about outsourcing software QA must also consider company strategy and core competencies.

Challenges in the Modern Software Development Life-cycle

Software development, be it application systems, eCommerce, mobile apps, Internet of Things, a telecom service or any one of a dozen other directions, is a market driven enterprise. Success is directly driven by time to market of product offerings, new features and defect corrections. In the age of Internet communications, time is a very expensive commodity.

While development wrestles with getting a new feature working just right without disrupting other system operational aspects, the competition is releasing new software-driven products and services that quickly pull customer dollars into their revenue streams. Where companies once had months to get everything carefully tested and verified, that now must be accomplished in days. The temptation to forgo or shortcut testing and quality assurance is potent but the costs in market reputation for both product and company can be very high indeed.

An assortment of development methodologies has been put forth to contend with these pressures. Most revolve around the Agile concept of quick, incremental code change to get updates out in small numbers as rapidly as possible. This approach has seen enough success to give rise to Continuous Integration (CI), Continuous Release (CR) and the like. Their implementation mandates urgent requirements for personnel who are skilled at producing



results in these new work environments... and therein lies the rub.

To make code testing efficient, fast, and effective requires developers who constitute the very top end of the skill range. These people are desperately needed to crank out the code that draws in the product revenue that keeps the doors open. But what of QA? Quality efforts, largely focused on testing, are just as vital as development even though they often are discounted as a non-productive element of Dev/Ops rather than productivity investments. The worst part of it is that these people need the same skills and understanding that the developers have with the added requirement of a quality perspective that searches out defects and their effects on both performance and other parts of the system. This puts the need for developers and QA personnel in direct conflict with each other making staffing more difficult.

The Challenges of In-House QA

Many companies are intent on keeping QA in-house to protect proprietary IP and facilitate management agility. That said, where you're located may dictate whether hiring in-house is even a viable option. While talented software QA experts may be available in Silicon Valley, they may not be so easy to come by if you're located in an area without a high-tech presence. In these cases, you simply may not be able to find people with the necessary expertise and experience to meet your needs. Even in the high-tech hubs, QA personnel with the skills and experience you need may already be working in high-paying positions at other companies.



In both these cases, outsourcing is an attractive option, since you can gain access to bright minds from elsewhere who can add significant value to your team. When it comes to something as important as software QA, it's a better option to find the best people possible from a large pool than to settle for someone local who may not have the requisite skills or who's overall burdened cost is too high.

The Benefits of Outsourced QA

Whether you need to add skilled personnel to an existing software QA team, handle a short-term crunch or sign on resources for the long haul, the question of hiring in-house versus outsourcing must be addressed. The issues at play are both complex and strategic with several factors to consider when making your decision.

Money is at the root of most business decisions, and hiring talent is no exception. When it comes to weighing the cost of in-house hiring versus outsourcing, it isn't as cut and dry as it might seem. Many hiring managers fail to take into consideration the many hidden costs of making an in-house hire.

An employee's salary is just the tip of the iceberg when you start quantifying the cost of hiring in-house. Peripheral costs include everything from employee benefits and recruiting expenses to the risk you take that they may not fit into the team—or the possibility that they've embellished their resume and aren't as skilled as expected. Moreover, if an initial hire doesn't work out, the cost of having to train and then retrain can be exponential.



When you compare the total costs of hiring in-house with outsourcing, the fee for outsourced software QA experts who have proven expertise could in fact be the smarter, more affordable investment. Another consideration is the management of Agile-based development operations.

Concerns over lack of control, less agility and poor communication may have some merit if you don't choose the right resource for outsourced software QA expertise. This is where due diligence comes in. It is essential to properly vet companies that provide outsourced services and learn what management processes they have in place. You should be reassured that your concerns with respect to control, agility, and communication—as well as flexibility, responsiveness, and the ability to deliver on schedule are fully addressed.

What Should You Ask of a Software QA Firm When Outsourcing?

