Innovation in Retail:
A Test Automation Story

Customer story at a glance:

A luxury retailer presented the challenges of rising operational costs and data quality issues.

The company's systems did not allow for international growth.

Prolifics was engaged to provide a solution using test automation.

Automated executions have saved more than 600 hours of validation every cycle.

Through test automation, Prolifics has helped this company with their BOPIS (buy online, pick up in store) program.

This initiative has generated $6 million in revenue.

It was clear the company wanted to invest in repeatable test automation that could help them provide extensive functional coverage in a short span of time. They needed to address their issues, and reach their goals, in the fastest way possible.

The company implemented several solutions to support its international operations. Success of these initiatives were critical to the company's international expansion plans.

They wanted to overcome these ecommerce challenges and the ongoing challenge of the effects of Covid-19 on the retail industry. We added value by automating testing for these challenges, delivering vision to value, faster.

Navigating the story:

Challenges

This company highlighted that they were experiencing data quality issues with their marketing systems. The systems their marketing team chose needed to be integrated with several other systems.

Rising operational costs were a direct result of the lack of thorough testing with third party applications and interfaces. The brand's reputation also took some damage. Test automation became essential to overcoming these challenges.

This retail company came to Prolifics with their questions. They wanted to see how we could arrest the rising operational costs by pinpointing and addressing their quality issues. This could only be done through test automation and automated test data mining.

The Company

This case study follows the journey of a Fortune 500 luxury retailer that sells everything from kitchen-wares to home furnishings. They are based in the San Francisco bay area.

Along with being a leading specialty retailer of high-quality products their top goals are to provide world-class service and engage the best customer experience.

They came to Prolifics with a few major challenges that were affecting overall operations and production.

Action

The Prolifics test automation team began by analyzing the existing test solutions for more than 1,500 manual test cases. Time constraints made 100% execution impossible. Only a small number of manual tests would be run every release and these took too much time needed for other activities.

Our core Informatica MDM subject matter experts partnered with the retailer and developed an iterative and incremental plan and provided a gap analysis to the company.

The SMEs identified the tests for automation and the test automation team customized the Prolifics Automation Test Framework. We streamlined the test data to run all third-party scripts end-to-end, completely automating these solutions.

Our automation team also helped review the company's existing automation framework to provide additional performance improvements as well.

The Prolifics team proposed developing test cases that cover all the functionalities of e-commerce (order to cash) for every requirement. Brand-wise and store-wise rollout testing was performed and quickly deployed to production.

Our omni-channel functional experts partnered with the company's development team to identify requirement gaps at an early stage. We created in-built rules to automate the validation of high volumes and the variety of data. Test data mining for data preparation for the brand was automated. We also brought in continuous process improvements and innovations. We achieved this by deploying functional automation for all key business transactions.

On the business side, this means that we identified exactly where the problems were, and made the whole process run seamlessly faster.

Results

Prolifics automated several of this retailer's solutions. Over 1,500+ test cases, which were run every month, provided greater speed and coverage of execution.

The automation helped cut down the test times by over 50% each cycle and expanded the functional coverage by over 60%.

Since the implementation, the team has seen an improvement in the end user satisfaction and reduction in over 30% of customer escalations. More importantly, customer satisfaction has shown improvements too!

The new solution has enabled this retailer to enhance their customer master data management capabilities. It can now integrate with other applications and services.

Automated executions saved more than 600 hours of validation for every cycle, by automating flows.

The automated solution of the regression library helped eliminate the quality issues our client was experiencing with customer relationships and ecommerce. We took this retailer to the next level. Through Prolific's test automation we helped them to get an international audience successfully.

Through test automation, Prolifics has helped this company with their BOPIS program. This initiative has generated $6 million in revenue.

Technology

Navigating the technology:

Oracle NetSuite ERP and E-Commerce

Implementing NetSuite ERP and E-Commerce and integrating it with existing systems was very complex. There were more than 60 different integrations with 17 different applications.

This was one of the first cloud-based implementations for the retailer. It made coordination with third-parties challenging.

Data integrity and data security were main concerns from the company's point of view too.

While NetSuite was hosted on cloud, integrating with the company's legacy systems was a challenge. A lot of features and data flows had to be customized.

Tests were developed for System Integration Testing across all modules, customizations, and integrations with the company's other systems. The main solution consisted of building a combination of modular and End-to-End test scripts.

The Regression suite was designed such that modular test scripts were scalable. As the retailer expanded its business to other countries, more than 40% of the tests were reusable.

300+ end-to-end flows across e-commerce, sales order, purchase order, inventory management, and general ledger functionalities were successfully automated.

The NetSuite implementation was successful with Defect Removal Efficiency >95%. The core regression suite is run now during every Netsuite ERP upgrade. This happens at least twice a year now. Due to the modular nature of the tests, over 30% of the NetSuite test cases are reusable across customers.

The automation suite helped cut down execution time by 50%. It also increased functional coverage by 30% compared to manual regression. In addition, the automation suite is able to integrate and run with the CI/CD DevOps pipeline.

