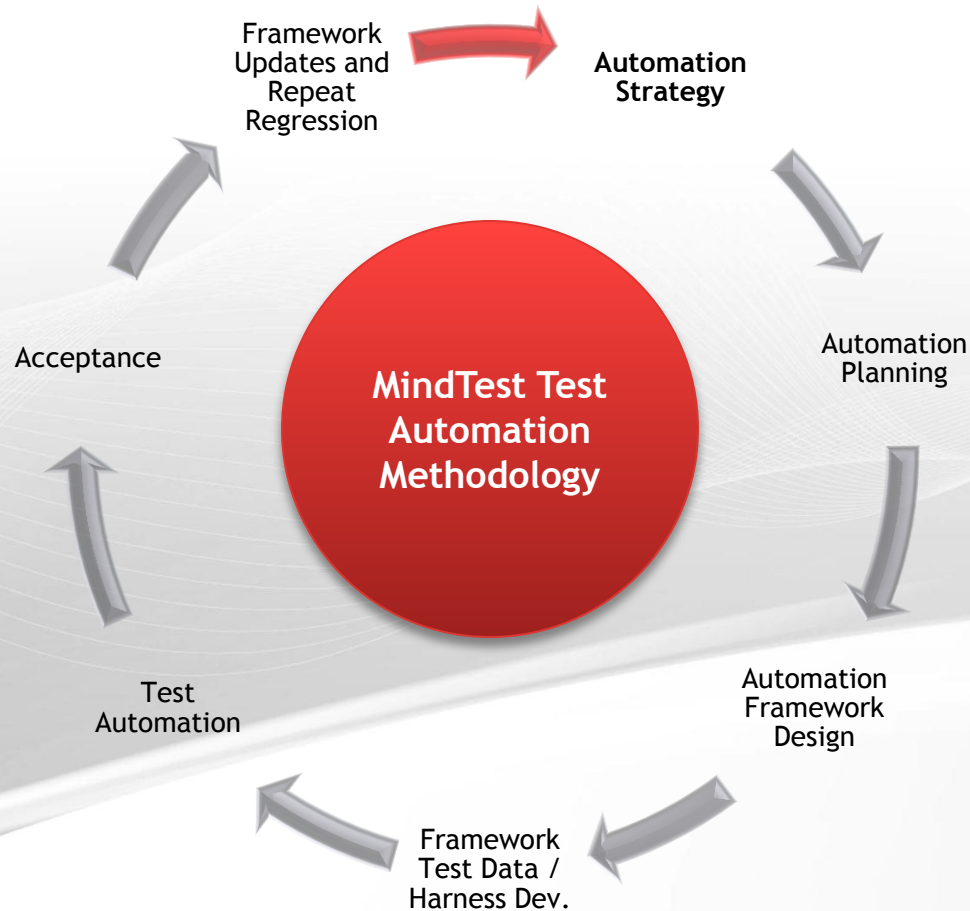




Quality & Testing Consulting Automation Overview



- **Automation Strategy:** Understand product and test practices, identify automation opportunities, tool selection, Finalize automation scope
- **Automation Planning:** Identify automation deliverables and milestones, Integrate test automation milestones with SDLC, define roles & responsibilities
- **Automation Framework Design:** Choose automation approach, analysis and design of automation, understand/prepare automation framework/guidelines
- **Framework, Data, & Harness Development:** Define topology of test environment, set up automation coding standards, develop and test custom code
- **Test Automation:** Full-fledged test data creation, granularity of runs - Partitioning and configurability, test progress tracking, automation efficiency metrics
- **Acceptance:** Automation code review (by client), test binaries build instructions, test results and automation efficiency review
- **Framework Updates and Repeat Regression:** Help documents to maintain test scripts, FAQ's to troubleshoot automation, opportunities for improvement of the test automation



Tool selection

- Assess customer test infrastructure
- Selection based on project needs, scripting interface for automation
- Develop automation prototypes for tool comparison

Automation Framework development

- Modularized and reusable
- Highest priority to areas of high risk
- Logging
- Exception handling
- ISOLATE system bugs and automation bugs

