

A future-ready payment test function: The need of the hour

Banking, Financial Services and Insurance



Abstract

Payments play a crucial role in the business value chain of banks and financial institutions. Competitive pressures, customer demand, and evolving regulations necessitate a futuristic payment ecosystem enabled by newer technologies and capabilities. This, in turn, requires the payment infrastructure to be augmented with next-gen capabilities. To offer enhanced payment experience, comprehensive testing of all the payment capabilities and channels is a must. In our view, to transition to next-gen payment capabilities, banks and financial institutions must rejig the test function across various elements spanning strategy, real-life processing, data, infrastructure, and assets. This white paper discusses the need to streamline the payment test function and its role in building a robust payment ecosystem with the ability to meet demands from technology and non-technology-specific drivers.

Payment testing needs are changing

Most businesses are working to reduce dependence on middlemen and enable direct sales at the endpoint through consumers' preferred devices. Thus, a small merchant with a lean team can service the whole continent virtually. Consequently, consumers are reluctant to go back to stores and given the experience with the pandemic, they are wary of cash transactions. This is driving banks and financial institutions to become serious about digital currency and contactless exchange of money, which makes transforming the existing landscape mandatory. All this is creating a proliferation of structures and players in the payment ecosystem, making the integration of payment methods and channels progressively more challenging. A well-defined and executed test strategy can go a long way to help banks address these challenges; however, banks must evaluate evolving technology, business, and regulatory compliance changes in the payment landscape during the strategy definition phase.

Newer technology and regulatory demands

While fintech firms and third-party providers (TPPs) are changing the way payments are processed, regulatory bodies are looking to redesign the regulatory framework in the payments space. Legacy systems are ill-equipped to keep up and integrate with the new technology and requirements—regulatory or customer-driven. Payment ecosystems command upgrades to quickly and securely roll out custom products and offer niche, high-end services by leveraging data in innovative ways, even as they strive to keep up with regulatory changes. Hence, building an integrated payment test estate will ensure the upgrades go through without a hitch.

A paradigm shift toward platform or product-centric payment engine

Payment infrastructure convergence to design innovative products and offer better and broader customer service is driving the adoption of fit-for-purpose payment engines. New platforms offering real-time payments are open, flexible, inherently agile, and anticipate and meet market needs at short notice. As banks move in to leverage the readily available, built-in business architecture offered by these platforms for third-party relationship management, a comprehensive test strategy is a must to certify the soundness of infrastructure and processes as well as ensure resilience.

Evolving messaging standards

Globally, the ISO 20022 messaging standard is being adopted for all payment schemes as it offers rich, reusable models with comprehensive data formats, business-friendly descriptions, and inbuilt field and cross-field validation. As banks and national clearing systems gain agility and speed to handle more diverse payment instructions and information requirements, structured testing to accommodate the multiple permutations and combinations becomes crucial.

Addition of instant payment

Central banks and industry bodies are working toward legacy infrastructure modernization. Fintechs are leveraging instant platforms to connect with third parties and improve the digital experience of retail customers while allowing corporate customers to track and manage intra-day and inter-day liquidity. Instant payments, in turn, are integrated with anti-money laundering (AML) and fraud detection systems. All this necessitates testing for inter-institution compatibility through simulated test runs in a structured industry test setup that ensures coverage and risk containment.

Inclusion of IoT and their payments process

Accelerated internet of things (IoT) adoption results in more devices becoming platforms to purchase goods and services, which means that almost every device has the potential to become an avenue to pay. This opens up various avenues—smart homes, smart cities, wearable devices, connected cars, smart grids, healthcare and industrial IoT, etc.—that will need to be serviced by the payment acceptance network. Consequently, varied payment patterns need to be tested with combinations of external hardware and software instead of in-house, which demands a different test approach.

Industry collaboration

Banks are using innovative models to collaborate with fintech and third-party payment service providers (PSPs) and promoting open architectures to offer better and more varied customer service. The application programming interface (API) model ushered in by the Open Banking regulation has created several monetization avenues that banks can capitalize on by collaborating with TPPs. This, in turn, demands focused testing of aspects such as data-sharing through secure and scalable infrastructure, regulatory compliance (PCI DSS), and security and authentication. Additionally, multi-factor authentication systems require different layers and levels of testing to mitigate risk from cyber threats.

