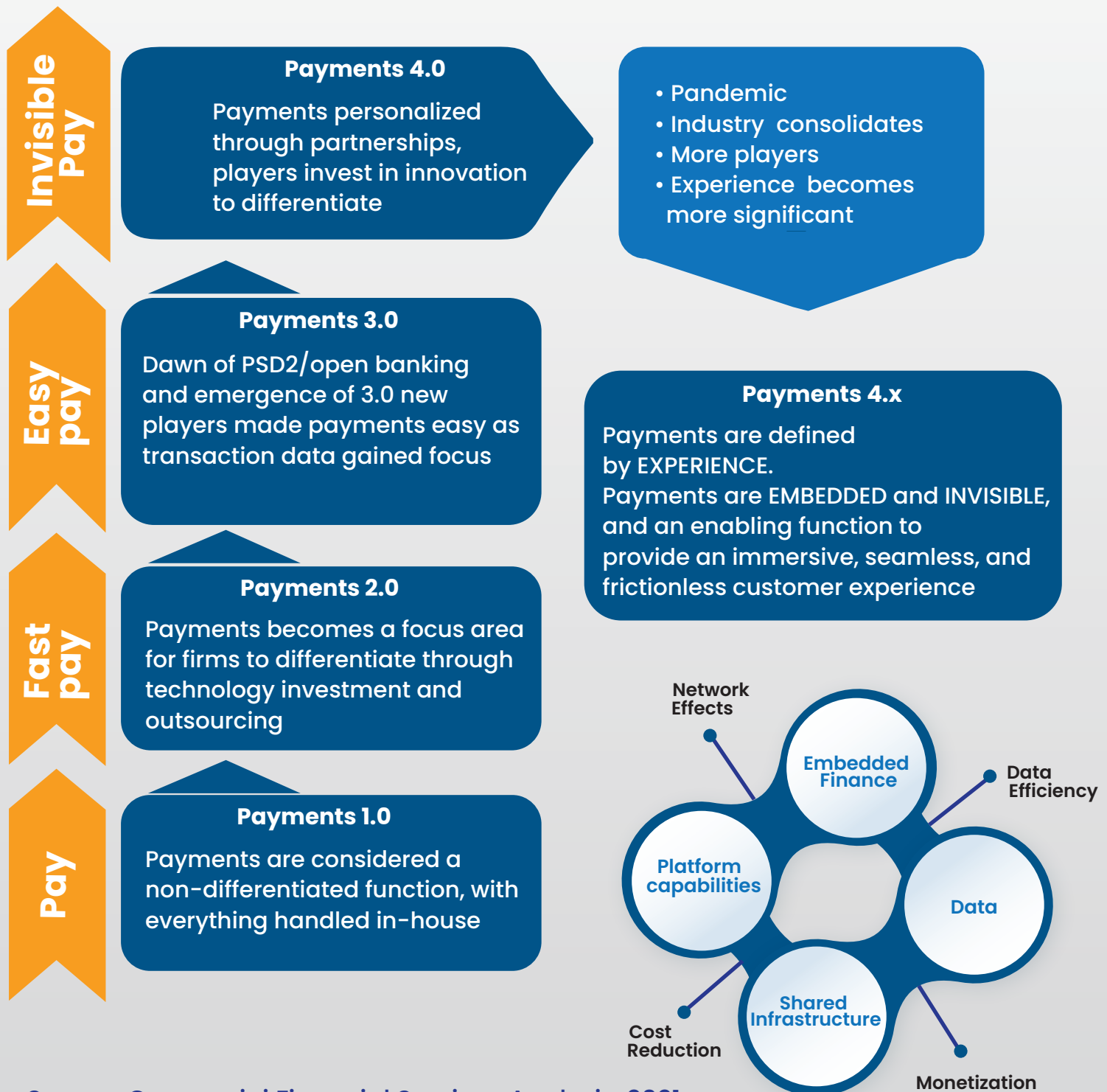




Test Automation

– Essential
For Digital Payment Testing

The Payment Industry is facing multi-dimensional disruptions in the aftermath of COVID and customers demanding convenient omnichannel digital payment services. Paytechs and start-ups have started to roll out novel business models and innovative consumer-focused offerings.



