TATA CONSULTANCY SERVICES

Building on belief

TCS BANCS™ JOURNAL

The Journal is also available at https://joom.ag/EvYd

ISSUE 14

LEADERSHIP VIEWPOINT

Next generation in financial services: the coming of age

Financial services have traditionally led change and invested ahead of the curve in technology for several decades. But in the last few years, the rise of tech giants and the speed of adoption of technologies like Cloud and AI, seem to have left the tech savvy financial institutions thinking. Industries like retail have upped the ante, and there is a lot that financial institutions in general and banks in particular have been left to think about, as they look at the disruption, which is largely tech driven, that is now at their doorstep.

Some of the major paradigm changes being brought about from outside the industry which is influencing the thinking in banks around the world are: (a) Platformification, (b) Cloud adoption at scale, and (c) High leverage of data and analytics in real time, to name a few.

What this has meant for FIs is that, they need to reorient and equip themselves with the right tools and technologies to offer compelling value propositions to consumers who are now used to a different paradigm of engaging with enterprises, thanks to the apps and the underlying technology which powers differentiated business models. Exploiting the power of cloud platforms to achieve elastic scaling, the ability to change (i.e., deploy code) rapidly and without risk, and to orchestrate capabilities drawn from a variety of sources are all key to emulating customer success, which other industries have shown and organizations like an Amazon or a Netflix exemplify to derive competitive advantage. Foundational to enriching customer experience is the ability to leverage data and obtain timely and relevant insights which help sell and/or fulfill a service more efficiently, creating an element of customer convenience & delight.

When we think from the vantage point of a core system provider, we believe that our customers need to approach their modernization agenda with an alternate model of core banking enabled by our technology. We believe this will have the following pillars or foundational tenets:

Cloud nativity: This is where the most significant disruption is coming from, resulting in a 'Domino Effect' in terms of the adoption of technologies such as microservices and AI, which enable new paradigms like composability and so on. The rapid adoption of the public cloud by financial institutions globally has also contributed to the investments being made by the providers themselves, spanning various building blocks, including containers, databases, AI/analytics workbenches, and API backbones. Each cloud provider is rolling out cloud native propositions, which can potentially lock financial institutions onto their platforms but are also creating an upside in terms of the technology differentiation they afford.

Microservices-based architecture: Customers today want a highly convenient and intuitive interaction with a bank, irrespective of the device or mode, that gives them a way to accomplish their goals and in a fast and secure manner. With the rise of new business models, products and customer expectations, the adoption of a microservices architecture, a software design paradigm, has become critical. With its key emphasis on delivering smaller and independently deployable business capabilities, existing core banking applications are prioritizing decomposition into microservices. Promising many benefits that come from their lightweight and easy-to-deploy approach, when orchestrated and choreographed (read event-driven) in the right manner, they engender

reusability, efficiency, scalability and resilience. These microservices are self-contained and responsible for specific business capabilities and leverage the benefits of container deployments. The independence dimension also includes associated data ownership. Their ability to interact/integrate with any system, be it in-house or third party, via APIs and events is what creates symphony. The light weight and independence aspects ensure a fair amount of risk reduction and enable agility as they help compress testing timelines.

Composability and orchestration- Financial institutions spend a lot of effort in integrating applications and automating processes and the number of processes/interfaces and the changes needed to meet new requirements are increasing rapidly. In such scenarios, having to rely on fresh coding and customization, can result in delayed rollouts. This is where a self-service, low code integration platform can empower financial institutions and give them the agility and self-reliance they are looking for. Composing or orchestrating processes and interfaces becomes simplified using API and event catalogs with a composability layer. By combining complimentary solutions (for instance KYC, fraud monitoring, document management, financial planning, etc.) from a partner ecosystem, financial institutions gain the ability to curate the right solutions as well as the right and timely experiences aligned with a specific state or need. This DIY approach, with the ensuing benefits of flexibility, can help financial institutions transition towards being much more customer centric.

Intelligence: Given that any core transaction processing engine generates terabytes of data, the banking world has reasonably leveraged analytics both to increase operational efficiency and improve customer experience. The application of AI is a work in progress, with big strides made in the AML and fraud detection perspective. However, given the largely black box approach to AI, its adoption in back-office operations has been cautious, but it has permeated the client servicing side with chat bots and many other use cases. The real breakthrough of the application of AI in banking would be in the controlled use cases in back-office operations.

Co-existence: The evolution of core transaction processing systems into a truly cloud native microservices based system is a gradual process. Financial institutions have spent decades in developing and maintaining legacy core applications. The overall technology strategy and architecture should therefore consider and enable co-existence across the microservices architecture and legacy system in terms of both business processes and data strategies. Such a migration strategy would consider decommissioning small and specific aspects of the legacy system to be replaced by microservices progressively while reducing business and operating risk.

Composability is an IT philosophy, and microservices and APIs comprise the backbone of its realization. Apart from ushering in flexibility and adaptability, it can help organizations make sense of their data and use it to 'fast forward' the creation of enriching customer experiences.

Venkateshwaran Srinivasan
Vice-President and Head
TCS Financial Solutions (TCS BaNCS)

CONTENTS

JOURNAL

EMBEDDED FINANCE - NOW ANYONE CAN INNOVATE ON FINANCIAL SERVICES. ARE YOU READY?

The ability to create products and services that address unmet customer needs is a key ingredient in the recipe to becoming a successful company. Innovators are leveraging Technological evolutions to rapidly create products and services which address such unmet needs. Embedded Finance is all about meeting such unmet needs.

According to UK firm Anthemis, the global embedded finance market will be worth a staggering USD 7 trillion by 2030. This article tries to provide an insight into the trending topic of 2021 – Embedded Finance.

What is Embedded Finance?

Embedded Finance refers to products that have significantly enhanced value propositions through the associated financial services embedded within. While doing so, embedded finance adds value to the financial product providers as well.

In other words, embedded finance is about enabling any business (retailers, utility service providers, brands, etc.) to manage and sell innovative financial services as part of their customer journeys. This would mean seamless integration of innovative & contextual forms of payment, banking, lending, insurance, or even wealth management into their end-user experiences.

Uber - An example of Embedded Finance

An often-quoted example is Uber. You don't need to get out your credit card at the end of the journey. Uber has payments to be embedded into the user experience of getting a ride and, for the driver, into their experience of getting paid the right amount at the right time.

Now with Debit Card and Checking Accounts embedded for the drivers, Uber drivers are getting integrated and easy experience. They need not look outside of Uber to open accounts. Many unbanked drivers are getting into the financial mainstream. Uber became one of the third largest acquirers of small business bank accounts in the United States and it is not a bank. The Banks are acquiring these new customers with negligible incremental costs. With Insurance services also plugged in for the drivers and the cars, the network effect of Embedded Finance overall is colossal.

There are other examples and what better than Ant Financials, Tencent who manage 85% of China's mobile payment space, or PingAn providing a complete insurance-led financial ecosystem.

