

Test Automation

Full service delivery for faster testing at optimum cost



To safeguard their competitive edge in today's information economy, organizations must constantly improve their products and services. At the same time, they must maintain the quality of their existing software and services.

This scenario increases the strain on the testing function. With constant change, release cycles are shortened and the time available for testing is reduced, but the testing effort required to catch defects in time remains the same.

The challenge is therefore to reduce the time it takes to complete a testing cycle while maintaining the quality of the end result, and Test Automation can do exactly that. A high proportion of testing effort is usually devoted to regression testing – ensuring that current functionality is still working. This type of testing is often tedious and time consuming, and therefore prone to errors. Automation can ensure that regression testing is performed with consistent quality, while drastically reducing the time taken. This frees up testing capacity to focus on changes and more complex test cases.

Business benefits

Test Automation enables organizations to increase their testing speed, cut costs, and maintain product quality. It achieves this by solving two key challenges.

Challenge #1: Improve software testing speed and quality while minimizing cost.

Performing regression testing under time pressure means that the quality and/or quantity of testing suffers. By moving regression testing from a manual process to an automated test set using an automated test tool, regression testing can be performed in 10-20% of the time it previously took.

This increase in testing speed has the following advantages:

- There is no need to sacrifice the regression test when time is limited.
- Regression tests can be executed more often to detect errors earlier.
- Total testing time can be reduced, allowing a shorter time to market.

In addition, because there is less manual testing, total cost per testing cycle is reduced.

Challenge #2: Set up an adaptable Test Automation suite.

Often there is a clear-cut case for implementing Test Automation in order to improve testing speed and quality, but then it fails to achieve real benefits and/or stay current with software changes. Setting up and maintaining a Test Automation suite without clear targets on which to base the design leads to high cost, an inability to adapt to change, and failure to realize the expected ROI.

Setting up a well thought out design for Test Automation addresses these challenges. The Test Automation solution from Capgemini and Sogeti helps you set up and implement the right design for your testing challenges.

To do this, it is vital to define the goals for Test Automation first. Do you need to speed up testing to improve your time to market, or do you want to test more within the available time frame, or both? A good design for Test Automation, addressing these issues, will help to achieve your goals and intended ROI for automation. It will also make sure you can test more often, and can keep up with changes in your applications.

The Capgemini and Sogeti solution

The Capgemini and Sogeti Test Automation service helps to achieve the following goals:

- Test more often. Automated tests can be run following every change.
- Test consistently. Each test is executed in the same way.
- Test early. Tests can be run on multiple occasions and in multiple environments.
- Test more efficiently. Automate regression tests; focus manual testing on what has changed.
- Control testing costs. Automation gives you control over test execution.

Our Test Automation services are there to support clients in all situations. We can either help you set up your own solution or supply a full Rightshore® service, freeing you from Test Automation tasks. Our services include Consulting, Test Automation as a Service, and a Rightshore® Test Factory.

Consulting Services can help you to:

- Define goals, timelines and strategy for Test Automation.
- Integrate Test Automation throughout the PointZERO® lifecycle approach (explained below).
- Design, set up and implement an appropriate Test Automation framework.
- Select, implement and support Test Automation tooling.

Test Automation as a Service frees your staff from setting up and maintaining Test Automation so that they can focus on their areas of expertise. Test Automation is performed according to goals, timelines and strategy agreed between you and Capgemini and Sogeti team. The automated tests can be run whenever you choose.

The Rightshore® Test Factory offers clients expertise on all leading Test Automation toolsets. With key accelerators such as the Capgemini Automation Framework (CAFÉ) and automation templates and toolkits, our Test Automation Centers of Excellence can help reduce the effort involved in setting up test scripts by 50%, and can speed up test

execution by a factor of 10. The Test Factory sets up Test Automation via a phased process:

- **Plan:** Define goals and timelines for a Test Automation rollout.
- **Design:** Set up Test Automation using the CAFÉ Framework, standardized test cases, and model-based testing design.
- **Execute:** Speed up tests by automated test data creation and automated parallel test execution.
- **Report:** Single dashboard reporting for all automated tool sets.
- **Maintain:** Keep automated test sets current through model-based test design and impact analysis.

Getting started with Test Automation from Capgemini and Sogeti

Whether you decide to have us help you with Test Automation in-house or want to have us undertake all or part of your Test Automation, Capgemini and Sogeti use a four-stage approach.

Stage 1: Initiation

The goal of this phase is to identify opportunities to improve the client's test process. Those areas to which Test Automation is best suited, and where it will most clearly show benefits, are identified and prioritized. This helps Capgemini and Sogeti identify quick wins and develop an action plan for the future. The team also formulates the inputs for a business case and defines an approach for tool selection.