Interaction between financial institutions and central banks

All banks need connectivity with other banks and financial institutions for improved customer coverage. Thus, testing to ensure connectivity between banks is key to industry adoption. Many banks have prepared sand-box environments to speed up onboarding consumers.

Changing test imperatives

Payment systems demand flexibility and agility to handle the complexities associated with real-time payments, diverse channels, and new technologies like cloud and IoT. Contactless payments backed by near-field communication technologies and instant payments face challenges around traceability of transactions and real-time scrutiny for fraud control and cybersecurity. Figure 1 shows the drivers for revamping the payment ecosystem.

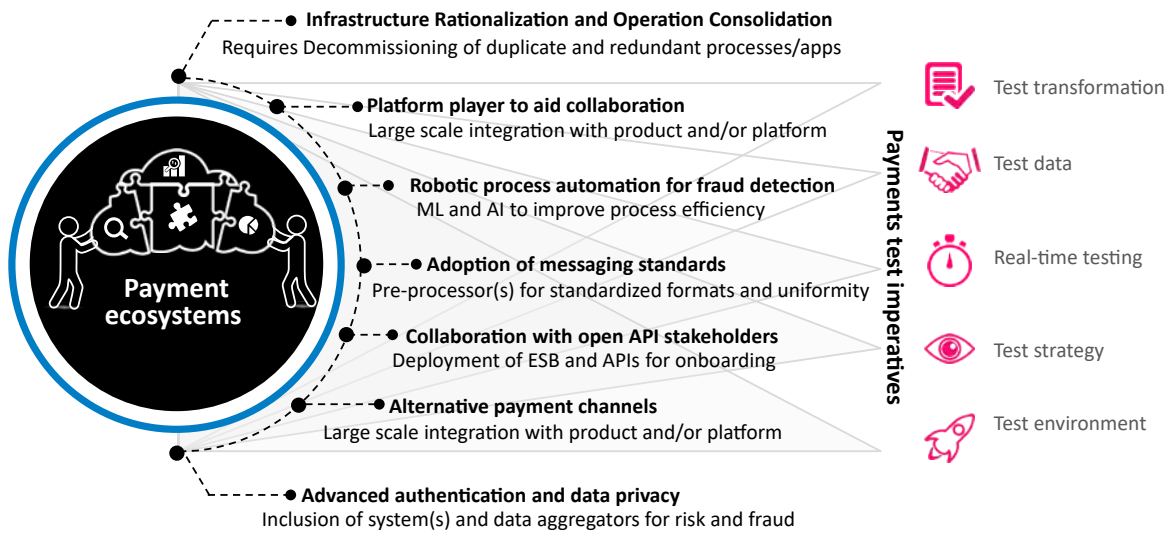


Figure 1: Drivers for transforming the payment ecosystem and test imperatives

In our view, revamping the payment test function¹ must be part of any payment modernization program spanning technology, systems, and processes. A comprehensive test policy (see Figure 1) is vital to ensure a robust payment system with capabilities to accommodate soaring permutations of payment processing and keep a complex real-time payment system running smoothly.

Getting down to brass tacks: Implementing a future-ready payment test strategy

Individual financial institutions need to craft their own transformation journey, but a best-in-class strategy will factor in effective test milestones. The payment test function will need to be reimaged in the current and futuristic context to ensure technical, business, risk, data, and environmental assurance.

A payment test function should cater to systems and infrastructure capabilities to ensure non-functional needs, including security protocols and regulatory requirements, can be effectively managed. It must also cater to business assurance, providing evidence that the payment process is delivering intended functionalities, thus helping users deploy it according to defined rules and needs.

