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Building on belief

Reimagining the BFSI test function with a Machine First approach

Abstract

Technology is becoming a key enabler for testing in the banking, financial services, and insurance (BFSI) industry given the need to deliver rapid upgrades to existing products and services and launch new offerings to meet shifting customer demands. As a result, automation is becoming increasingly embedded in improving test efficacy. In addition, manual processes are either being augmented or replaced by machines equipped with artificial intelligence (AI) and machine learning (ML) capabilities. This paper examines how embracing a machine first assurance model (MFAM) built using AI and ML technologies can help improve test efficiency. The MFAM model will help reduce the overall cost of quality and time-to-market for new offerings and upgrades to existing ones, as well as enhance customer experience.

Enhancing resilience through test automation

The intensely competitive banking, financial services, and insurance (BFSI) industry requires banks and insurers to continuously and rapidly launch innovative digital offerings and upgrade existing ones to keep pace with their peers. Testing new offerings and feature upgrades is a crucial requirement to ensure high-performing products and services that deliver superior customer experience. BFSI executives, however, perceive testing as a challenge and blocker, as they are pushed for faster pace of delivery toward meeting customers asks, while ensuring quality and enhanced experience.

As a result, there is a rise in the automation of test processes across the entire test value-chain — from enactment of test services to enablement — in BFSI firms. Machines equipped with the first right of decision on why to test, where to test, what to test, and, how to test will become an imperative for adaptability and resilience in the face of rapid change in the BFSI industry.

In addition, BFSI organizations are increasingly adopting the two-phase lifecycle of develop and deploy while merging infrastructure and applications in various permutations. This has rendered novel possibilities for testing, allowing for non-standard adoption of test and test concepts definition through smarter application of multi-dimensional virtualization. This can enable BFSI firms to conduct testing across infrastructure and applications in parallel, for instance in adoption of cloud and newer technologies. New possibilities can open up, where the traditional test pyramid of more unit or component testing and less user interface (UI) or integration testing can be changed, without impacting business agility while helping organizations enhance resilience in their systems and processes through smarter testing.

Machines and possibilities in testing

In the BFSI industry, the connection between business process and technology changes to be achieved, and, the test methodology is not clear or consistent. At the same time, the demand for chainless and autonomous testing is rising, where human intervention in testing a business process can be eliminated.

Adopting chainless and autonomous testing demands speed in machine-led data, information analysis, and intelligence derivation, to gain feedback, which is then fed back into the application for further testing. This will enable test coverage optimization, through BFSI domain entrenchment and enrichment, without deterring speed of delivery for modernization, transformation, or simplification. Given the high and indeterminable cost incurred in fixing a defect in production or losing a customer, the BFSI industry has been working toward taking feedback from a testing and quality perspective at various stages of development and test lifecycle, and using it for improving the quality of applications and products. The state of technology has now evolved, enabling us to galvanize feedback intake and a more expansive implementation.

Machining the testing playground with MFAM

Embracing the machine first approach will help the BFSI industry test estate change from a distinct and discrete arrangement to a continuous one, creating exponential value through real-time and real-life testing. However, to conceive the potential of machining in testing, it is crucial to first lay out the estate of testing.

Typically, the test value chain consists of test planning, test design, test execution, test completion, and test management. However, testing is also influenced by multiple dynamic aspects such as test data (e.g., data profiling, test data generation, test data provisioning) and test environment (e.g., environment topology, configuration, monitoring, health check). These aspects will need to be codified in order to adopt the machine first approach.

Thus, the definition of the test estate in the form of a layered and modular **test function [Tf(x)]** is crucial (see Figure 1). The test function comprises **core functions** (base set of services to be performed for testing), **enablement functions** (enabling the core functions to be carried out in an efficient manner), and **support functions** (facilitate effective delivery of core and enablement functions). This helps build a test function box, which can be taken up for machining.