The provision of banking products requires significant technology investments and specialized skills to manage the scale, regulatory, and compliance requirements. Imagine if Uber were to do all the 'build' of banking and insurance products, it would have missed the leadership opportunity. It decides to 'buy' such functions from banks and others in the banking-as-a-service stack.

With Embedded Finance, any company can offer innovative financial services.

The Case for Embedded Finance

Embedded Finance is about rethinking the utility of banking in customer's daily lives. It is all about applying the first principles of design thinking and re-imagining the basic utility of banking- the ability to store value, the ability to move money, the ability to access credit, and the ability to secure. Determining the need of the customer at the customer journey and providing for the same by integrating banking services is embedded finance.

Ease and engagement are the two overpowering themes with any customer-facing brand in this hyper-connected world. Such brands always strive to keep the customer engaged and create convenient experiences for their customers from product discovery to the completion of the sale. The initial crop of such digital ventures excelled in providing superior customer experiences but hit the wall while making the banks a part of the customer journey during payment settlements. Few banks, cards, and fintech looked at these use cases and offered integrated payments in the check-out process. This is referred to as the first version of embedded finance.

EMBEDDED FINANCE MEANS BANKS FACILITATE MORE NEW CUSTOMERS, MORE TRANSACTIONS, SERVICE MORE LOANS, AND PROCESS MORE PAYMENTS. BANKS WILL NEED MORE APIS AND AUTOMATED PROCESSES TO MEET THE DEMANDS OF THE BRANDS. BANKS SHOULD INVEST IN MODERN CLOUD-NATIVE ARCHITECTURES TO LEVERAGE SCALE, AVAILABILITY, RESILIENCE, AND ECONOMICS.

It all started with payment settlements, then the embeddings graduated to Buy Now Pay Later (BNPL) products-providing credit.

This gave birth to Paypal, Stripe/ Fast, Klarna, Affirm, Afterpay, which started offering APIs that make it convenient, easy, and engaging for the

EMBEDDED FINANCE HAS ALSO GIVEN RISE TO A NEW CLASS OF PLAYERS – BAAS PLATFORM PROVIDERS. THEY PROVIDE A MARKETPLACE OF VARIOUS FINANCIAL SERVICES, WHERE A NON-FINANCE FIRM CAN PICK AND CHOOSE ANY LISTED API/ SERVICE.

end customers while enabling far more spending per order and over time.

Now, we see increasing engagement by including an account, a card, and various other banking products offered embedded as part of the customer experience.

Global brands from Mercedes and Amazon to IKEA and Walmart are integrating financial services to offer customers everything from banking and credit to insurance. Now, Amazon can let customers "buy now pay later" when they check out, sellers on Amazon or on Udaan (a B2B trade portal in India) can access working capital without going to the bank. and Mercedes, Audi or Jaguar Land Rover drivers can get their cars to pay for their fuel.

Embedded Finance Ecosystem

This embedded finance solution externalizes the foundations of banking and enables any organization to operate as a bank. There are three groups of players in an embedded finance ecosystem.

1. Containers (Brands): brands and service providers (retailers, ride-hailing apps, etc.) who provide the customer experience and are part of the daily lives; e.g. Amazon, Shopify, Uber, Lyft
2. Providers: providers of financial services (financial institutions and other companies with financial business licenses), and
3. Enablers: fintech firms acting as enablers connecting Containers and Providers

By embedding the financial functions of Providers into the service flow of Containers through the intervention of Enablers, customers of Containers experience ease and stay engaged. A portion of the resulting increase in the revenue of Containers is returned to Providers and Enablers, thereby establishing an embedded finance ecosystem.

Embedded Finance has also given rise to a new class of players – BaaS Platform providers. They provide a marketplace of various financial services, where a non-finance firm can pick and choose any listed API/service.

Crystal Ball Gazing - How does it Impact the Banks?

Essentially, if you closely observe, a bank distributes its products through a non-financial company. Banking-as-a-Service (BaaS) stack is one of the enablers for the non-banks to offer sophisticated Embedded Finance by rapidly configuring financial service elements into their user experience.

There is a huge gap between what customers need as financial services and what the banks offer. As a result, startups stepped in to fill up the gap. For the banks, Embedded Finance means an opportunity to maximize gains and re-focus from what they do best – banking. transaction processing. In other words, leave the engagement to the people engaged deep in customers' daily lives.

- Cards or plastic creates friction. The plastic, in its current form, would likely be the first one to fall.
- Credit Cards as a business are already under stress with BNPL services coming up and with further integration into the checkout processes would eliminate the need for a credit card. The first principles thinking says that the customer needs immediate credit but not the card.
- Embedded Finance means banks facilitate more new customers, more transactions, service more loans, and process more payments. Banks will need more APIs and automated processes to meet the demands of the brands. Banks should invest in modern cloud-native architectures to leverage scale, availability, resilience, and economics.
- Further, traditional Banks have an advantage in this opportunity, the richness of the functionalities and features, if exposed as APIs, will allow them to steal a march over the Neo/Challenger Banks. A rich set of APIs to expose core financial capabilities in a modular and flexible way is vital to enable innovative, seamless, and differentiated embedded finance solutions.
- With Embedded Finance picking up steam and the consumer brands expanding the reach and owning the experience of the customer context, the bank's investments into their digital channels can be moderate going forward.
- As small and medium businesses (SMBs) would start deep integrations of financial services across the value chain, the

Corporate Banking line of business for SMBs would have to revaluate their product and market strategies.

- The accelerated pace of evolution in the space of embedded finance is likely in line with Bill Gates's prediction "we need banking, but we don't need banks anymore." Banks should take a leaf out of the 'Intel inside' inside marketing strategy and lend the strength of their brand to the platforms or ecosystem.
- Combining BaaS and Open banking/ finance would work wonders, where brands can offer real-time, contextual propositions leveraging the data universe of open finance.

Some Initial Responses of the Banks

- BBVA has set up a separate business unit driving a focused strategy on BaaS.
- Starling Bank, a new-age bank has smartly positioned its entire stack as a BaaS offering for anyone to hook on.
- The parent company of the home furnishing retailer IKEA, purchased a 49% stake in IKANO Bank, a UK-based retail finance company specializing in point-of-sale (POS) loans and store-branded credit cards, with the option to acquire the remaining shares at a later date. This is despite the fact that IKEA and IKANO bank have a shared history
- Goldman Sachs has BaaS at the core of its transaction banking GTM and brought in the paradigm shift of "Developers are our Clients", thereby acknowledging the need for superior Developer Experience (DX) for the innovators.
- In other places, Citigroup has teamed up with Google on bank accounts, Goldman Sachs provides credit cards for Apple, and JPMorgan is buying into Volkswagen's payments business.

The Journey Ahead

With Embedded Finance, consumer brands and various non-banks are discovering a new way to differentiate the experience they bring to consumers and helps them attain leadership positions in their vertical.