Test automation development

- Develop maintainable test scripts
- Enforce coding conventions, function declarations
- Consistent structural design throughout all libraries and scripts
- Use data-driven approach to create new variations
- Thorough documentation

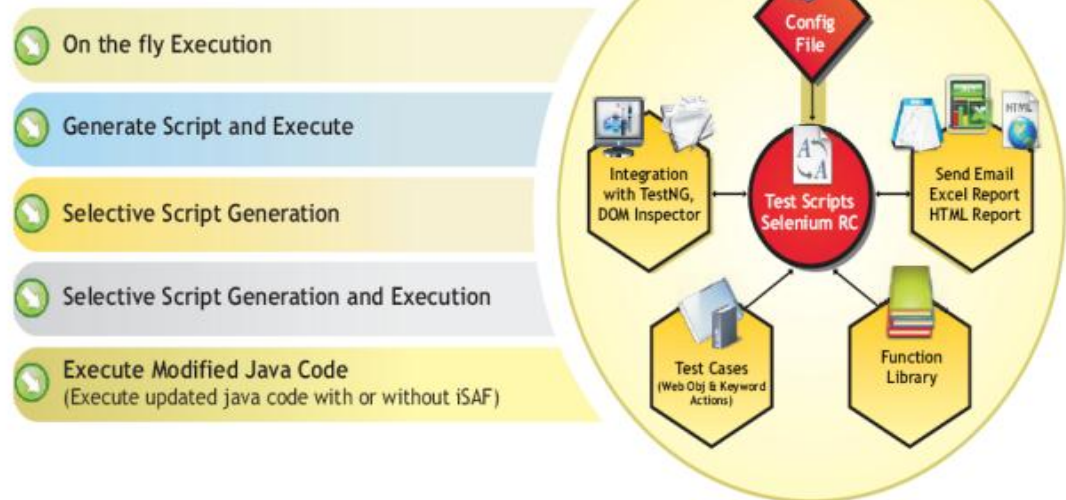
Mandatory features

- Logging
- Pass/fail summarization
- Exception handling
- Adding / Removing test cases for execution
- Result reporting

Selenium Automation Framework: Key Differentiators



- Script-less Automation and Extensible framework
- Built over open source **Tools / Libraries / Frameworks**
- Support for sequential and concurrent execution on various browsers
- Support for remote execution and monitoring
- Supports Data Driven Testing (DDT), Object repository & Test results reporting
- Selective Test Script execution, grouping /dependencies & Reusable functions
- In-house accelerators to support test data generation and XML-DB validation
- Supports various Execution options:





Eliminate

- Scripting & debugging
- Use of commercial tools
- Manual configuration

Reduce

- Cost per license
- Dependency on expensive resources
- Maintenance cost
- Learning curve

Increase

- Faster ROI through automation
- Ease of use
- Reusable functions

Create

- Easy script generation & management environment
- Concurrent & remote execution
- Test data generation
- Customized reports with screen shots

Components of a Well Designed Automation Framework



Automation Framework

External Components/Files

Object
Repository

External
Config.
Files

Environment
Variables &
Constants

External
Data Files

Automation Driver

Initialization
/ Clean-up
Scripts

Function Library

Recovery
Scripts

Generic/
Common
Functions

Business
Functions

Extension
Functions

Reporting and Logging

Consolidated
Reporting

Error Tracing
and Logs

Detailed
Logging

Result
Notification

A Test Automation Framework design must be modular, easy to maintain, reusable and leveraged across multiple projects to maximize the value of the test automation suite.

