White Paper: Creating Business Value with Business-Driven Test Automation

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Executive Summary

Over the last few years, the importance of test automation has grown by leaps and bounds. From primitive record and playback technique to data-driven and keyword-driven frameworks, test automation has seen many facets. With every shift, test automation has imparted more flexibility and speed. This has made test automation more modern and mature to suit the business needs. In other words, with time, test automation has become more business-driven as it is slowly eliminating the costs of development and maintenance of large test scripts without sacrificing on the product quality.

This white paper takes through the evolution of test automation and explains how the shift from traditional to business-driven test automation empowers software and QA firms to attain greater business value and maximize ROI.

Understanding the Significance of Test Automation

The IT industry has attained a significant position in the recent times, thanks to a number of technology evolutions. It is only with these technological innovations that new software and business applications are built and made available to organizations looking to automate and manage their critical business processes. In the recent times, the demand for these software solutions has drastically increased forcing software providers to deliver solutions and applications in short cycles ignoring their most important element i.e. quality. Thus, the outcome is poor functioning software, inadequate and missing features, defective components and project slippages.

To ensure that the application meets the required quality standards and expected functionalities, software testing is the logical practice that every software provider should engage in. However, the amount of time and efforts it takes to test an application is generally the biggest turn off.

Considering the time and cost saving needs to keep pace with today's agile market, test automation is what large QA organizations and professionals have started adopting. It is the best way to strike a balance between quality and reduced time-to-market.

Evolution of Test Automation

Test automation is an ideal approach to test software quality across regression cycles with reduced efforts, time and cost. In the last few years, with changing dynamics and market place and to suit the increasing agility and flexibility needs, test automation has undergone many changes. It has witnessed a huge growth since its early days of record and playback to become a robust data and keyword-driven QA.

Here are the four major approaches of test automation that have been around and evolved from time-to-time.

Record & Playback Approach
In this approach, the actions of testers testing scripts are recorded and then played back in the application under use. The major drawbacks of this approach are limited reusability and difficulty in maintaining and updating test scripts for recording.

Modular Functional Approach
In this, modular test scripts of different functions are created and tested in the application. They are reused for different purposes with slight changes. However, these scripts consist data which reduce the ease of maintenance while this approach also requires technical expertise.

Data-driven Approach

In this approach, the tests are executed with input and output data maintained in some external file. This approach greatly reduces the testing efforts, however, it throws several maintenance and perpetuation challenges.

Keyword-driven Approach

In this approach, test scripts are automated utilizing reusable keywords that are independent of the application. This approach imparts the most flexibility and scalability in testing. Conversely, it consumes a lot of time and effort in creating keywords in the language of testing tools.

All these four major approaches of test automation have their own pros and cons. Based on business requirements, all these approaches have undergone amendments from time-to-time, which includes small as well as major advances.

Major Advancements in the Test Automation Market

The last decade saw some of the major advances in the test automation practices. Here are a few of them which have vastly evolved the test automation market and are responsible for what it is today:

- ❖ Linear scripts have been replaced by the structured ones
- ❖ Data-driven and Keyword-driven frameworks have been introduced in place of Record and Playback frameworks to eliminate rigidity
- ❖ Test Scripts have been made more Reusable and Modular
- ❖ BDD (Behavior-Driven Development) has acquired equal importance as TDD (Test-Driven Development) in the testing process
- ❖ The complexities of scripting and coding test scripts have been eliminated by codeless test automation tools

With these evolutions from time-to-time, test automation today has not just remained a traditional testing practice rather, it has evolved to become a mature, business-driven testing program that ensures better test-coverage, scalability and productivity in the entire testing efforts to deliver quality software applications and systems.

What is meant by Business-Driven Test Automation?

Business-driven test automation is an approach to testing in which QA practices are implemented and measured against business goals along with a defined testing goal. The entire testing process is driven by business metrics derived from specific business objectives.

In this testing approach, QA team and business analysts get involved right from the project start up to define business rules as well as test scenarios and generate automated scripts which are then run in the application.

This approach imparts a lot of flexibility to the QA team as test scripts can be changed to suit the changing business automation needs.

How Business-Driven Test Automation is Different from Traditional Test Automation

While the focus on traditional test automation is restricted mainly to metrics of testing, i.e. quality, productivity, etc. business-driven test automation analyzes and captures business rules. The QA and business analysts get involved right from the start of the software lifecycle in business-driven test automation which influence a positive outcome. On the contrary, the role of quality analyst only starts during the testing phase in the traditional test automation. This creates a lot of mismatches in the expectations of the business goals since this occurs too late in the software lifecycle.

Besides these differences in approach, there are certain factors in which business-driven test automation appears highly different from traditional test automation.

FACTORS	BUSINESS-DRIVEN TEST AUTOMATION	TRADITIONAL TEST AUTOMATION
Focus	Business + functional requirements	Functional requirements
Objective	Defect detection with faster time-to-market	Only defect detection
Perspective	From Business Analyst and QA	From QA Tester
Result Measurement	Based on business goals achieved in a particular test cycle	Based on number of test cases written and executed
Defects Handling Approach	Pattern data and pattern analysis with accurate defect prediction	Reactive with no plan to predict defects
Execution Focus	To maximize test coverage with risk based testing in optimal timeline	Only to maximize test coverage
Pricing	Not fixed. Based on the results achieved	Fixed. Mostly based on time
Outcome	Achieving business goals with robust testing	Achieving pre-defined testing objectives

It is evident from the above differentiation that business-driven test automation is much more oriented towards the overall business efficiency while testing the software products.