All-in-one service providers or the so-called super apps are the likely winners of the current market; however, banks can quickly catch up if they address the "whole problem".

Embedded Payments, Embedded Lending, Embedded Insurance, and other forms of embedded finance would democratize innovation. Companies that would fill in the gaps between what the customer needs and what financial services firms provide today.

By leveraging the BaaS infrastructure and open finance/open data, offers from consumer brands would be more personalized, contextual to the customer journey. This will be the crux of embedded finance. Embedded finance creates enormous opportunities to deepen and strengthen customer relationships—and that companies that fail to seize on that promise will be left behind

There is no time to waste when $7 trillion of value is at stake.

References

https://tearsheet.co/wp-content/uploads/2019/11/Anthemis-Embedded-Finance-White-Paper-November-2019.pdf

Disclaimer: Views or opinions represented in this blog are based on the author's own research and do not represent TCS BaNCS.

EMBEDDED FINANCE MEANS BANKS FACILITATE MORE NEW CUSTOMERS, MORE TRANSACTIONS, SERVICE MORE LOANS, AND PROCESS MORE PAYMENTS.

Subrato Bhattacharya
Senior Consultant,
TCS Financial Solutions (TCS BaNCS)

THE RISE OF RETAIL WEALTH MANAGEMENT – "WHERE WALL STREET MEETS MAIN STREET"

Wealth Management services have traditionally been focused on High Net Worth (HNI) clients and upwards, and the reasons are fairly obvious: These high-value services were conceived of for those with sufficient wealth, and such highly complex and people-intensive services did not lend themselves to a wider pool of lower-valued "Mass Affluent" (or "Mass Market") customer segments.

The Mass Affluent segment has traditionally been underserved by Wealth Management providers. Moreover, this demographic has been viewed as difficult to serve due to the perceived lack of efficiencies involved.

Yet the Mass Affluent segment now matters more than ever.

The fast-growing middle class has a growth rate anywhere between 8-10% CAGR globally, which represents a significant portion of untapped investable assets. Due to the overall asset growth rate and impending wealth transfer opportunities, today's Mass Affluent segment will be the HNI customers of the future. It is evident that the next wave of asset growth for wealth management firms must come from this segment.

The shift to Mass Affluent is open to traditional wealth managers.

Technology has democratized the investment process and assets, changing the way the industry has been able to increase their reach to the Mass Affluent segment. The shift began in the early part of the last decade with the advent of technology-led robo-advisory or fintech firms, which significantly lowered the minimum investment amount required for retail investors. While the growth of robo-advisors has ebbed and flowed, they are still far from mainstream. Only a handful of them have gained a significant base, mostly in the US, and many are still fighting to establishing a presence. This gives traditional wealth management firms and banks the opportunity to tap into this segment – provided they can integrate downwards from existing HNI offerings.

Challenges

Scale: For stand-alone firms to be competitive, they need to be able to serve a few million households to achieve the desired efficiencies, given the high costs of acquisition, onboarding, and servicing. The Mass Affluent segment is price sensitive and would leverage the offerings only if the fees are considerably lower than HNI offerings.

A MAJORITY OF THE CLIENTS IN THE MASS AFFLUENT SEGMENT TYPICALLY PREFER ALL THEIR FINANCIAL NEEDS TO BE ADDRESSED BY A SINGLE INSTITUTION.

TO ACHIEVE SCALING OBJECTIVES, FIRMS NEED TO COMPLEMENT DIGITAL CHANNEL OFFERINGS WITH AN EFFICIENT, LEAN AND A CONSOLIDATED BACK OFFICE, INTEGRATED DOWNWARDS TO HELP ADDRESS DIGITAL OPERATIONS AND, BY EXTENSION, CONQUER THE SCALE FRONTIER.

WEALTH MANAGEMENT FIRMS HAVE OFTEN ESTABLISHED DIGITAL CHANNELS AS WINDOWS INTO THEIR TRADITIONAL MONOLITHIC AND FRAGMENTED SYSTEMS, AND THIS APPROACH ONLY GOES SO FAR. ALTHOUGH THE CLIENT EXPERIENCE MAY HAVE BEEN DIGITAL, THE UNDERLYING EXPERIENCES HAVE BEEN FRAGMENTED, WITHOUT THE ABILITY FOR PERSONALIZATION.

Growing expectations: In this day and age of personalization, customers in the Mass Affluent segment expect that the investment services offered to them will be tailored and personalized as well, in line with their daily retail buying experiences. While robo-advisors did well to get noticed early on, as customer needs and situations expanded, they have struggled to differentiate in response to fluid client expectations.

Guidance during tough times: The human angle of professional advice becomes more pronounced during transitions in investment cycles such as market downturns. Accordingly, more than just investment advice, clients will seek out holistic advice and counseling services.

Consolidation of financial services: A majority of the clients in the Mass Affluent segment typically prefer all their financial needs to be addressed by a single institution, if possible.

Addressing sub-segments within this group: The Mass Affluent segment is not homogenous, and therefore servicing these clients requires tailored approaches and strategies. The level of engagement and the choice of the advice model should be a function of detailed study with full understanding of the various client segments.

Digital experiences: Wealth management firms have often established digital channels as windows into their traditional monolithic and fragmented systems, and this approach only goes so far. Although the client experience may have been digital, the underlying experiences have been fragmented, without the ability for personalization.

These challenges apply differently for stand-alone firms, big wealth management firms, and multiline banks. While the stand-alone firms tend to score high on personalization, they fall short in providing an array of financial services. Meanwhile, big institutions struggle to meet the aspirational demands of the Mass Affluent client base.

Keys to addressing the Mass Affluent segment

Let us look at how collectively some of these challenges can be addressed

by firms to expand their reach as they should look to include the Mass Affluent segment under their fold.

Omnichannel Experience

The key to the Mass Affluent segment is to overcome their traditional fragmented and siloed systems with an omni-channel experience, backed up by engagement tools on a digital backbone that keeps cost pressures at bay. The focus should be to drive as much client self-service as possible, delivering engagement at scale to service client needs. Digital channels must be curated to deliver personalized experiences for each customer persona, demonstrating specific understanding of the client's context.

While digital offerings will do just fine for informational and transactional workflows, firms need to look at a hybrid approach to address consultative workflows. Firms need to define suitable processes, interventions, and tools for clients to engage with the firm, as and when the need arises, with a mix of bots and human interventions. Accordingly, tooling the advisors, operations and support teams is imperative. Advisors need to be equipped with the necessary tools to engage with customers, so that they can quickly react and respond to evolving customer situations. Firms which are successfully able to blend the scale and reach of their digital solutions with the expertise and empathy of the advisors and relationship managers will eventually emerge victorious in providing the advice model of the future.

Platform Approach

To achieve scaling objectives, firms need to complement digital channel offerings with an efficient, lean and a consolidated back office, integrated downwards to help address digital operations and, by extension, conquer the scale frontier. A platform approach is essential to homogenizing the client and firm experiences.