Source: Capgemini Financial Services Analysis, 2021

Payments 1.0 – Payments as a Commodity – To pay.

Payments 2.0 – Payments as a differentiator – Fast Pay.

Payments 3.0 – Payments as Information – Easy Pay and helped firms to leverage data that helps in improving and customizing services to clientele.

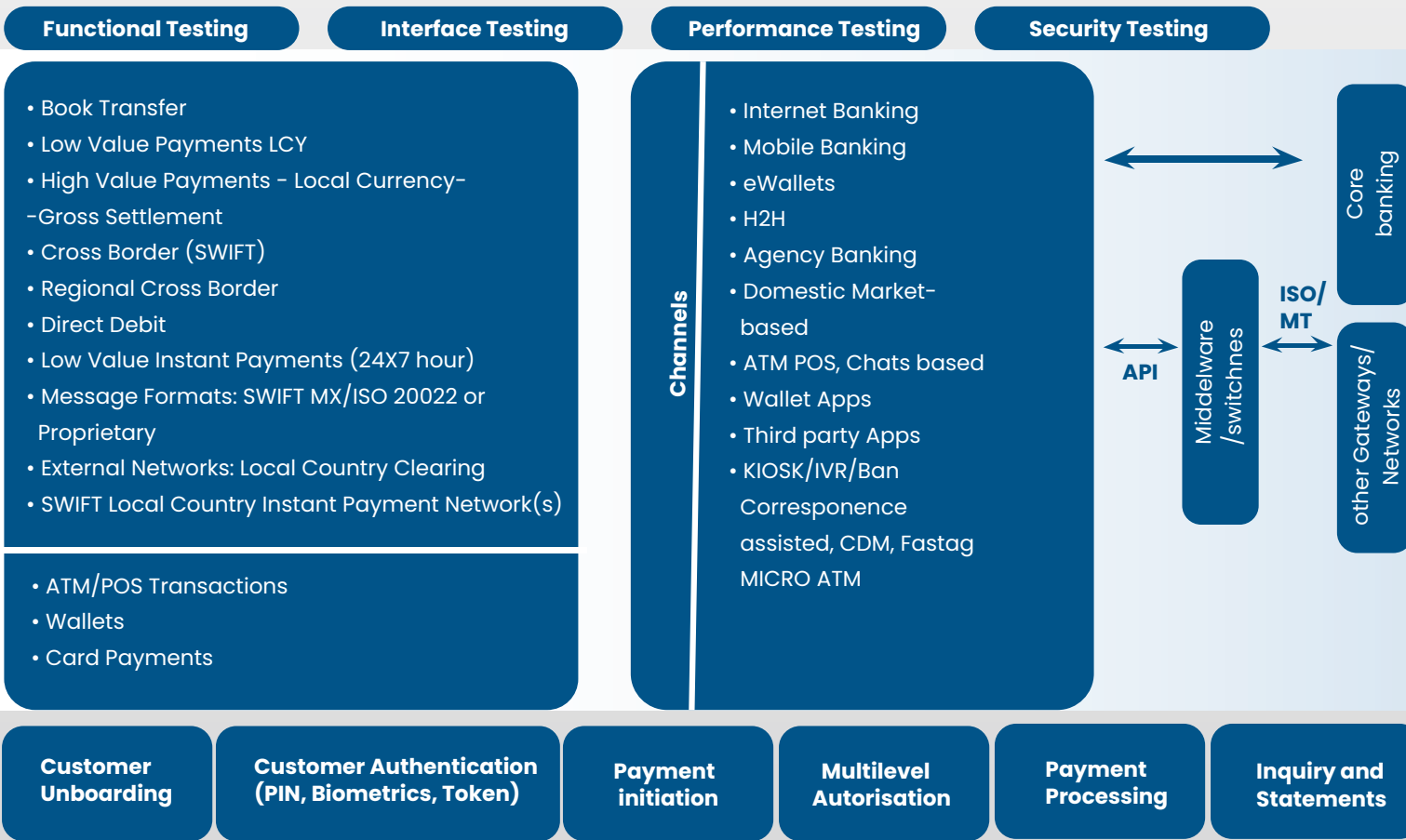
Evolution of payments – Starting from a ‘non-differentiated function’ with everything handled in-house, Payments’ journey through differentiation by way technology investment /outsourcing, regulatory-driven / market-driven innovations like PSD2, Open Banking, UPI etc. Currently, payments are personalized through partnership with players investing in innovation to differentiate their offerings. In short, focus shifts from payments as a product to a tool for customer reach and engagement.

