

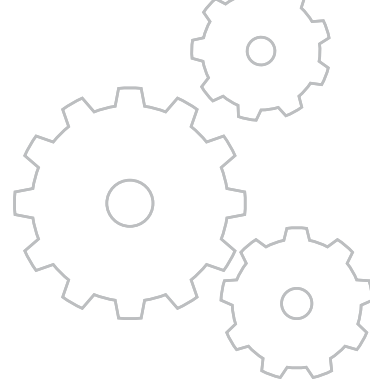
Banking on a Smarter Software Test Automation Solution



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Introduction

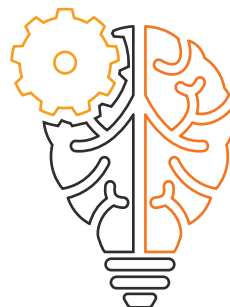


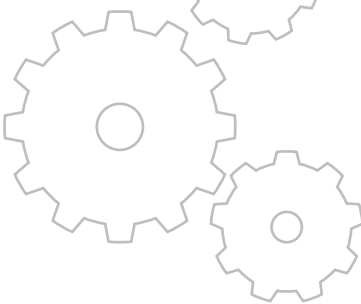
As constantly developing waves of technology revolutionize the way customers perform financial transactions, banks and financial institutions need to rethink the way they develop, test and deploy their software applications.

While agile methodologies have helped accelerate the app development process, most FinTech organizations continue to struggle when it comes to the testing of their software applications. Manual testing is unable to keep up with the speed, agility and consistency that financial software applications require. And the price they pay for the deficiencies in the testing process can be quite high, as we see banks around the world facing what news headlines now term as 'IT meltdowns'.

In February this year, a large bank's 'technical issues', caused the shutdown of mobile and internet banking apps along with the malfunctioning of ATM and card transactions. Later in the year, a popular retail and commercial bank faced similar technical issues, when 1.9 million of its mobile and internet banking customers were locked out of their accounts. The inaccessibility of mobile and internet apps resulting in customers being locked out their accounts and unable to perform routine online transactions is an unacceptable inconvenience in today's digitized world.

With the proficiency of software applications for banking hinging on the efficient testing process, banks and financial organizations cannot depend on outdated testing practices but must look for testing solutions that can deliver the speed and scalability that the present-day environment demands.





Catering to the new paradigms in the banking and financial services market

The development and testing of software applications for the banking and financial services industry is inarguably complex due to the mounting pressures that the industry is facing. While on one hand the dual digital transformation drivers, namely the digitized customer and the increasingly metamorphosing digital devices are pushing banks to quickly innovate, on the other hand evolving regulatory controls and the need to constantly update software applications are forcing banks to develop and deploy code before their competitors do. Banking software applications will therefore have to consider the following paradigms.

Rapidly changing digital transformation drivers: **A Juniper research study titled Retail Banking:**

Digital Transformation & Disruptor Opportunities 2018-2022, found that global digital banking users were to reach 2 billion this year, representing nearly 40% of the global adult population. The study further found that mobile banking usage growth was more than double—witnessing a 14% y-o-y growth, compared to 6% for online banking. To adapt to the changing scenario, banks are under great pressure to invest in technological capabilities that cater to their customer needs.

This includes deploying web and mobile apps for a wide variety of banking functions that ultimately provide their customers with experiences that compete with other FinTech companies and best-in-class organizations across sectors.

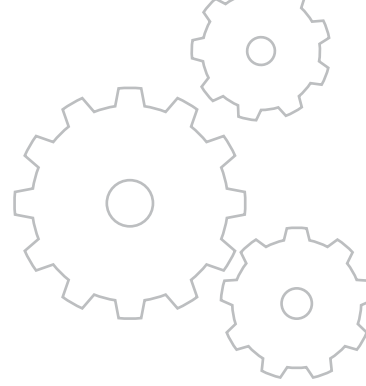
Evolving regulatory changes: The very nature of banking subjects it to constant regulatory changes that aim to bring about the efficient managing and the control of financial liabilities. However, banking organizations are expected to continue to provide expected standards of effectiveness and efficiency as they meet applicable laws, rules, and supervisory

regulations. This extends to their digital offerings as well. Take for instance the recent introduction of open banking and the Payments Services Directive 2 (PSD2) regulation. While such regulations aim to benefit customers by offering consumer protection and reducing the costs of payment services, banks would be required to modify their customer facing apps appropriately. When viewed from a software development perspective, this means developing new code along with the rigorous testing of that code to see that it meets the new compliance standards.