By harnessing rapidly evolving content, data, automation, and self-learning solutions, firms have the potential to deliver a differentiated yet seamless front-to-back customer experience. As part of this effort, firms must provide Investor education and content curation, which needs particular emphasis when guiding the clients and retaining them during downturns. In addition, in the post-Covid world, clients and advisors need to be able to collaborate remotely through technology, and firms must enable those conversations to be successful.

THE FOCUS SHOULD BE TO DRIVE AS MUCH CLIENT SELF-SERVICE AS POSSIBLE, DELIVERING ENGAGEMENT AT SCALE TO SERVICE CLIENT NEEDS. DIGITAL CHANNELS MUST BE CURATED TO DELIVER PERSONALIZED EXPERIENCES FOR EACH CUSTOMER PERSONA, DEMONSTRATING SPECIFIC UNDERSTANDING OF THE CLIENT'S CONTEXT.

Swaminathan Rajagopalan
Program Manager
TCS Financial Solutions (TCS BaNCS)

INDIA'S LIMITLESS PROSPECTS FOR OPEN BANKING

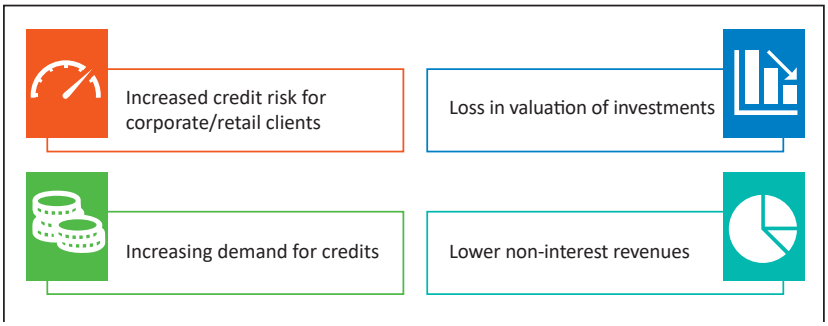
INDIA'S PIONEERING NEW CONSENT-CENTRIC MODEL FOR OPEN BANKING BOOSTS INDUSTRY COMPETITION, INCREASES CONSUMER PARTICIPATION, AND FOSTERS INNOVATION

As consumers, we should be able to control the portability of our financial data and share it for our own benefit with whomever we choose.

Open Banking makes that possible by allowing customers to grant (and revoke) consent for financial providers to access their financial information, wherever it may be held. With that access, financial providers can work towards consumers' benefit by building better recommendation engines, giving better advice, and offering more competitive products and services.

India's approach to Open Banking follows these aims and principles, but with some major differences compared to implementations in other regulatory regimes. While other regions, including the European Union and Australia, have implemented Open Banking, India is one of the few countries fostering Open Banking with such significant involvement by a banking regulator.

In the European Union, the Revised Payment Services Directive, or PSD2, places the burden of managing consumer consent on each provider



of financial information, whether it be a bank or some other third-party. The result is that EU consumers must go through a separate process with each provider to grant or revoke consent.

By contrast, India's approach establishes a new class of intermediaries to manage consent on behalf of customers. A 2016 directive [https://www.rbi.org.in/Scripts/NotificationUser.aspx?Id=10598&Mode=0] from the Reserve Bank of India established a new class of non-banking financial company (NBFC) called Account Aggregators.

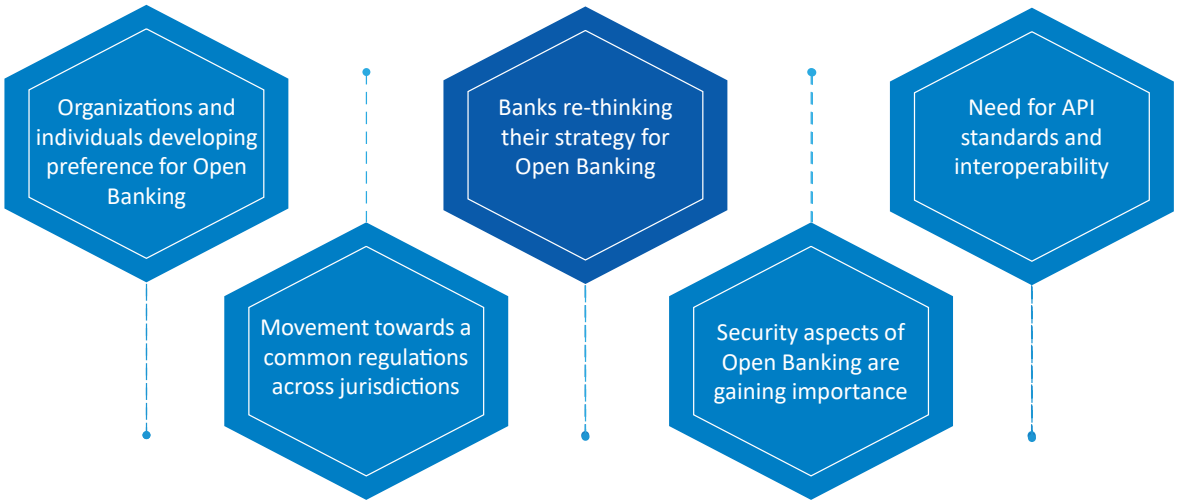
The Reserve Bank of India, or RBI, is the same regulatory body managing United Payments Interface, or UPI, which enables anyone in India to make or collect a payment on a real-time basis. UPI has changed the way commerce is done in India. From taxes to private payments to micropayments, volumes are soaring, making UPI a major success. We believe Open Banking represents the next "UPI moment," opening up new capabilities empowered by data.

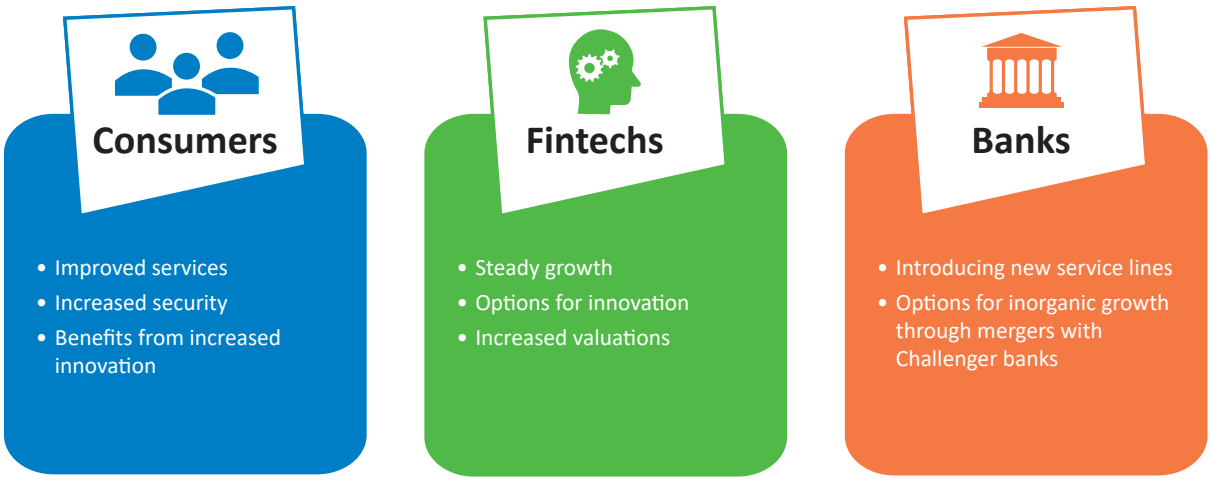
In this paper, we examine the perspectives of Account Aggregators, consumers, financial institutions, and policymakers in response to Open Banking in India, and offer our conclusions on the prospects for growth in Open Banking.

