

A photograph showing two people shaking hands over a table in a meeting room. The image is dimly lit and has a greenish tint, serving as a background for the text.

Your Software Testing Partner
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Internationalization & Localization Testing - A Case Study

Outsourcing Internationalization and Localization Testing to an expert ensures the quality of your product across locales

QA InfoTech provides Internationalization and Localization testing support to a company which is the leader in providing multimedia and creativity software products. It is a brand name which has market leading desktop publishing and media editing desktop products. Very recently the company has started offering the same line of products for web and rich internet application software development. They have a long line-up of loyal product customers such as enterprises and retail users.

Our deep understanding, long experience and smart optimization techniques makes us a preferred internationalization and localization testing partner

Business Need

In order to compete in Global Markets and to become world leaders in its domains, the client planned to release multiple products in many continents namely Americas, Asia, Continental Europe and Eastern Europe. Releasing the products in all these continents means that the product needs to comply to the local user culture. To be successful in capturing the global market, software product developers need to step out of their native locale and develop world-ready products. This asks for Internationalization and Localization of the product. As easily said, localized product is a product with UI translated to native language. However, Localization is not just about translating all strings but also making sure the product conforms to a local user experience. This in turn calls for Internationalization, or developing a product that can be adapted to local usage which is a combination of product functionality on the local environment, acceptance of localized character set, keyboard/input styles, time zone etc. Not just the development, but also ensuring the quality of local user experience is a big challenge.

Ensuring Quality

The intricate process of ensuring the quality of localized product involves testing the localized version of the product on every single locale/culture that it supports. This effort not only involves testing of proper translation but also relevant functional verifications. This would involve verifications ranging from simpler ones like checking for text truncation to much complex functionality like support for Unicode character sets, checks for sorting rules etc.

A global product needs to be certified on multiple locales and configurations. The configurations for desktop based and web based products are different. At our client end, the effort required to certify

the product in other locales was much higher as compared to the effort required to certify the product in the native locale. The cost of putting such an effort increased the budget of product development. Also, the product development schedule at client's end were in jeopardy because of the volume of testing required for internationalization and localization.

With so many tests to be conducted per locale, management of the whole process becomes much critical. Managing hardware and software to simulate native user environment, building a team of skilled testing engineers who appreciate and understand what would break in localized software, and above all getting to a release-ready product within the allocated time and budget can be a daunting task for any team not prepared for it

As like any of the client's regular line of product releases the client did not want to compromise with the quality of the localized product. Also the challenge was to meet the hard release to market deadlines and limited development budget. The client was in search for an outsourcing partner who could provide localization testing services to meet the success needs. Since localization was a new thing for this client, they were not very aware with the processes and technical aspects of Internationalization and Localization testing.

The Challenges

- How to achieve:
 - o Quality for localized version of the product
 - o Cost effectiveness
 - o Delivery on time
- What to test in Internationalization and Localization of the product
- How to evolve the Bug Tracking Process

The QA InfoTech Solution

An Internationalization and Localization Testing Service provider was a natural choice for the client to outsource the efforts of Internationalization and Localization testing for the huge line of products under the challenging circumstances. QA InfoTech being experienced in this field of testing, was selected for outsourcing partnership by the client. We proposed a smart testing approach as a solution to all the client problems to ensure the high quality of product in multiple locales. The approach was different for Internationalization and Localization Testing. The internationalization testing was performed on a single locale and its main purpose was to ensure that product is engineered to adapt to the culture of all countries. The pillar of the localization functional testing is the Test Optimization matrix. The matrix is a single entity defining the amount of testing effort required on each locale. It can be customized to meet the product requirements. By adopting our smart testing approach, the client was able to reduce the cost of software development.

The Approach

- Test planning to meeting schedule
- Test coverage optimization matrix
- Software tools to support test execution
- Evolving the bug process to incorporate Internationalization and Localization testing
- Support for linguistic verifications

Using our vast experience in this field we laid out a step by step plan to meet the deadline of the release and ensuring quality, by making sure that the tasks such as Localizability testing, Enablement testing, Localization Functional testing and Linguistic testing, are scheduled for execution at the correct time. This plan further helped us and the client strategize and measure the progress.