Test Automation Highlights



Automation throughout delivery

- Not just a record-replay project
- Akin to full SDLC
- Runs in parallel to the life cycle of software product under test
- Critical success factor in agile/iterative delivery

Comprehensive & Robust automation

- Spanning test data preparation, environment setup, software testing, build and release management, defect reporting and analysis
- “Tool” mindset driven by Automation Design Engineers

Focus on automation strategy and approach

- Small change in software => small change in automation
- Architected for business function driven reuse
- Lowered effort for maintenance of automation framework

Business objectives & Quality objectives aware

- Not a tool capability centric approach
- Automation tools selection is driven by automation objectives, technology environment, cost, and tool capability, POC

Well-defined structured methodology

- Standardized procedures for planning, estimation and execution
- Standard checklists, questionnaires and reporting templates



Overview

Customer is a web based general insurance provider in India. The product portfolio includes Auto, Health, Personal Accident, Home and Travel Insurance for individual customers. For Commercial clients, Customer offers a wide range of specialized insurance products in Fire, Marine, Engineering, Liability and Business Interruption coverage. Customer has over 2.5 million policy holders.

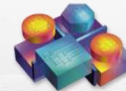


Outcome: Reduced the testing cycle time per build by 35%.



Customer Challenge

- Understanding Customers requirements and matching it with the baseline automation framework and customizing the framework to suit the requirements
- Application instability - since the automation test scripts development occurred in the regular testing environment.
- Application and server downtime leading to loss of productivity
- Automation tool limitation in automation of certain business scenarios



SAF Solution

- Development of Regression Test Suite which included:
- Manual test scripts for regression testing of Online insurance Policy Issuance application
- Automation of the test scripts created as part of the above using Selenium automation tool
- Development of a product for each campaign portfolio offered by Customer that would automate the test script generation for the user entered input and output values.



Overview

Customer is a provider of loyalty management solutions and specializes in delivering all aspects of loyalty management solutions like technology, program development, and operations infrastructure MindTree was engaged to build and customize their loyalty management product. As part of the testing engagement, MindTree automated the test cases to test data accuracy and maintained the automation.

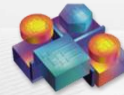


Outcome: Reduced the testing cycle time per build by 65%.



Customer Challenge

- Testing AJAX components, floating menus and custom web elements, and dynamic popup windows
- Time spent in manual test case execution
- Browser compatibility testing
- Working with dynamic pages / objects
- Searching a particular user or customer when logged into application as super user which contains more than 270 users and in particular no search button option is available



SAF Solution

Test automation was done by test engineers with basic scripting skills thus reducing customer costs



Business Situation

- ❖ Automation investments not yielding expected business value
- ❖ Marginal decrease in product defects
- ❖ Test Cycles getting compressed
- ❖ Test coverage constrained
- ❖ Regression validation taking to long
- ❖ Low confidence in test results

Challenges

- ❖ Limited testing tool skills
- ❖ Single points of failure
- ❖ Low confidence in test automation benefits
- ❖ Poorly defined quality objectives
- ❖ Limited dashboard reporting
- ❖ Constrained budgets (resource, tools)

MindTree's Solution

- ❖ Customized Test Automation Framework
- ❖ Standardized Tools
- ❖ Standardized methodology
- ❖ Used Open Source Solutions and MindTree IP for test tool options
- ❖ Development implementation roadmap

Business Benefits

- ❖ Increased Predictability
- ❖ Increased Reliability, Performance & Accuracy
- ❖ Scalable
- ❖ SLAs being successfully met
- ❖ Efficient utilization of testing resources
- ❖ Increased moral and dedication



Business Situation

- ❖ Build and maintain a robust and comprehensive regression test pack for its life insurance applications
- ❖ Desires repeatable and ensures higher quality of outputs across the SDLC and production).
- ❖ Design automation test cases/framework and deliver a POC

Challenges

- ❖ Availability of adequate processes
- ❖ Interviews revealed that the client was more person-dependant and not process dependant.
- ❖ The test planning was poor and there were no adequate documentation available for testing.

MindTree's Solution

- ❖ Conduct Interviews key stake-holders
- ❖ Analyze the As-Is process
- ❖ Identify the Gaps in standard processes and procedures
- ❖ Liaise with the customer and propose the required changes.

Business Benefits

- ❖ Achieved its Regression Testing Objective.
- ❖ Recommended additional approaches to move from the person-dependant scenario to process-dependant scenario



Our Mission

Successful Customers
Happy People
Innovative Solutions

Paul Fratellone
paul_fratellone@mindtree.com
MindTree Ltd.
www.mindtree.com