Continuous update of software applications:

With consumer-facing web and mobile applications becoming a vital service requirement, banks and FinTech organizations are required to frequently release updates as a part of the value that they bring to their customers. To ensure a steady stream of uninterrupted updates, banks rely on continuous delivery. Research by McKinsey estimates the DevOps model of application development to bring a 25 to 30% increase in capacity creation, a 50 to 75% reduction in time to market, and a greater than 50% reduction in failure rates. However, incomplete test coverage can impact the frequency of updates leading to unhappy customers. Release frequency ultimately depends on the speed of testing which can identify bugs in the code at the earliest. But speed cannot compromise the comprehensive test scenarios that must cover different test cases and support all relevant devices. This leaves banks needing to fulfill additional requirements, such as building quality and consistency, along with speed into their testing process.





Software testing automation is only a partial solution

As a result of the complicated landscape, banks and FinTech organizations are perforce turning to automation of software testing. However, software testing automation has not been the desired magic wand, with the industry facing several challenges and limitations. This can be attributed to banks choosing test automation without a well-defined roadmap or vision and/or the use of generic software testing tools which lead to a constant need to improvise and adopt solutions. Consequently banks and FinTech organizations leveraging software testing automation struggle with the following challenges.

The lack of an integrated solution creation across technologies: Banking applications typically need to be powered across the Web, Desktop, Soap, REST, API, Mainframe, PL/SQL among others, and an automated software testing platform without such a dynamic solution hinders rather than accelerates the testing process.

The lack of data creation, simulation and virtualization: The simulation of transactions along with the creation of data and virtualization of services is integral to banking application testing. Without the above features functional testers are required to manually test the validation of the transaction lifecycle.

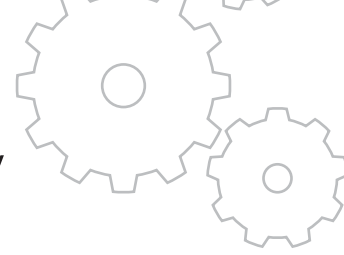
The lack of test validations for financial calculations: Complex calculators integral to financial calculations are often not available in generic software testing suites. This reduces the effectiveness of testing.

The lack of real time and batch outputs: Software testing automation platforms are often dependent on multiple batches to complete the execution of end-to-end test scenarios. This can impact the speed at which banking applications need to be deployed.

The lack of a scalable solution: With banking applications subject to continuous releases and regulatory changes, generic software testing solutions are unable to support ensuing changes in the UI and templates. This results in high maintenance of the solution impacting ROI.



A comprehensive plug-and-play solution is the answer



It is vital for banks and FinTech organizations seeking efficient automated testing solutions, to adopt a comprehensive test automation solution specific to its unique needs. For banks and FinTech organizations to maximize results, the solution needs to be simple, resilient and without the need for programming.

The solution needs to be scriptless and intuitive permitting swift deployment without the need for complicated processes. It must meet the frequent regulatory changes of the FinTech sector, by progressively, automatically and intelligently incorporating changes in different test scenarios by

using the same module as a basis for improvisation. Most importantly, it should be easy to implement. A plug-and-play solution without the need for additional programming will result in higher speeds and greater test coverage with minimal human intervention.

To meet the deeply entrenched and established conventions of banking applications, the software testing solution must address the three crucial phases of assessment, implementation and support.

During assessment the solution must address

Time to deploy: The automated solution needs to come with customized adapters as per needs of the domain. A solution provider with wider exposure will extend the benefit of delivering adapters for use by clients.

Complexity: The automated solution must function seamlessly regardless of the suite of offerings, which may include products, interfaces, and targeted systems.

Integration requirement: The automated solution needs to factor in both Upstream and Downstream integration requirements, including Requirements Management System and Defect Management System.

During implementation the solution must address

Adapter validation: Adapter validation: The solution must navigate all screens automatically, without manual intervention or commands.

Test-asset porting: Test assets must be either integrated with upstream systems. Alternatively, the data needs to be transferred for easy porting.

Sample execution: The tests must be carried out on different scenarios for comprehensive testing across parameters.