Account Aggregators

NBFC-AA (henceforth AA) entities will intermediate between financial information providers, or FIPs, and financial information users, or FIUs. This approach ensures that each and every data point being shared adheres to explicit consumer consent, with the intention of fostering trust, promoting increased data sharing, and ensuring compliance in a comprehensive and proactive manner, rather than an exception-based reactive mode. Without AAs, consumers have to navigate consent on their own, and they have no realistic way to monitor how their data is being used by the entities that are sharing data about

AAS MAY OPERATE AS A FEE-BASED BUSINESS, OR AS A NOT-FOR-PROFIT OPERATING FOR CONSUMER BENEFIT. THE REGULATIONS MAKE CLEAR THAT AAS MUST LIMIT THEIR BUSINESS TO ACCOUNT AGGREGATION, AND THEY WILL NOT BE PERMITTED TO MAKE USE OF THE UNDERLYING DATA BEING SHARED.





them. With AAs, a government-regulated entity has complete visibility on the data traffic, which ensures a higher level of compliance throughout the data ecosystem.

Several entities have already applied to take on the AA role, and their business models may vary. AAs may operate as a fee-based business, or as a not-for-profit operating for consumer benefit. The regulations make clear that AAs must limit their business to account aggregation, and they will not be permitted to make use of the underlying data being shared. This walls off AAs from competing directly with FIUs. However, there is a noteworthy exception in that RBI does permit the deployment of investible surplus assets in instruments, not for trading.

Consumers may consent to have their information shared about bank deposits, but also a long list of other financial information covering investments, securities, insurance policies, pension assets, trust assets, and any deposits with non-bank financial companies. From this, we can expect that AAs, given their whole-portfolio view of the customer, will be in an ideal position to manage sweep accounts that redeploy surplus cash into safe, liquid asset pools that represent high-quality, cash-equivalent collateralized assets, which are valuable to have on the books from a reserve banking perspective.

Consumers

Suppose the owners of a small, startup business sought to take out a bank loan from a financial institution with whom they have no prior relationship. Prior to Open Banking, they would have had to collect and upload documents from each of their existing financial institutions. Given the time and effort involved, they would likely skip ancillary accounts, leaving the lender with an incomplete picture of their financial position. Furthermore, it would have been difficult to ask the lender to dispose of those documents in the event the loan failed to go through.

With Open Banking, the small business owners, with just a few clicks through their AA consent manager's app or website, could grant provisional access to their complete financial picture across financial institutions. By doing so, the prospective lender would be able to make a smarter loan decision, give better financial advice, and tailor financial products to their specific needs. Or, if the loan didn't go through, the customer could revoke all permissions, leaving it to the regulated AA entity, rather than an individual effort, to ensure the revocation request was adhered to by the lender.

That's just one small example of how AAs will change the consumer experience across a wide range of financial products and services. It will become simpler and faster for consumers to share information, and safer to do so given the presence of a regulated entity in the middle. The AA acts as a security guard, ensuring that data transfers flow in line with consent and preventing unscrupulous financial information users from taking unfair advantage.

This innovation in market structure should have the virtue of increasing consumers' comfort level with sharing their information, while reducing the risk of high-profile failures in data handling, information management, and unauthorized data usage. Increased participation in information sharing between consumers and financial institutions will have a salutary economic effect, increasing wealth by enabling financial institutions to better serve their customers.

In addition, Open Banking serves the cause of Financial Inclusion by enabling

newcomers to the financial system to build credit histories by sharing data such as utility bill payments. This can lead to increased access to PFMs, savings products, and lending facilities throughout the economy.

Financial Information Providers and Users

Under the Open Banking regulation, the broadly defined category of financial information providers, or FIPs, will be required to share the financial information of a customer with AAs upon request.

The Consent Architecture in the regulation defines how FIPs must respond, as described here in broad outline:

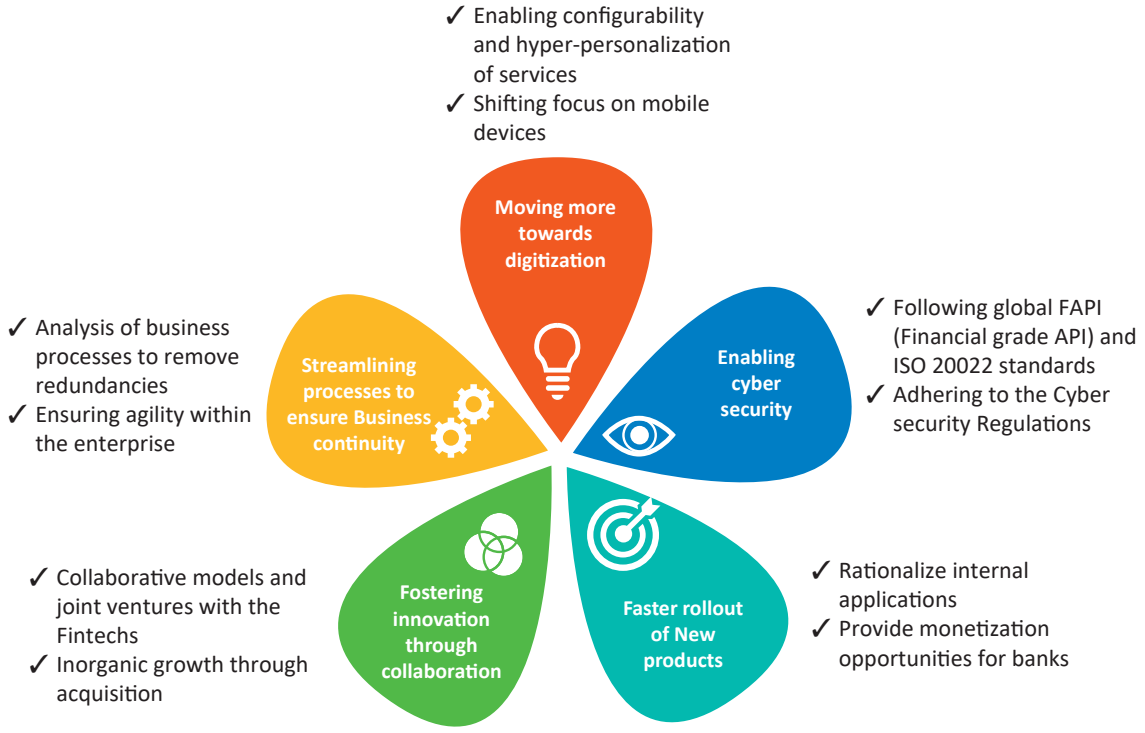
1. A consumer gives consent for an FIU to receive financial information from an FIP.
2. The AA collects a consent artifact that includes the identity of the customer and the FIU, the nature and purpose of the request, and various other data points.
3. The consent artifact is presented to the FIP through an authenticated interface, and the FIP verifies the consent.
4. The FIP digitally signs the financial information and securely transmits it to the AA.
5. The AA delivers the financial information to the FIU.