- Does the company you're considering have a reputation for and the capacity to deliver the knowledge, skills, tools, and experience you need?
- Does your QA outsourcing prospect offer a Service Level Agreement (SLA) contract that clearly delineates the deliverables you expect?
- Do they have strict intellectual property security protocols in place that ensure clients' assets are protected and assures only authorized credentialed employees have access?
- Do they provide continuous, in-depth communication on all critical facets of ongoing software testing projects from a time zone that works for you?



- Does their service delivery model scale to your project size and scheduling and does it flex as required when the unexpected happens?
- Do their test processes adapt to your operations paradigm so that they work for your business model?
- Do they guarantee their work product and agree to make it right at their expense if the QA vendor is at fault?

It's especially important to check the references of companies that are vying to become your resource for outsourced talent. You may find in speaking with current clients that they had the same concerns you did when they were weighing the benefits of outsourcing vs. hiring in-house.

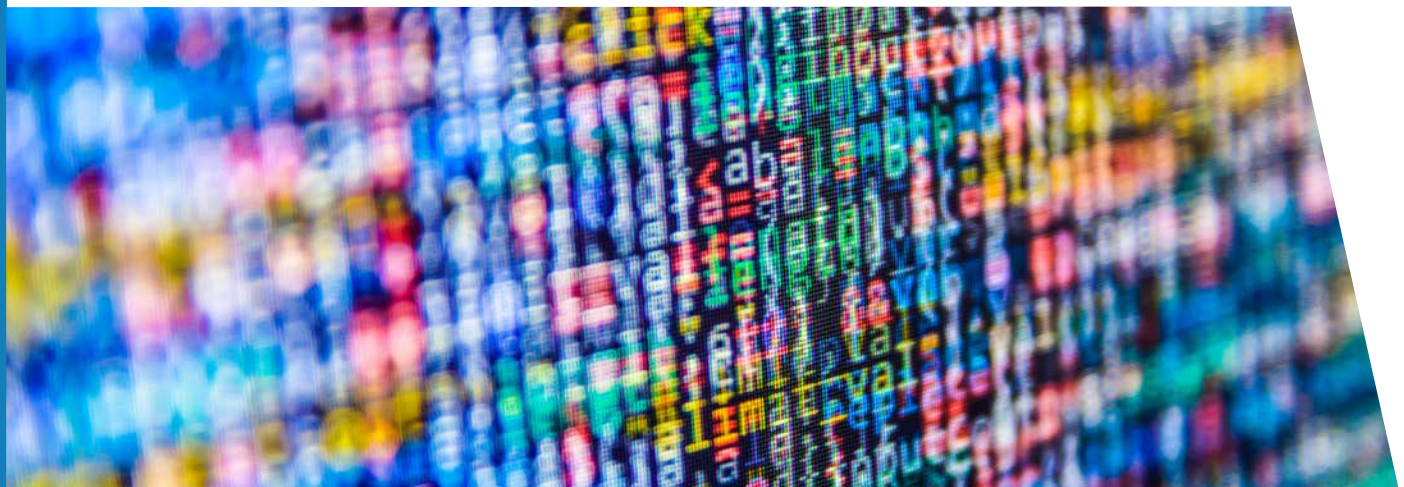
Case Studies

Some examples of how QualityLogic has helped transform software testing & QA for our clients.

Software Quality Validation for International Company

A large, international company with a long history of product innovation and market leadership planned to significantly increase their market share but faced strong competitive cost and quality pressures.

The client needed quality validation of products in varying stages of development requiring both ad hoc testing and a consistent quality



comparison across various models and previous product introductions. The testing process needed to represent the customer's requirements and forecast eventual customer satisfaction with the product.

This product validation effort required a QA partner with extensive testing experience across a wide variety of brands and product types. It also required significant knowledge of the end user's requirements and expectations in order to project the effect of quality on future customer satisfaction. The client wanted to compare their quality not only against their own current and previous products, but also against other products within the industry.