One of the key services in this stage is the implementation plan, where Capgemini and Sogeti draw up a strategy for the Test Automation implementation or improvement process, including project set-up, detailed business cases, tool selection, and planning the rollout of the process.

Stage 2: Setup/Proof of concept/Pilot

Setup

During this phase, Capgemini and Sogeti carry out tool selection, draw up the financial benefits in a business case, and define the whole implementation process for you. The tool selection service helps you choose the right Test Automation toolset by:

- Determining goals and tool selection criteria.
- Proposing a shortlist of Test Automation tools that meet your needs.
- Scoring the shortlisted tools against the selection criteria.
- Analyzing the scores and providing selection advice to your stakeholders.

Proof of concept

Capgemini and Sogeti can demonstrate that, by using specific technology, the recommended Test Automation toolset can deliver the functionality our clients need, including:

- Determining the solution models for selecting, masking, generating and distributing test data, and drawing up the data design.
- Creating data scenarios for selecting, masking and generating test data, and creating and testing the scripts.
- Preparing the deployment of the test data.
- Executing the prepared scripts and distributing the test data to the designated test environment.
- Presenting the results and evaluating them with the client.

Pilot

We can provide a pilot to show our proposed Test Automation solution is workable and can deliver the expected benefits, including:

- Defining the pilot and determining its goals, tool environment, scope, data coverage and control measures used.
- Preparing the pilot by installing and configuring the tooling, defining the process outlines, creating the workspace on the client's infrastructure, and determining and analyzing the general test requirements.
- Executing all stages of the model within the pilot environment, making sure the most risk-prone activities are performed at all stages.

Stage 3: Implementation

During this phase, Capgemini and Sogeti introduce the selected toolset, and the Test Automation service is provided for test execution. Services provided include tools implementation and full Test Automation rollout, in which the team introduces the full Test Automation cycle into your organization.

Once the process has been set up, it can be applied both to regression test sets of existing applications and to setting up test suites for new developments. The rollout is executed as outlined and planned in the initiation stage.

Stage 4: Operations

Capgemini and Sogeti define the changes required to keep up with demands from development, and with changes in the applications being tested and keeping current with the features and capabilities of the Test Automation tools. We continue to improve the test process. Services offered include setting up a maintenance function for Test Automation, and providing the associated training and support.

Test Automation with Capgemini and Sogeti

We provide the highest quality service. Test Automation not only helps to speed up testing, it also improves the test process. Capgemini and Sogeti can create the best setup for you; for example, we can execute a scan, select tools, and educate and coach your employees.

The setup of Test Automation is a one-time process, but the service also supports ongoing maintenance. This not only helps you create a Test Automation process, but also offers the opportunity to improve it. This combination makes our Test Automation approach unique.

Capgemini Group is the only service provider to cover the full Test Automation lifecycle. Other suppliers may offer implementation services for tooling or automation, and there are tool vendors and specialists in Test Automation. But no single toolset can handle the whole task, and automation is only part of the overall solution.

Capgemini and Sogeti take responsibility for full service delivery, including selection and provision of testing tools, the management of tools, suites and scripts, and understanding all the issues.

**“
We know testing.
So we know Test Automation.”**

Services for Test Automation from the Capgemini Group help clients:

- Increase testing quality by using a proven test tool selection process and an industry-leading automation strategy, approach and frameworks.
- Reduce regression testing time by about 80-90%, and save 30% of effort in script development.
- Improve test coverage by reusing test scripts across application, technologies, operating systems, browsers and environments.

- Save money by reusing existing automation framework and function libraries (up to 60% on each test run).
- Achieve faster time to market by speeding up the “find, fix and retest” cycle, some of which can be done through unattended overnight test execution.

The result is that you can build faster, test faster, release faster – and improve quality at the same time.

PointZERO® and Test Automation

PointZERO® is part of our full lifecycle approach to reducing and eliminating defects at source. It helps clients mitigate risks, decrease or avoid costs, increase productivity, and speed up time to market without sacrificing quality. It encompasses a shift in approach that goes right across the application lifecycle model to promote business success. Test Automation is an essential part of that effort, helping increase productivity, lowering cost and speeding up testing time.

The PointZERO® vision shows that to prevent rework we have to implement or improve quality measures in every part of the application lifecycle.

The message for organizations who are implementing business change should be resoundingly clear: by identifying faults at the point where they occur, we can deliver better information systems at a lower overall cost. We all should do IT right the first time.

By focusing on risks and quality, in both process and product, we achieve a reduction of cost and time wastage. PointZERO® is about parallel step-by-step improvement. At the start, a small improvement is made that will result in a small but measurable reduction of cost and time. A second improvement is then initiated, again resulting in a small reduction. By the time stakeholders start noticing, they will find that the cost and time associated with a given task have already reduced. Based on this success, they will have the confidence to support further improvements.