With these different practices, business-driven test automation tends to solve a lot of challenges that crop up in traditional testing practices.

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Challenges Solved by Business-Driven Test Automation

Eliminates Costs
Business-driven test automation greatly reduces the costs of creating and maintaining different test scripts. While in the traditional testing, test scripts need to be maintained and updated to suit the product changes, modern business-driven test automation removes the overhead of maintaining and changing scripts as they are broadly based on continuous business scenario and process.

Reduces Dependency on Test Automation Experts
More than a technical expert or test engineer, business-driven test automation is dependent on skilled business analysts. Thus, the people who actually have a thorough understanding of business rules drive the test exercise. This reduces the dependency on a technical team of testers.

Eliminates Redundancies of Framework Design
Designing a test automation framework requires expertise on the part of the creator. A poor design of the framework can result in the deviations and increased maintenance costs. As business-driven test automation is based on the guidelines and structure provided by the business analysts, there are no chances of redundancies or deviations from the actual goal.

Removes Platform Lock-in
Unlike traditional test automation which typically gets locked-in a single platform and cannot be changed, business-driven test automation works independent of platform. This helps users to change the application platform based on business suitability.

Reduces Documentation Time
Since there are no frequent changes in the test processes and business goals, the requirements documented once can be used over and over again. Thus, it reduces the time and efforts in modification of frameworks and documents.

Apart from solving the challenges in traditional test automation exercises, business-driven test automation also promises to provide several benefits to software and QA firms.

Benefits of Business-Driven Test Automation Approach

Reusability
In this approach, there is an excessive reuse of scripts since they are based on the defined business rules, processes and keywords extracted from the business goals which remain same for a longer period of time. Thus, there are not many and frequent changes in the scripts and hence it increases reusability.

Synchronization with Single Repository
This set-up can work with a single repository of business rules and application rules. There is no need to create separate repositories for maintaining business rules to create scripts and accessing application rules. This helps achieve synchronization.

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Ensures Business Agility

Since the business-driven approach in itself is flexible, the chances to change the testing objectives and architecture as per business requirements are increased. This helps bring in more agility and scalability.

Flexibility with Platform Independence

This approach is not bound to a particular technology or platform. This means, there is enough flexibility to choose and execute on platform of choice.

Empowers Roles of Business Analysts

Business-driven test automation works by deriving test scripts created by business analysts and experts. They play a key role in setting up the entire process of testing. Thus, this process majorly works on the structure and directions provided by the business analysts without depending on the test automation experts.

Easy Maintenance & Management

This approach also makes it easy to manage and maintain the testing process since it removes the technical complexities. Moreover, the involvement of business analysts makes it much easier to make changes in business rules and scripts without depending on technical test experts.

Business-driven test automation is not a technique or a defined set of methodologies to test your software products. Rather, it is a philosophy where business goals are given importance while testing rather than just verifying the functional and performance aspects of a given software. Thus, to drive business value in your test automation practices, you only need to keep in mind certain key concepts and steps which are discussed in the following section.

How to Articulate and Drive Business Value in Your Test Automation Program

- Understand Business Requirements
- Create Standardized Metrics
- Communicate and Collect
- Finalize & Establish
- Map Business Focus
- Test with Defined Business Perspective
- Measure Results

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Understand Business Requirements
Understand and collate the business requirements and goals from all the stakeholders.

Create Standardized Metrics
Create standardized metrics based on the requirements and inputs gathered from the persons involved to set up a basic guideline for generating scripts.

Communicate and Collect
Communicate the defined goals and metrics and collect feedback to alter the same.

Finalize & Establish
Finalize the objectives mentioned in the metrics with the QA team and establish a baseline to create scripts.

Map Business Focus
Map the application with the metrics and verify whether the application supports the metrics to easily identify the defects.

Test with Defined Business Perspective
Test the software keeping in mind the business perspective, ensuring optimal test coverage and minimal risk.

Measure Results
Measure and quantify the results of the test program to check whether the expected business value is derived and also confirm that there are no deviations from the established goals.

QA firms and software companies can always rely on the above guidelines to ensure they drive enormous business value from their test automation program. While identification and creation of business goals is no brainer, the application that you chose should support the metrics and should be flexible enough to update test cases as per changing business requirement without much effort.

Conclusion

Although test automation provides faster time-to-market, it is imperative to think beyond the traditional test automation approaches to achieve effectiveness, quality and performance of products in line with business objectives.

Business-driven test automation opens avenues for software companies and QA firms to realize the goals and avail benefits of test automation fully to deliver software products while ensuring business profitability. However, understanding of the organization's strategic and business objectives as well as an investment in the right automation application is crucial before you jumpstart with business-driven test automation to reap the benefits highlighted above.

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About TestingWhiz

TestingWhiz is a codeless test automation tool developed specifically for testing web and cloud applications. It is an easy, intuitive and affordable automation solution based on robust FAST® Automation Engine that requires no technical and programming skills for testing applications.

TestingWhiz comes with two editions – Enterprise & Community. While Enterprise edition is purely designed to address the needs of large testing teams, the Community edition serves the needs of independent small testers.

Schedule a Live Demo today!

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