QualityLogic developed a portfolio of tests varying in complexity and cost:

- Verification tests to quickly and efficiently compare product readiness against previous products in development
- Comprehensive tests to discover as many product issues as possible
- Focused tests to quantify product improvement in problem areas
- Competitive tests to represent the customer's experience

QualityLogic performed numerous tests from this portfolio ensuring that the client had a clear picture of product readiness. Through these tests our staff was able to quickly respond to the changing needs of both the R&D and marketing groups.



Website Testing for a High-Growth, Agile Team

The client company had grown dramatically over its 10-year history, based on a functional, attractive customer site experience that continuously presented new marketing initiatives and campaigns. In addition to registration and payment processes, the site required the user to complete a complex questionnaire to access its services. Maintaining the customer's interest through this screening requires attention to detail and near perfection in code development and verification.

Highly competent web services development engineers aren't easy to find and finding software quality engineers who can keep up with them is even more difficult. Because of this, development engineers end up testing their own code or depending on code reviews and integration tests to catch flaws. For an eCommerce company that must manage the Agile development process, this is courting disaster. The client had to find a way for QA engineer recruiting to keep pace with its explosive growth in order to maintain the customer satisfaction which fueled that growth.

QualityLogic consulted with the client's QA director and put together a team of software quality engineers to augment the in-house QA staff. Initially, a nucleus of three experienced senior QA engineers was shared among four major development projects to become familiar with the client's data infrastructure and augment the resources where QA needs were critical.

As additional QualityLogic QA engineers came aboard, they took on more



permanent positions in the client's projects. This let the client focus the roles of their in-house QA staff on system attributes, such as marketing campaigns and feature additions, rather than mundane but necessary regression testing and sanity checks. Most importantly, QualityLogic team members automated repetitive and time-consuming test jobs, creating quick-turnover sanity and 'smoke' tests. This let the client's developers ramp up work on marketing initiatives and new features without the concern that the release of code to the live system would be bottle-necked at the verification stage.

One of QualityLogic's principle contributions was fielding a qualified, capable QA engineering staff in short order. The QualityLogic seed team immediately went on-site at the client's facility and gathered the operational knowledge necessary to bring staff engineers on line and make them productive within days.

QualityLogic's on-site project manager integrated additional engineers onto the project so that they could become productive immediately. The manager gained insights into the code development and testing processes from which he developed recommendations and plans for improvements.

Our QA engineers created automated systems to perform repetitive test processes unattended. An eCommerce system's stability relies on rigorous regression tests of all the system components and their connections each time new code is installed. Automation is the best way to ensure this, but it takes high value engineering talent away from development or testing. QualityLogic studied the standing system and brought engineering resources



in to work up the test automation harness code without detracting from either the development or QA processes.

QualityLogic's engineers were prepared to work within the client's Agile development process. They are well versed in the Agile operational concepts of quick, short-term turnaround of proposed features into working code without disturbing long-term system stability. The staff in QualityLogic's lab participated via IP audio links in the stand-up Scrum meetings held at the end of each sprint, and the project manager attended them in person. The on-site manager responded to requirement changes and directed the remote engineering staff's focus on the client's quality priorities. This synthesis of on-site management with remote staffing allowed QualityLogic's team to be extremely functional and cost effective.

Medical Center VoIP Fax QA

The Health Insurance Portability and Accountability Act places stringent requirements on the healthcare industry's handling of patient data. A major university medical center in the Midwest uses fax to comply with HIPPA's data security provisions.

When the medical center moved to updated fax terminal systems and Voice over IP (VoIP), they needed the new systems to provide a better – or at least equal – quality of fax transmissions. When they added a new electronic record system, fax usage was dramatically increased, and cracks began to show. The IT Communications Group saw a substantial increase in fax call trouble



reports – failed connections, corrupted pages, even pages not received at all – and all this in spite of replacing older multifunction peripherals (MFPs).

VoIP communications companies tend to shy away from dealing with fax issues because it's difficult to untangle the multiple interactions between systems down to the root cause. The medical center's IT manager described it as a "standoff between fax machine support saying, 'there is noise on the line' and Telecom testing the line and finding no line problems."

To get to the root of the problem, QualityLogic's QA engineers employed its diagnostic tools to conduct a survey of page transmission issues via direct channel monitoring then assessed and profiled the issues to isolate their probable causes.