Smart Optimization

The next task in hand was to complete the test execution within the planned budget and time. For this

we provide various strategies of optimizing test coverage/risk and effort. An optimization matrix was developed using our past experiences and understanding of the internationalization engineering and core localization issues. The aim of developing this matrix was to minimize efforts involved in testing without risking the quality of the delivered product. Internationalization and Localization testing desktop application involves testing of the localized application on a localized version of the operating system. Considering that there are multiple versions of the operating system available in the market and hardware on which this operating system works and also that there are a number of locales that the product has to support, the combination of configurations on which each test cases has to be executed becomes very huge. It is not possible to cover everything within the said time and budget. The approach was to optimize the coverage plan in such a way that we are able to cover the testing well within the budget and time and yet achieve quality.

Infrastructure and Labs

Localization testing labs needs to be equipped with hardware and software to simulate any and every native user action and experience on a localized product. This includes the use of Localized keyboards and input devices, operating systems in various languages and hardware meeting the product requirements. Maintaining such a lab for a number of testers who will be testing on different locales is a huge cost which was unbearable under the constrained budget. So we adopted a number of software and hardware solutions to minimize this lab and environment setup costs. One such solution is Virtualization, which helps us simulate multiple Operating System and Locale environment on a single desktop machine.

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Tracking the Defects

The defect tracking tools and mechanisms need to be enhanced to support tracking of Internationalization and Localization issues found during testing. We helped the client to evolve their existing bug life cycle to incorporate these enhancements. These enhancements in turn helped the client to generate metrics to measure the quality of Localized Product during the development process.

Supporting Linguistic Verification

Linguistic verification or verifying the translation of strings on the localized product is another very important check. We need to have skilled Linguistic experts for each locale to do this job. The problem with linguistic experts is that they are not always very computer savvy. For a complex product which has complicated work flows the linguistic experts without the functional knowledge of the products will not be able to perform linguistic verifications efficiently. The solution was to either train the linguistic experts in the product work flows or a way to provide them with just the screens to verify the translations. Training a number of linguistic experts that reside in their remote countries is a very time consuming and costly task. We implemented a screenshooting process which involved Localization Functional Testers capturing the screenshots of all the product screens and providing it to Linguistic experts for verification. This process helped the client in optimizing the cost of Linguistic verifications.

Client Benefits

QA InfoTech team ensured that each new feature added to the application by the client provided better user experience in the localized version of the product and the user experience meets that of a local product user.

The team at QA InfoTech was able to unearth the bugs early in the product development cycle with

the laid our processes. We created a big team of internationalization and localization testing engineers who have hands on experience and are expert in these fields of testing. To achieve the tight project deadlines was a challenge as there were periods of high peaks and valleys of work. The team at QA InfoTech walked an extra mile to achieve the tight schedules and all this effort was appreciated by the client.

QA InfoTech value additions:

- o A well defined process for end to end internationalization and localization testing
- o Smart test optimization matrix to reduce human and hardware resource resulting in cost-effectiveness
- o Reduced time to market with shorter release cycles for localized builds across continents
- o Certainty in terms of quality of the product and on time delivery
- o At the end, a high quality product available in multiple locales

The dedication, hard work and expertise of QA InfoTech team resulted in a rise in the revenues of the Client, going beyond forecast, all through the engagement. It is rightly said that

“We are what we repeatedly do. Excellence, then, is not an act, but a habit.”



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About QA InfoTech

QA InfoTech is a leading Software Quality Assurance and Testing company specializing in providing independent, unbiased testing services to world class businesses. Through its wide range of services constituting of functional testing, acceptance testing, localization testing, test automation and performance testing, QA InfoTech has helped many Fortune 500 companies in creating and successfully executing their QA strategy.

QA InfoTech specializes in providing top-notch internationalization and localization testing services and works with leading software companies to validate their products to ensure proper functionality across different languages. The forceful combination of our skilled localization testing engineers, flexible resource model, extensive labs and a smart testing approach that optimizes test execution on different locales and platforms helps us deliver high quality and cost-effective localization testing solutions to our clients.

Established in 2003, with less than five testing experts, QA InfoTech has grown leaps and bounds with five QA Centers of Excellence in US and India, and more than 450 Testing engineers.

Excellence, Partnership and Commitment are the three hallmarks of the way we approach our clients, we believe you will see this in our service and our expert team.

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