During Covid, touch being one of the key causes of concern, consumers were opting for non-cash, low-or-no touch payment solutions, and the shift to contactless payments. With general avoidance of gathering, banks had to innovate processes out of physical branches. Expectations for digital technologies for KYC and Contract Acceptance grew. Usage of self-service channels showed increasing trend and popularity, primarily due to convenience and safety. This also helped to reduce costs.

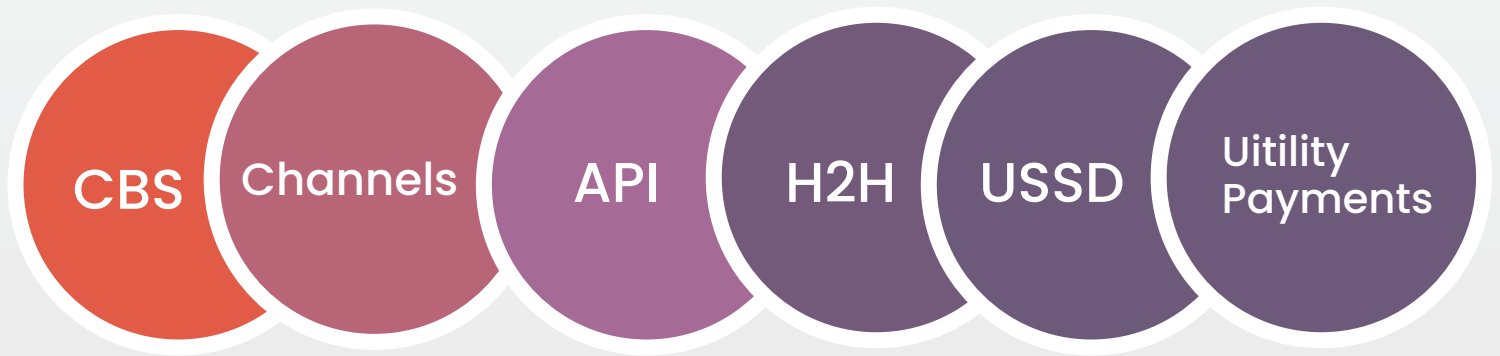
As has been evident post-COVID, digital payments, inter alia, other services are the new norm for banks and other financial institutions. The cost difference for providing services to the clients through digital channels has been proven to be exponentially lower than brick and mortar branch-based services.

Customer Experience driven digital channels push BFSI entities to adopt a differentiated and integrated Two-pronged IT approach. One, the traditional transaction focused back end-systems that have longer life cycles and two, the flexible and customer centric digital applications that have shorter life cycles. In Yethi's experience, the traditional systems generally follow waterfall model of development while the digital applications follow quicker agile approach with multiple sprints.

Following diagrams show different payment types / schemes through different channels going through different peripheral applications.



Payment Testing–Multi Initiation Flavours



In the foreseeable future, this transition phase from Payments 3.0 to Payments 4.0 and above will observe significant competition and co-existence amongst entities. In addition to own digital apps, digital wallets, and investment apps, co- branded apps for credit etc. built with multiple integration touch points through APIs and interfaces will be seen across the world.

There is market-driven push for e-payments even for small retail vendors, as consumers would have an aversion to handle cash to avoid physical contact. It will become a necessity for the e-payments applications to support basic cash transactions via multiple modes like multilingual USSD, SMS in addition to digital applications, bringing APIs and interfaces to the fore.