The retailer engaged Prolifics in testing end-to-end sales order management. This included E-Commerce Order to Cash, Procure to Pay, and General Ledger functionalities.

The Prolifics Retail QA team developed a comprehensive functional test suite that helped with extensive coverage.

Informatica MDM

This company highlighted that they were experiencing data quality issues with their legacy AS400 Marketing systems. This needed to be reviewed and changed in order to keep up with the changing retail landscape.

As a part of App modernization, Informatica's MDM was selected by their marketing team. It provides the main solutions of customer matching and merging. It also enhances data quality,

Functional testing was manual and coverage was not exhaustive. This caused a lot of incidents in production and rising operational costs to fix them.

Change management and feature enhancement documentation was not streamlined.

The regression test library was not being updated regularly. This led to an outdated regression bed.

Due to the manual nature of tests, test data maintenance for each test case was overwhelming and difficult.

Automation was a challenge as the locators were frequently changing too.

Our client came to Prolifics as a partner, in order to address these laboring issues.

We designed automation test scripts using Prolifics framework covering 80% of functionality. Scripts were planned for execution weekly through Jenkins jobs.

Our team developed a process to record change requests in every release. We mapped them to test cases.

We identified and proposed automating more than 75% of the regression library.

We achieved 100% increased test coverage for the functionality. Despite the increased coverage, we were able to reduce the testing cycle times by 60%.

The regression suite ensured that all the validations were completed seamlessly and achieved 100% Defect Removal Effectiveness.

Automated test data mining helped cut down the test times by over 20% each cycle.

E2E integration testing was done in coordination with multiple teams (RMS, MDM, eCOM, Sterling and other applications).

Functional Test Automation using Open Source Tools

With monthly releases, manual functional testing was a burden. There were over 5000 test conditions that needed to be covered around their business rules management processes.

Performance Test Automation using Commercial Tools (Micro Focus LoadRunner)

The automated solution of the regression library helped eliminate the quality issues in the company's implementation of Informatica MDM.

We achieved a 98% test effectiveness rate. 100% schedule adherence increased the stability and availability of the production system. The Prolifics team brought in continuous process improvements and innovations. This was achieved by deploying functional automation in key areas, performance testing and integrated automation framework to a CI/CD Model

The test automation covers end-to-end functionality of UNATA dotcom, AMS, MDM, and CRM regression. Last year, there were zero defects in production owing to increased functional coverage through automation. The application works across android and IOS platforms, and on all browser versions, as well. Using automation tools for building regression suites brings in substantial profit and helps quickly validate the impact of upgrades.

The automation framework was integrated to a CI/CD Model.

Prolifics also executed integrated performance tests to ensure that the system performance does not degrade when subjected to different load levels and transaction volumes.

We made sure that all the key metrics, such as, Orders Per Minute, Sessions Per Hour, and transaction response times were within consensus.

The Prolifics Automation Test Framework provided >95% functional test coverage. Our automation approach was test data driven.

Omni-Channel Implementation - BOPIS

IBM Sterling OMS API Automation - A Comprehensive Sterling OMS API Test Automation Suite

BOPIS (Buy Online Pick-up In Store) was a new initiative from the company to improve customer business. The goal was to provide more options for customers to acquire their products.

BOPIS is the key to delivering more products to customers. It works by enabling customers to select which items they want to purchase immediately and pick-up at the store. It's quicker service with no shipping fee attached.

Setting up this new initiative required test data specific to the brand. All of the steps were automated. Each day, these scripts were executed, to make the data available at the beginning of the work day.

Email notifications are one of the most important key factors here for the customers. There are a number of combinations of order status, including; Associate Picked-Up, Customer Picked-Up, Partial Associate Picked-Up, and Partial Customer Picked-Up.

Test Automation to the Rescue!

Over the past couple of years we have all experienced a lot of changes and/or setbacks on the road to success. If you're involved in any way with the retail industry, then you have felt this harder than most. One of the biggest challenges retailers face today is adapting to constantly changing technology.

Though this may seem daunting, there are ways to manage certain challenges that pop-up along the way.

When it comes to technology, there is always a solution. In the matter of testing your IT environment, tests are conducted to make sure the applications are performing as they should be. Manual testing can be very time-consuming and tedious. So, in order to, both manage software quality and make sure it is performing exceedingly well, test automation becomes critical to reaching success.

If you're new to test automation, then here it is in a nutshell. It's essentially a quicker and more reliable way to test and improve the quality of the software and applications you are using to run your business. Test automation reduces the costs associated with testing, while developing better application quality.

A more valuable way to demonstrate the importance of test automation is to show you an example. You may even find out the challenges described by our client here are similar to the obstacles you are facing right now.

Learn More About Prolifics

Prolifics is a global digital transformation leader with expertise in cloud, data and analytics, DevOps, digital business, and quality assurance across multiple industries. We provide consulting, engineering and managed services for all our practice areas at any point our clients need them. Whether it's initial advising and strategy; design and implementation; or ongoing analysis and guidance, Prolifics helps companies take charge of their digital future.

Vision to Value. Faster. - It's not just the Prolifics' tagline, it's what drives us.

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