To verify connection performance, QualityLogic QA engineers precisely measured fax transmission quality across four different data paths through the center's IP communication network. This identified network problems as opposed to fax terminal compatibility failures.

QualityLogic discovered that data symbol modulation quality loss was the primary cause of the page quality degradation issues. We further isolated call completion failures to T.30 protocol negotiation problems that prevented the connected fax terminals from arriving at a satisfactory set of transmission parameters and disconnecting over conflicting system configurations.

Our engineers developed a seven-point policy to bring all of the medical



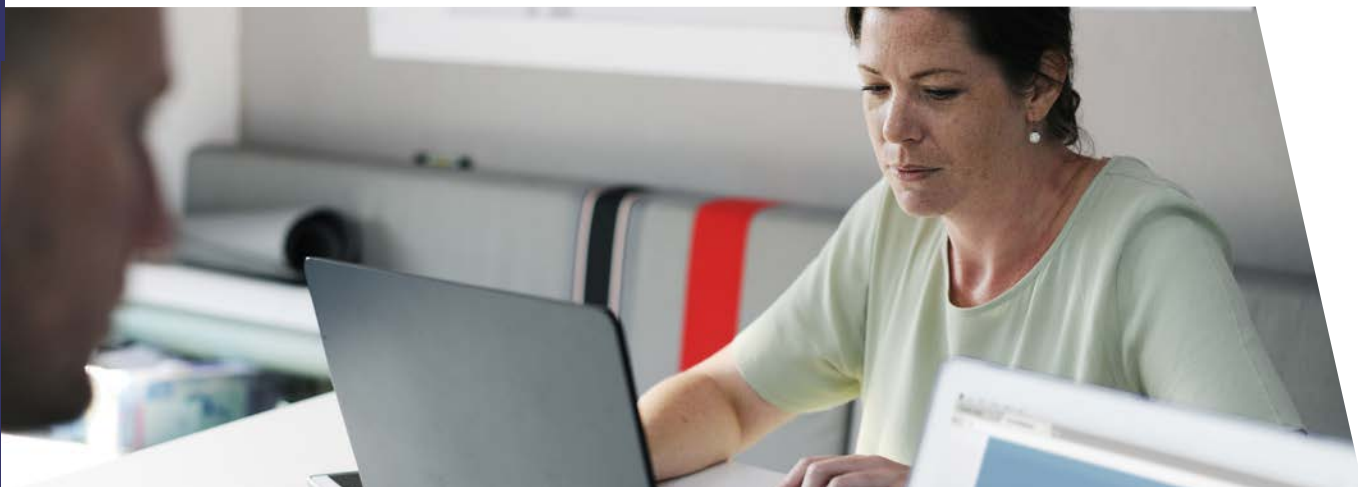
center's fax terminals into an optimal configuration that would ensure interoperability with each other for interdepartmental calls. It also reduced the possibility of conflicts with off-site fax terminals by averting potential T.30 negotiation and page modulation issues before they happen. The network channel path survey revealed a gateway with a fax modem issue that was causing modulation problems, and it also revealed an equipment configuration that could be emulated on other installations to improve page transmission quality.

QualityLogic Engagement Model

A third-party QA testing company must be able to operate within your established development or test environment. QualityLogic's engagement model is designed around scalability and flexibility.

Our experienced team members understand how to work seamlessly with your in-house team by:

- Following your test plans (or writing plans if you don't have them)
- Plugging into your bug reporting system (or providing one if you prefer)
- Using the appropriate devices and tools (in our world-class lab or at your site)
- Ensuring constant communication and collaboration.





Summary

We coordinate with your team to become an integral part of your winning QA solution. With responsive customer support and an unrelenting quest for quality, we give you the QA and test expertise you need, when you need it.

Before you assume that hiring in-house is the best way to go to cover your software QA needs, consider outsourcing. Be sure to weigh all factors carefully when making your decision, and only go with an outsourced team that has the right experience and process controls to meet your needs.

For More Information

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