Training of team: All resources of clients handling responsibilities must be fully trained to seamlessly execute tasks.

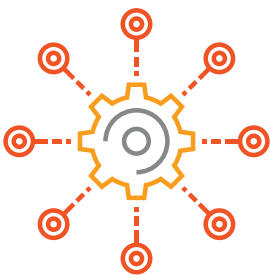
Full execution: Capability needs to be checked and proved through exhaustive testing of cases across all screens.

During post-implementation monitoring and support the solution must address

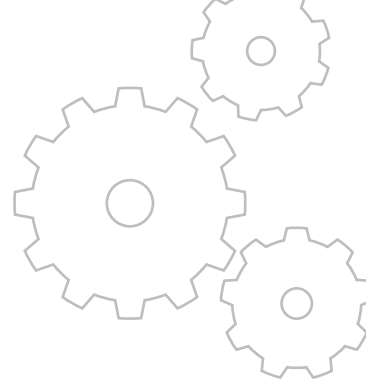
Application upgrades: The upgrades of an application need to effectively be a part of maintenance obligations.

Environment upgrades: All upgrades to different environments must be offered to clients on demand.

Bugs reported: Clear cut terms of SLA need to be incorporated to fix bugs reported at any stage of the development/execution.



Benefits of a smarter test automation solution



Most banks and financial organizations are choosing automated software testing as it reduces test costs and supports the trend toward agile development. However, the benefits that banks and Fintech organization stand to gain are much more. The advantages of adopting a smarter test automation solution extends to more than just the means of preventing the kind of software crashes that have plagued banks in the recent past with increasing frequency.

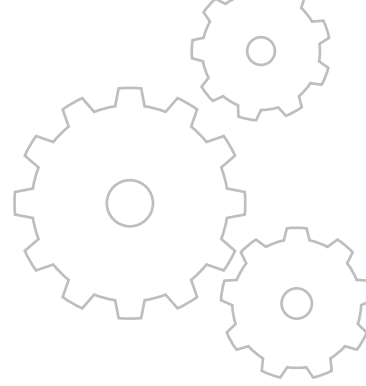
Improved customer experience: Faster updates, quickly released new apps and error-free products becomes a seamless process with automated software testing. The result is an enhanced customer experience for the 'always online' customer.

Reduced organization risks: Testing automation enables the quick and accurate incorporation of testing new changes as mandated by regulators by enabling testing applications without impacting the unchanged aspects of the application. As a result, organizational risk related to regulation and compliance is reduced.

Reduced rework: Test automation makes it easier to identify errors in the early stages of development, by addressing errors within each stage of development. This saves time, effort and costs associated with resolving errors at later stages that would typically involve going back and re-programming from start.

Easy data management: A comprehensive test automation solution facilitates the regular updating of test data with minimal human intervention. In the intricate and complex web of banking operations, easy data management adds to the faster development and deploying of apps and updates.





Conclusion

According to the PwC report titled, Financial services technology 2020 and beyond:

Embracing disruption, the future of the banking and FinTech sector will depend on being adequately prepared for a world where change is constant and where digital comes first. This will depend on vital changes being made across the entire IT stack, especially changes which can shorten the strategy cycle. Automated software testing, which drives the mandatory requirements of accuracy, scalability, consistency and speed in the deploying of software applications then becomes the only way forward for banks seeking to provide omni-channel touchpoints for its digitized customer, function without digital failures and comply with evolving regulatory changes.

About Tenjin

Yethi's flagship solution, Tenjin is the next level of automated testing – scriptless, intuitive and groundbreaking. It fully meets evolving and complex needs of testing in enterprise. An industry specific application, it offers users solutions that dispense with the need for programming skills among resources. The plug and play solution is fully banking aware, it works within the contours of regulatory requirements, and is intuitively aware of different transactions. The high speed solution subsumes changes automatically, without additional programming, relying on robotic learning for quick integration with high levels of consistency. An impressive list of clientele cements the status of Tenjin as a reliable automated testing solution. Industry recognition over the years is a testimony of the tall presence in automated testing. Working in tandem with other solutions, Tenjin adapters make full use of benchmarked solutions to offer greater value to clients. Straddling functional testing and non-functional testing, Tenjin slashes the time to market, delivers testing solutions to operate at high speeds, and cuts down on the need for resource intensive testing requirements.

Disclaimer

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