These data flows are mandatory, with the expectation of real-time response.

From a compliance standpoint, this means that FIPs will need to publish a set of secure, private APIs for the use of AAs, at an appropriate level of granularity to respond to FIU requests.

Mitigating any compliance costs, the AA-centric approach has certain benefits for FIPs, who will no longer have to maintain one-to-one data transfer relationships with other entities. By channeling all information requests through AAs, FIPs may be able to eliminate an entire class of legacy connectivity requirements, leading to lower operational costs.

OPEN BANKING SERVES THE CAUSE OF FINANCIAL INCLUSION BY ENABLING NEWCOMERS TO THE FINANCIAL SYSTEM TO BUILD CREDIT HISTORIES BY SHARING DATA SUCH AS UTILITY BILL PAYMENTS. THIS CAN LEAD TO INCREASED ACCESS TO PFMS, SAVINGS PRODUCTS, AND LENDING FACILITIES THROUGHOUT THE ECONOMY.



More importantly, the same outbound connectivity to the AAs can also enable inbound connectivity as a Financial Information User, or FIU. With Open banking, any registered and regulated entity in the financial sector can ask its customers or prospects to consent to sharing data through an AA. This opens up the field for a wide range of innovations across financial services, from banking to insurance to wealth management and more.

Prospects for Growth

The strategic imperative for banks will be to figure out the implications stemming from the widespread consent-driven sharing of financial information. Throughout the financial marketplace, entities will have new competition, new potential customers, new sources of information, and new opportunities. Each company will need to figure out a way to adapt that plays to its strengths, whether in terms of brand loyalty, operating model, informational advantages, or any other such differentiating characteristic.

From an operational perspective, banks will need to invest in technology for evaluating and acting upon large volumes of diverse data. Cloud technology makes this an easier prospect than it had been in the past, and so the scarce resource will be data management talent.

A major source of competition will come from fintech companies, who have already forged ahead with new solutions. Now, instead of closed-network solutions with a small number of banks, fintechs can offer mass-market solutions with open-network interoperability. We should expect them to take the lead in providing simple solutions crafted for specific life stages or customer journeys.

Telecom/mobile companies will be in an excellent position to become middlemen between customers and financial institutions. As a whole, the telecom industry has unparalleled insight into the daily lives, spending habits, mobility patterns, and life stages of customers. If they also convince their customers to give them consent to incorporate financial data, they will be empowered to collect and make sense of the data in entirely new ways.

Telecoms and other non-bank entities will be able to match customers directly with banks or make services available using banking-as-a-service offerings from leading financial institutions. This is an outgrowth of embedded finance, a separate but related concept from Open Banking, through which financial transactions are invisibly embedded into retail marketplace transactions of all kinds.

Despite these anticipated marketplace shifts, banks are well positioned to deliver solutions with deeper functionality, especially in areas such as corporate and SME banking, which requires deeper, contextual financial advice and expertise beyond what fintechs, telecom companies, and technology firms can typically provide. In these specialist segments, banks will likely continue to thrive.

Whether India's banks also continue to thrive in retail financial services will depend entirely on how well they navigate the next two years with the take-up of Open Banking. We believe that the success stories will be those enterprises with the flexibility and imagination to create compelling offerings bringing together multiple domains, both within and outside of financial services. Not every bank will have the capacity to execute upon these expansive ideas, but the ones that do will have tremendous potential for growth.

WE CAN EXPECT THAT AAS, GIVEN THEIR WHOLE-PORTFOLIO VIEW OF THE CUSTOMER, WILL BE IN AN IDEAL POSITION TO MANAGE SWEEP ACCOUNTS THAT REDEPLOY SURPLUS CASH INTO SAFE, LIQUID ASSET POOLS THAT REPRESENT HIGH-QUALITY, CASH-EQUIVALENT COLLATERALIZED ASSETS, WHICH ARE VALUABLE TO HAVE ON THE BOOKS FROM A RESERVE BANKING PERSPECTIVE.

Subrato Bhattacharya
Senior Consultant,
TCS Financial Solutions (TCS BaNCS)

TATA CONSULTANCY SERVICES

tcs BaNCS™

Banks are becoming more **Innovative,** **Intelligent** and **Intuitive** than ever before. As their customers expect them to be. **Innovative,** in the usage of abundant resources. **Intelligent,** in their deep understanding of customers and various players in an ecosystem. And, **Intuitive,** in tapping into data insights to create exponential value for their customers.

Introducing the TCS BaNCS Global Banking Platform.

Designed on a Digital First, Cloud First™ philosophy.

The TCS BaNCS solution is built on an intelligent digital core and available on a cloud platform of your choice. Re-imagined and renewed with a technology focus independent of any proprietary stack, it's backed by the richest collection of components proven in an installed customer base of more than 400 banks and financial institutions worldwide.

Ensuring cloud nativity and built on 100% Java technology, it is a one-stop solution for your core banking operations, that can help you deliver seamless, contextual and truly scalable experiences and enhance the trustworthiness of your brand.

Write to us at **tcs.bancs@tcs.com** to know more or schedule a meeting with us.