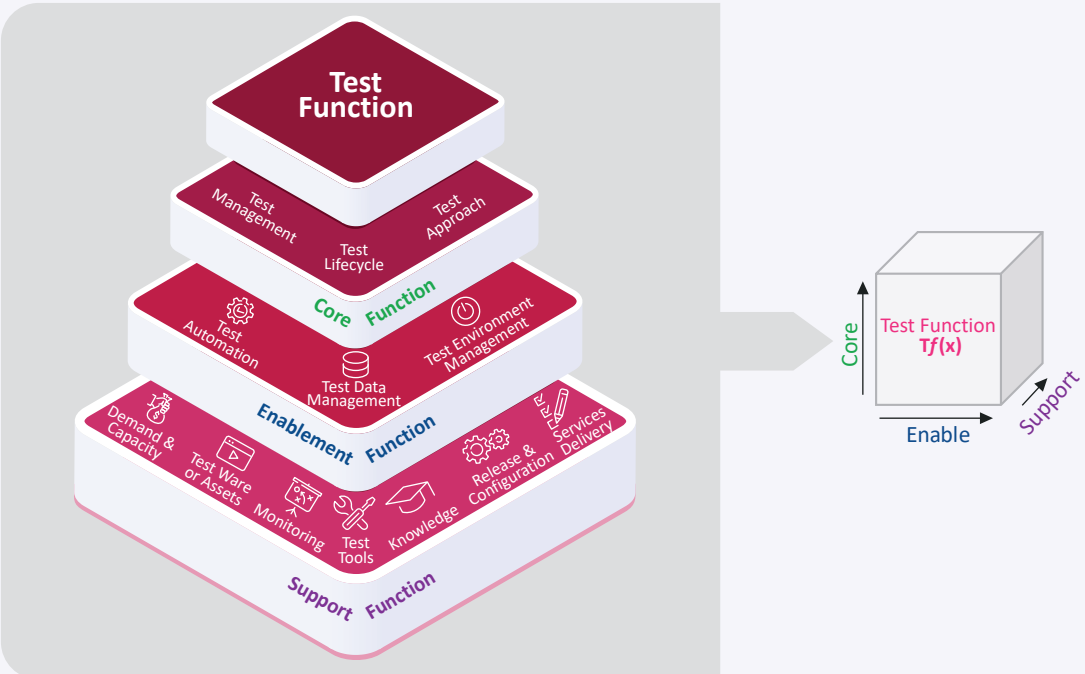

Figure 1: Test Function Components for the Machine First Approach

It is crucial to understand that the test function can come up in multiple variants based on the BFSI customer context. A catalogue of test services such as functional testing and test data management as well as the domain for which testing is conducted such as risk, payments and claims, impact the form and nature of a test function. In addition, the technology for which testing is to be carried out (such as micro services, mainframes or mobile), model, change in the lifecycle, and ways of working also impact the nature of the test function. This results in the metamorphosis of the test function box, pushing it into an alternate plane (see Figure 2), driving the disposition towards machining the test function.

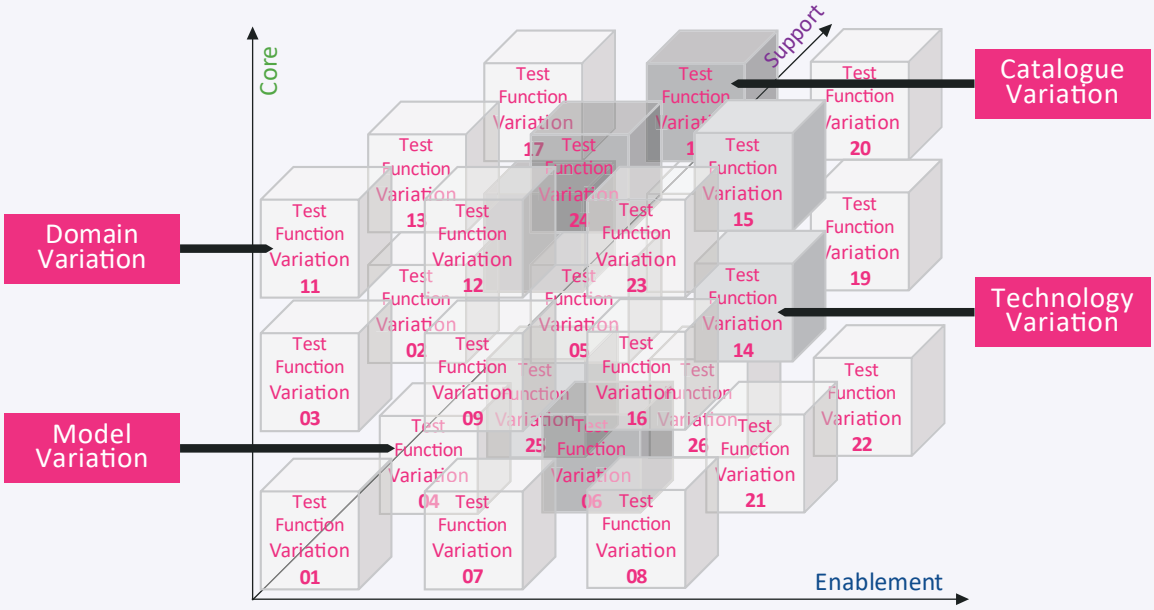

Figure 2: Variables Impact and Test Function Movement

Systematized mapping of the test function box across catalogues, domain, technology and model variation, would help define the playground for the machine first approach determining why to test, where to test, what to test, and how to test thus, paving the way for the Machine First Assurance Model or MFAM.