Most of the times these interfaces shall be provided with stringent SLAs set by regulators or companies offering the facilities to beat the competition.

Financial institutions are launching specialized digital applications – both web and mobile based to address specific business needs. Integrated apps, co-branded apps with other corporations are already a trend. Eventually, co-branded credit cards would be taken over by co-branded apps. While earlier many apps focused on post-onboarding customer service, banks will have to quickly migrate customer onboarding for all products via digital – self-service channels.

Some of these applications, Payments through Open Banking, for example, have significant interface touch points like government organizations, taxation departments, credit bureau interfaces, Enterprise Fraud Management for blacklist, whitelist checks, among others. Traditional verifications such as direct contacts in home / offices would have to be replaced with digitally enabled verification.

There will be considerable digital enablement for corporate banking processes that currently demand ample paperwork in most of the European and Asian countries. The governments and central banks shall be forced to honor secure digital signatures in addition to physical / wet signatures.

Digital applications will have a shorter window of processing due to competitive marketplace. Creativity and speed are the essence of these application launches so that the financial institution can get the most out of the investment. Go-To-Market (GTM) speed will be determined by the speed and efficiency of the project lifecycle – Design, Build, Test and Deploy.

Quality Assurance plays a critical role in ensuring that financial institutions are able to launch the digital products confidently, assuring the readiness of the backend systems for the upgraded processes and validating that the entire technology ecosystem works in tandem to address the ever-changing business needs.

The changes encountered in the evolution process from 1.0 to 4.x had already ensured that a significant chunk of payment transactions move away from brick-and-mortar branches to the digital channels. This will invariably test the endurance of the channels as well as the associated integration layers. QA as a function ensures that functional / integration / usability / performance testing of these channels in addition to the core transaction engines are conducted periodically.

Customer facing applications that are exposed to the internet pose a variety of cyber threats to the financial institution's business. In addition to implementing adequate infrastructure to prevent cyber risks, the applications inherently need to be designed considering these risks. Security testing of the digital applications must be carried out periodically as these are 'Point in Time' assessments. As and when a new vulnerability or threat is detected, the same needs to be fixed and tested before the vulnerabilities are exploited.

Typically, Vulnerability Assessment and Penetration Testing (VAPT) is conducted on these applications covering at a minimum the OWASP Top 10, vulnerabilities are scanned, and any issues identified are fixed. Tool based security code reviews are also conducted in addition to the VAPT to ensure near zero security defects in the product.

Banks and other financial institutions have been investing in performance and security assessment tools for a long time. However, one of the areas that is posing a lot of challenge today is the time and effort required for functional testing, considering the short GTM cycles for the digital products. Agile product development methodologies solve this with end-to-end testing of the digital products before shipping to the customers.

With 'easy-to-use' 'Robotic Test Automation' (RTA) tools, key issue of inordinate delay in manual testing of functionalities and regression of existing functionalities is addressed now.

Significant investments are being done by financial institutions on test automation tools building capabilities around specific tools. Some of the institutions are exploring using well known Robotic Process Automation (RPA) tools for testing their applications.

The key differentiator in favour of RTA is that it caters to the specific requirements of functional testing including the likes of APIs and more importantly, the experience is customized for business analysts & Test Analysts as opposed to developers like most of the scripting tools.

RTA tools are versatile & are easy to use, capable of robotic learning of application navigation and test execution. It's crucial for the tool to be code-free to be business analyst driven rather than technologist driven. They can expand to multiple applications with minimum changes and capable of executing business process testing across applications.

One such customer journey is given here for example:

Web/App to Web

In an Account information Service within the framework of Open banking, an AISP can get the account information from the consumer's bank with his consent and the framework provides how the AISP and FI will collaborate electronically without manual intervention.

a) Account information service provider – AISP does not transmit the IBAN of the account to be accessed as Customer has to give express consent to the PSP to access his account information from the Bank.