Visit our website: **https://www.tcs.com/bancs**

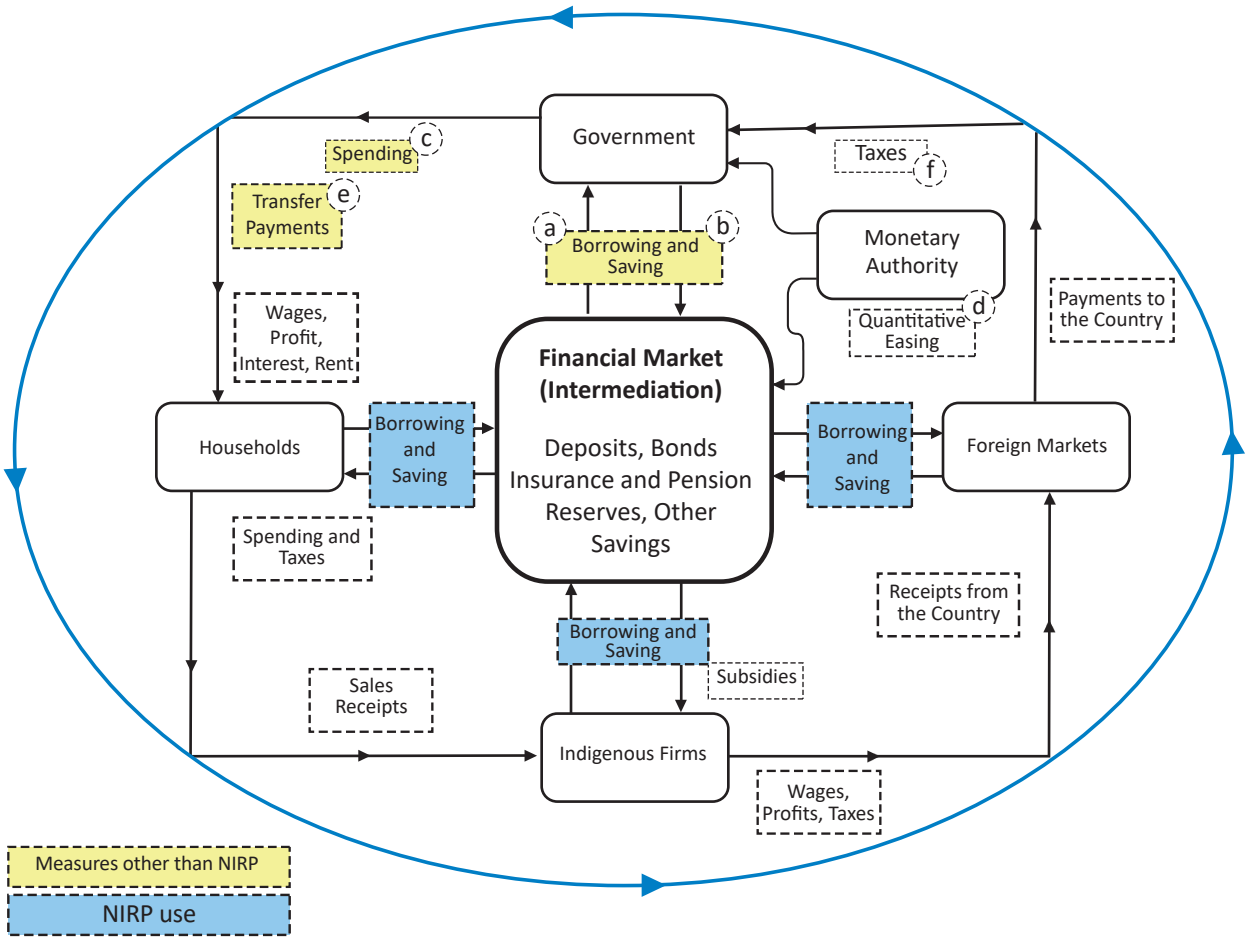
BITING THE NEGATIVE INTEREST RATE BULLET

Most discussions on interest rates, and specifically on Negative Interest Rate Policy (NIRP), start with reference to the theoretical and practical implications of monetary policy. While that serves well in cases where historic data is abundantly available, NIRP is too new to provide adequate historical data as a firm foundation for forward-looking discussions.

Governments, regulators, and financial market agents and organizations across the world have been earnestly seeking measures to route fund flows into productive sectors while simultaneously increasing consumption levels. They have been engaging different tools to varying degrees, including:

a. Lowering interest rates
b. Debt purchase programs
c. Large-scale government spending
d. Quantitative easing
e. Direct transfers
f. Tweaking taxation

Among the available toolkit, one of the most widely and frequently used tools is the management of interest rates. In the thick of the pandemic, many countries had reached, or nearly touched, what is called the "Zero Lower Bound" – the point at which the economy stops effectively responding to interest rate manipulations. The resulting liquidity trap ends up limiting the central bank's capacity to stimulate economic growth. This, coupled with a consumption slump from households along with excess unutilized capacities in production, had amounted



to an environment calling for unusual intermediation.

In economic climates where markets fail to discover solutions to critical demand shortages, classical economics suggests that below-zero interest rates, or negative interest rates, could have been an answer to nudge up aggregate demand.

Negative Interest Rates – not just a recent invention

Global negative yield bonds are now at around USD $14.8 trillion. While this figure has come down from the peak levels of $18 trillion in Dec. 2020, it still accounts for one-fifth of the debt values issued by governments and corporates globally. As of Oct. 2021, one-third of the G20 countries and around 25 countries globally have reported zero or sub-zero interest rates.

Negative interest rates have been around for decades. Switzerland in the 1970s, Sweden in 2009, Denmark in 2012, Japan in 2014, and the ECB in 2014 have all tried periods of Negative Interest Rates for diverse reasons. Considering these experiences, one might think that the effectiveness of NIRP as a monetary tool would be considered tested and validated.

But the consensus is that NIRP still carries significant risks. An OECD research paper1 has indicated that while NIRP can provide additional monetary accommodation in situations where the neutral rate of interest is most likely negative, there are also unintended consequences for banks' profitability and potential financial stability risks.

1 Stráský, J. and H. Hwang (2019), "Negative interest rates in the euro area: does it hurt banks?", OECD Economics Department Working Papers, No. 1574, OECD Publishing, Paris, https://doi.org/10.1787/d3227540-en.

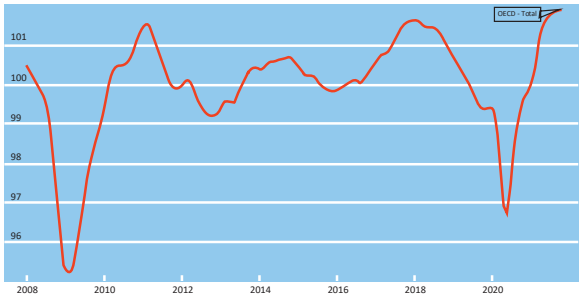
That's why regulators who considered NIRP approached the policy cautiously by calling for discussion papers, consulting financial market players, and testing technology readiness.

In evaluating the potential of NIRP, there are several reasons why the historic scenarios differ from the post-pandemic environment.