MFAM adoption, however, comes with its own challenges and banks and insurers must initiate some preliminary steps to prepare for the journey:

- Gain an initial understanding of what the test function means and stands for, in your landscape given your context will define the test function
- Rethink the baseline and benchmarks for a machine first world to gain clarity on MFAM readiness
- Identify focus areas and initiatives that should be rolled out to move further on MFAM
- Leverage ongoing transformational initiatives to drive the MFAM program and make testing an integral part of transformation thus transforming the test function
- Focus on executive commitment and change management by driving change in stakeholder behavior

Applying MFAM across key BFSI functions

As most BFSI organizations lack historical information and assets around testing, it is a challenge to understand the change as well as its impact on test approach, test ware, test data, test environment and so on. Banks and insurers can leverage MFAM to transform testing across key business areas such as risk, mortgage, securities, and policy administration (see Figure 3).

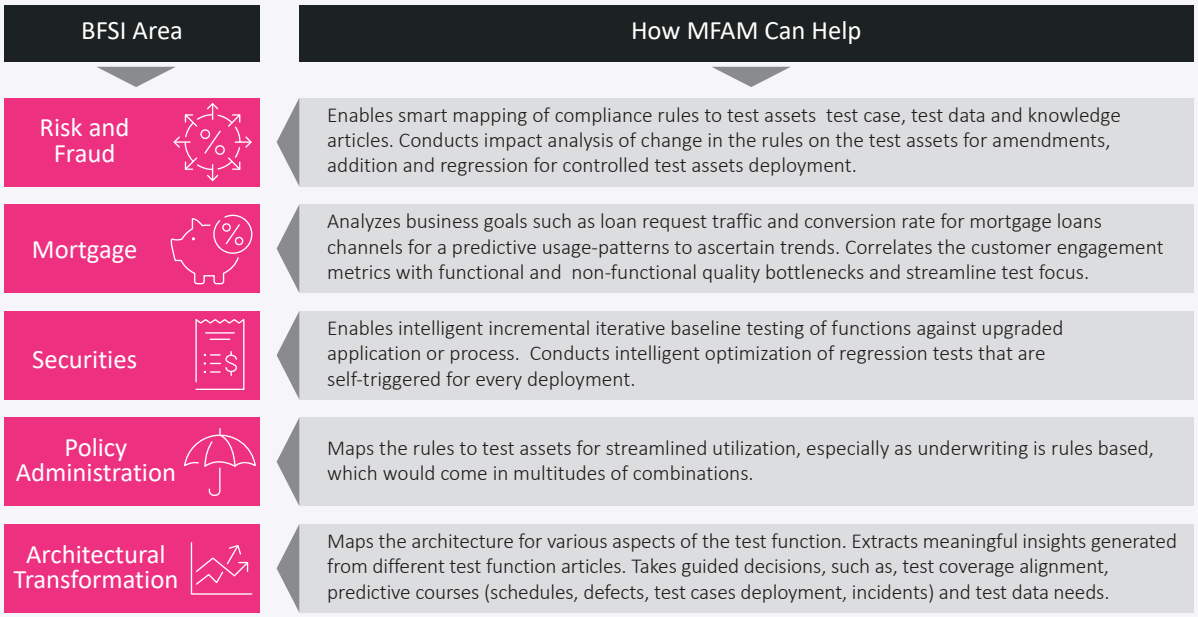

Figure 3: BFSI Use Cases for MFAM

Taking change capabilities to the next level

Machining the test function box will help lay the foundation for organic testing. Every time a change is coded, the MFAM approach would provide AI-enabled paths to automatically spawn testing and related assets. The paths are pre-machined and hence complement the change lifecycle across requirements, design, development, integration and deployment. Leveraging MFAM can help BFSI organizations to accelerate speed-to-market, enable quality control of offerings, slash costs, and enhance customer experience.

In general, implementing the machine first approach requires adopting machine first thinking and leveraging advances in technologies. While software development is already benefitting from it, testing is slowly catching up. MFAM is a way to free test and business professionals from routine and repetitive work. Instead, they can refocus their skills on complex tasks, which would help meet strategic organizational goals. The machine first approach to assurance, when implemented in an incremental but well directed manner, closes the gaps in the software development cycle and has the potential to help BFSI firms proactively cater to market needs and evolving customer demands and gain a lead in the market.

About the author

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Lalatendu (Lala) Sahoo is a senior advisor and architect in the Technology and Transformation Advisory function of the Banking, Financial Services, and insurance (BFSI) unit at TCS. He has over 22 years of experience in software testing and has worked in various roles managing technology transformation, innovation, digital adoption, and consulting. He is an evangelist for the transformation of software testing that can enable BFSI firms to become nimble, customer-focused entities. Sahoo has a Bachelor's degree in Electronics and Telecommunication Engineering from Utkal University, Odisha, India. He also holds a Post Graduate Diploma in Business Administration from the Goa Institute of Management, Goa, India.

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