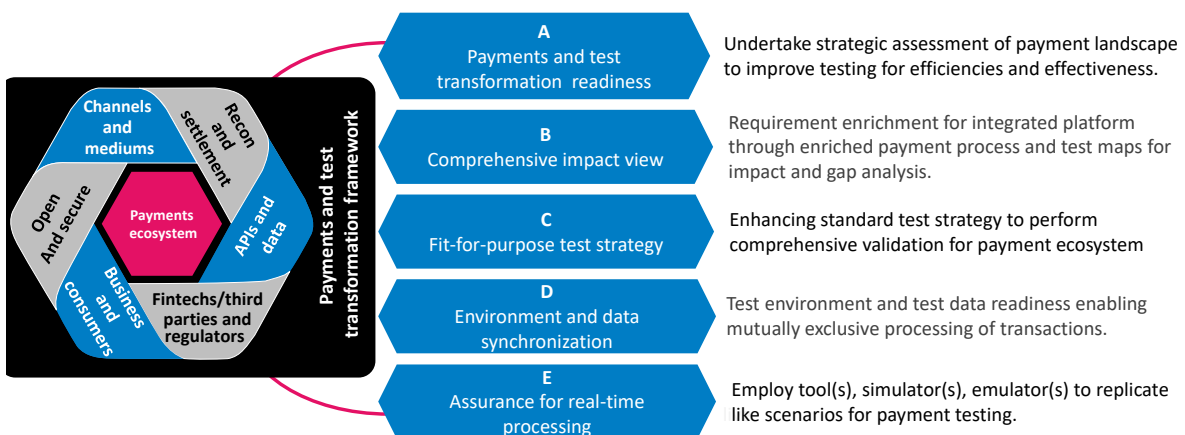


Figure 2: Payment and test transformation framework

[1] TCS, Reimagining the BFSI Test Function with a Machine First Approach, Accessed January 2022, <https://www.tcs.com/machine-first-approach-bfsi-test-function>

Some crucial aspects (see Figure 2) that need to be kept in mind while defining and executing the test strategy include:

Test transformation readiness

Set imperatives, priorities, and structures to transform testing alongside concurrent payment systems transformation. Define test function and baseline, reimagine, and evangelize the payment landscape to improve test efficiencies and effectiveness. Testing should move from being the final step to becoming an integral part of the complete process spanning design, development, and acceptance.

Comprehensive impact view

Review requirements of the target payment platform, including payment process maps spanning business and technical aspects, and ensure comprehensive impact and gap analysis to create and deploy streamlined test assets.

Fit-for-purpose test strategy

Define a complete strategy for testing spanning an ecosystem change, payment platform change, among others. Factor in risk assurance across various unknown aspects, such as lack of specialist test know-how, absence of resources, and paucity of time, into the strategy along with the underlying rationale.

Test environment and data synchronization

Ensure alignment between test data and test environment to address real-life and real-time data and environment complications. Adopting as-a-service models enables dynamic management and maintenance to facilitate a business-oriented approach that caters to malleable payment messages as well as data and environment alignment needs while ensuring availability.

Real-time processing

Define a testing plan for real-time payment processing in a cross-industry format, given that payments span multiple stakeholders inside as well as outside the bank. Creating smart emulators and simulators accessible anytime, anywhere through cloud-driven sandbox approaches and including effective mechanized testing will allow banks and financial institutions to not only maximize returns but also deliver long-term benefits by making the process agile.

Act now or be left behind

The payment infrastructure needs to be enhanced with next-gen capabilities to facilitate end-to-end testing of all payment capabilities. Transforming the payment test function is thus imperative. Defining and implementing a fit-for-purpose test strategy is key to creating a payment ecosystem with the ability to meet customer demands as well as technology and non-technology drivers, in turn gaining a competitive edge. In our view, banks must act swiftly and rapidly to implement changes to the payment ecosystem. However, they may be constrained to do this in-house—partnering with the right service provider after a detailed market analysis can help access the requisite technical know-how, expertise, and talent.

About the author

Dhiraj Lokhande

Dhiraj Lokhande is an advisor and architect in the Technology and Transformation Advisory function of the Banking, Financial Services, and Insurance (BFSI) business unit at TCS. He has over 20 years of experience in software testing and has worked in various roles managing payment technology transformation programs, digital adoption, and consulting. He has been instrumental in creating a link between business and technology and supporting and helping user acceptance testing to enable firms to become customer-focused entities. Dhiraj has a bachelor's degree in Computer Engineering from Pune University, Maharashtra, India.

Awards and accolades



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