One of the key factors in PointZERO® is industrialization by deploying quality-driving tools and standardizing the way they are used. Test Automation is essential to these steps. Its success depends on standardizing the way it is done throughout the organization. Only then can productivity and time to market be improved whilst maintaining quality.

Case study #1: Large banking and insurance organization in UK

The client's testing organization was set up within the project with a focus on implementing process, tools and metrics to improve the practice of testing across the organization. The goal was to improve support for Test Automation by creating a standard framework and adding relevant process elements/guidelines. The challenges to be addressed were:

- A number of automation frameworks that broadly addressed the same need were in use.
- There was a large volume of manual testing.
- Most regression testing was done manually.
- There was a lack of overall automation strategy.
- Tools for test management were rarely used.

Capgemini and Sogeti solution:

Capgemini Group partnered with the client to conduct automation assessments across business units. The focus of these assessments was to identify existing automation frameworks/strategies and new opportunities. The assessments showed gaps in existing framework capabilities compared with what was needed. The assessment results led to the creation of a standard Test Automation framework with the following key features:

- Tight integration with the quality center for test management and harnessing.
- Support for different technologies – Mainframe, Java, Web and .NET.
- Accelerators for faster script development.
- High reusability, low maintenance, and ease of enhancement.
- Process improvements to embed automation strategy in projects.
- Automated metrics collection and analysis across business units.

Key benefits to our client:

- Projected savings of up to 48% across business lines over an ROI period of two years.
- Consistent approach to Test Automation and execution across projects.
- Up to 5% effort saved by centralized project reporting using the quality center's reporting capabilities.
- Flexibility/portability/scalability: the execution of scripts can be easily moved across different platforms – e.g. customer to vendor, vendor to vendor – enabling business lines to choose the right execution platform for a specific need and time.
- Reduced time to market and cost of testing, cost optimization, and faster testing.

Case study #2: Leading Wall Street investment bank

The client faced challenges in its testing process, including a need to:

- Provide Test Automation services for global exception tracking systems.
- Reduce manual testing efforts while increasing accuracy and reliability.
- Automate more than 2,000 regression test cases, inclusive of test scenarios and test coverage – these required hours of manual testing.
- Create a complete automated regression suite that was flexible to use in any test environment.

Capgemini and Sogeti solution:

- Implement a managed service model to support the client's automation needs.
- Perform manual functional testing initially in order to understand the business requirements.
- Design a hybrid and reusable automation framework.
- Design reusable test scripts using the automation framework.

Results:

- Reduced regression testing time by 90% per cycle.
- Achieved 70% automation of identified applications.
- Minimized time to market for new application feature rollout.
- Improved and quantified test coverage.
- Realized full ROI at the end of 9th cycle.

About Capgemini and Sogeti

With almost 140,000 people in over 40 countries, Capgemini is one of the world's foremost providers of consulting, technology and outsourcing services. The Group reported 2013 global revenues of EUR 10.1 billion. Together with its clients, Capgemini creates and delivers business and technology solutions that fit their needs and drive the results they want. A deeply multicultural organization, Capgemini has developed its own way of working, the Collaborative Business Experience™ and draws on Rightshore®, its worldwide delivery model.

Sogeti is a leading provider of technology and software testing, specializing in Application, Infrastructure and Engineering Services. Sogeti offers cutting-edge solutions around Testing, Business Intelligence & Analytics, Mobile, Cloud and Cyber Security, combining world class methodologies and its global delivery model, Rightshore®. Sogeti brings together more than 20,000 professionals in 15 countries and has a strong local presence in over 100 locations in Europe, USA and India. Sogeti is a wholly-owned subsidiary of Cap Gemini S.A., listed on the Paris Stock Exchange.

Together Capgemini and Sogeti have developed innovative, business-driven quality assurance (QA) and Testing services, combining best-in-class testing methodologies (TMap® and TPI®) to help organizations achieve their testing and QA goals. The Capgemini Group has created one of the largest dedicated testing practices in the world, with over 12,300 test professionals and a further 14,500 application specialists with Testing experience, notably through common centers of excellence with testing specialists developed in India and elsewhere.

Learn more about us at

www.capgemini.com/testing
www.sogeti.com/testing

Contact

To find out how Capgemini and Sogeti's Testing Services can help your organization achieve its Testing and QA business goals, please contact your local Capgemini or Sogeti testing representative or our Global Testing Services Sales Team:

Mark Buenen
VP, Business Development
Testing Global Service Line
mark.buenen@sogeti.com

Appaji Kumbhar
Rightshore® Test Automation CoE Lead
appaji.kumbhar@capgemini.com