1. Upon redirection from the AISP's domain to Bank's domain, the user is requested to input the User ID and OTP generated by the hardware/software token; In other words, Consumer who is customer of the Bank has to present his credentials to authenticate to the Bank using his usual user id / password + OTP.

2. A list of accounts held in the name of the user are displayed, the user selects which accounts should be accessed by the AISP and then clicks 'Ok' or 'Cancel'; In other words, PSP should provide facility in the UI to include all the account information fetched from the AISP.

3. Redirection to the AISP's domain with details of the customer's account. N.B – The AISP should be given a token which is valid for 90-days and during this period, the AISP can present this token to Bank and Bank will give account information to the AISP without the need to go through the process above. Upon the expiration of the token, the above process is repeated for the issuance of a new token.

Payment initiation service provider – PISP does not transmit the IBAN of the account to be debited.

1. The user receives a push notification, and the user is required to click on it.

2. The user is authenticated through biometrics OR the input of a PIN.

3. A list of accounts held in the name of the PSU are displayed, the PSU selects the account from which the payment will be debited and then clicks 'Ok' or 'Cancel';

4. A screen with the payment details is displayed and the user can either select 'Ok' or 'cancel';

5. The user is authenticated through biometrics OR the input of a PIN.

6. Redirection to the PISP's domain

Another example of user journey of Web to App:

User using online portal of a merchant; at the check out time choosing option to pay through his mobile device (say in Indian context through UPI); user authorising the debit by entering his UPI ID and the completion of payment received by merchant portal based on the payment acknowledgement displays confirmation of payment on the merchant portal and merchant initiates physical delivery of goods.

The RTA solution should be capable of handling such complete business processes that cut across disparate applications / devices. A capable RTA tool can learn and execute tests on the APIs by sending request / receiving positive or negative responses from the destination as part of the business process testing.

Another challenge with digital application is change in environment or change in versions. Not every mobile user upgrades the OS as and when they're released. However, financial institutions can't deny application usage to such customers. Typically, current version of the OS and the two previous versions are to be certified. The other aspect that cannot be ignored would be the form factors of the devices that the customers could be using.

Testing of applications in multiple mobile devices with device having different OS & versions; or in case of browsers Microsoft Edge / Google / Tablets call for automation tools; This need arises not only in payments transactions alone but overall application's UI / UX testing.

An RTA tool integrated with a device farm ensures that the tests are carried out quickly across devices, across form factors and ensure that customers do not face any hassles. Periodic BAU and regression testing for the digital apps and their interfaces are conducted on the device farm to rectify any issues before the customer faces them.

As Banks are gradually shifting to agile method of project implementation with CICDCT processes & DevOps tools in place, RTA tools should be capable of integrating with DevOps tools and relative processes.

Robotic Test Automation will be the new norm in the Post Covid-19 era as the world will move towards becoming a reduced cash society, bolstered by digital payment applications, contactless / touchless solutions that will have a shorter GTM cycle and will need to be enhanced continuously to give better customer experience and to stay ahead of the competition.

Conclusion:

The evolving Payments scenario would bring changes in terms of customer behaviour, promotion and adoption of digital payments, security threats encountered, performance issues faced due to sudden surge of transactions on the digital channels, among others. This will be the new norm and the financial institutions must learn quickly and change the way they run their businesses. QA as a function that already plays an important role will gain more prominence. Banks and other financial institutions will invest in tools that enable the QA function and Robotic Test Automation solution would be one of the prized possessions in the near to midterm, setting new norms in the industry.

Founded by Fintech professionals with decades of domain experience, Yethi is invested in building the next generation of solutions to improve the quality of digital technologies being adopted within the BFSI industry.

About Tenjin

Tenjin is Yethi's scriptless test automation platform, a plug-and-play banking aware solution, with distinctive features like robotic capabilities to learn the application and re-learn after any updates, so regardless the complexity and number of updates, the test execution remains high-speed, minimizing manual effort.

To know more about how we can help you mitigate business risks associated with technology enabled operations, reach out to us at info@yethi.in.

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