	Historic scenario	Pandemic / Post-Pandemic environment
Why	NIRP was typically employed to curb unchecked capital inflows and unsettled currency valuations in the country.	The extant need in many countries is to boost consumption and kick-start production momentum.
Where	Sub-zero rates were fairly localized to the country / zone. This resulted in flight of currency to relatively safer countries.	In current scenario the possibility of currency flight gets limited due to: • The NIRP/ zero level interest rates were simultaneously considered and piloted in many countries • Many of these countries were showing similar deflation/ low inflation pressures.
Period	Some of the countries have tried for sustained NIR periods, which could have been the cause of some collateral counterproductive outcomes.	The current thought process was to employ NIRP as a short-to-medium-term measure to garner sufficient thrust, and thereafter resort to conventional monetary policy measures
Players	Regulatory driven and trickle down to Treasury and bank Borrowing. In some countries these were not passed down to the end consumer. This caused severe NII margin squeeze on banks, affecting their profitability.	The banking sector explored this as a way to pass on the NIRP to the end consumer (households and firms) across a broad base of deposits and lending products.
Economic metrices	In a majority of situations, economies faced supply-side pressures with high inflation.	This was triggered with economic metrices indicating both demand-side and supply-side pressures within the system. Additionally, revival and positive sentiment are on the uptick, making it a good time to provide support through targeted and momentary thrust.2
Ecosystem play	Theoretically, if deposits attract negative interest rates, depositors could be indifferent and hoard cash, especially if economy is experiencing deflationary pressures. There has, however, been no such evidence so far to indicate this happens in reality.	With digital currency becoming widespread, the theory of cash hoarding does not hold. In fact, decreasing purchasing power makes holding any cash disincentivized.
Bank Capitalization	Since sub-zero rates were not passed onto the end consumer, banks that were not sufficiently capitalized, such as those relying on deposits for their capital, faced profitability concerns, thus putting the banking sector in an adverse position.	Well-capitalized banks were capable of the leading implementation of the NIRP policy trickle-down to end consumer thereby building consumer acceptance.

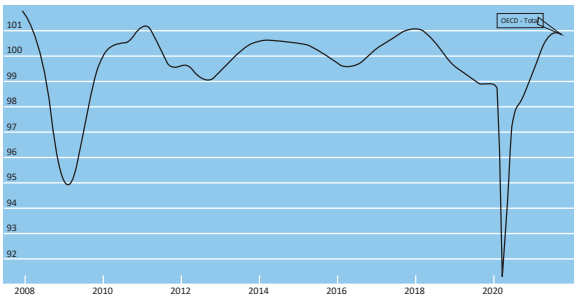
[2] Economic Indicators:

Composite Leading Indicator (CLI)

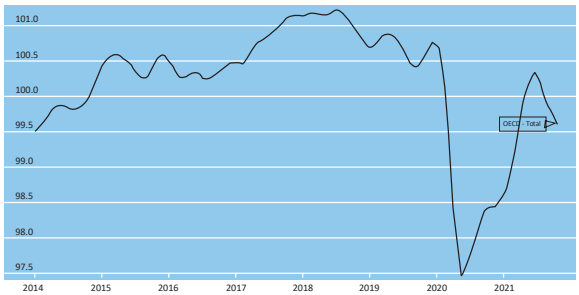


OECD (2021), Composite leading indicator (CLI) (indicator). doi: 10.1787/4a174487-en (Accessed on 16 November 2021)

Business Confidence Index



OECD (2021), Business confidence index (BCI) (indicator). doi: 10.1787/3092dc4f-en (Accessed on 16 November 2021)



OECD (2021), Consumer confidence index (CCI) (indicator). doi: 10.1787/46434d78-en (Accessed on 16 November 2021)

An indicator above 100 signals a boost in the consumers' confidence towards the future economic situation, as a consequence of which they are less prone to save, and more inclined to spend money on major purchases in the next 12 months.

Values below 100 indicate a pessimistic attitude towards future developments in the economy, possibly resulting in a tendency to save more and consume less.

Implementing NIRP – The Unfolding

While not the standard textbook measure, nor the traditionally proven tool, NIRP emerged as an instrument of choice for the short-to-medium-term revival in many economies. While implementing it, a few factors that were considered were:

- While consumption debt did go the way of negative interest, investment debt embraced sub-zero rates.
- In case of deposits, those deposits above a certain threshold or of certain currencies were subject to NIR.
- In case of loans, part tenor of the loan were considered for NIR in some cases. Also, certain targeted production segments may have been incentivized through sub-zero rates.
- In the race to recovery, some countries which have either higher revival sentiment, higher-than-estimated GDP growth in the post-recession period, or effective alternative monetary tools continued to refrain from going below zero.
- Countries with higher level of public debt also refrained from taking drastic measures like NIRP, since the immediate trickle-down effect in such economies could have been uncertain.
- Countries with a higher level of exports-to-GDP ratio or those working towards increasing exports were inclined to introduce sub-zero rates due to the impact of NIR on currency rates.
- Derivatives markets, especially hedges and cashflow-based instruments, saw negative impact from sub-zero interest rates, as for example Interest Rate Swaps.
- While most monetary policies have an almost immediate impact on the fund flows into the economy, considering the counter-intuitive and hitherto untested measures of sub-zero rates, banks held onto the rate before passing it to the end consumer. Such practices lead to the measure losing relevance in the economic environment when implemented.

Other impacted areas under consideration

- *Legal Implications and Contracts*

  The impact on new loans, existing floating rate loans and Benchmark linked loans saw revamping to ensure legal loopholes were accounted for with regard to fund flows. Breaching or capping of floor rates needed additional consideration by the respective parties to the contract.

- *Accounting Changes to System*

  Net Interest Outflows and Interest Inflows had to be accounted as such under Finance Costs, or indicated as a separate line item in the income statement.

- *Technology Consideration*

  Software readiness to commence implementation of the NIRP was critical, especially where real-time accounting and downstream processing needs to be in place. Readiness had to be ensured for all financial intermediaries and market players to ensure there was no divergence in accounting and/or reporting.

- *Exchange Rate Impact*

  Sub-zero rates in a country would have a direct and immediate impact on the currency exchange rates for the local currency, which would become less attractive, thus posing a concern for maintaining the balance of payments for the country.

- *Tax Issues*

  In situations where tax receipts and inflows are subject to taxation, or where tax outflows receive incentives with carry-forward across years, the corresponding netting of negative interest flows had to be distinctly accounted for.

In spite of the conjectured negative impacts of NIRP, the policy where implemented has shown little to nil counter-productive outcomes. On the contrary, where NIRP was already in place and where central banks and economies are looking to reverse the relaxed interest rate policy could benefit from:

- Thrust to consumer sentiment since interest rates can now move up from the existing ultra-lows
- This can balance the gloomy consumer confidence arising from inflationary pressures that most economies are seeing with revival on the cards
- Improvement in Net interest Margins of Banks which were facing margin squeeze due to NIRP not being passed to consumers in entirety.

Overall while NIRP appeared counter-intuitive it had become an effective short-to-medium-term monetary policy measure used judiciously. Success of the policy came from ecosystem readiness in the geographies where implemented, along with the interplay of dependent economies as they reacted to the policy.

That said, the one major indicator that is being watched with a hawk eye by regulators, corporates and consumers alike is the ubiquitous inflation. European and US economies are responding very differently to the northward movement of inflation. The former is inclined to hold onto ultra-low interest rates for some more time and the latter is keen to let interest rates rise in the belief that reinforcement provided till now can be withdrawn slowly but steadily. The interplay of inflation and consumer sentiment could be one of the decisive factors to see which policy is more effective and for what time frame.

SOFTWARE READINESS TO COMMENCE IMPLEMENTATION OF THE NIRP WAS CRITICAL, ESPECIALLY WHERE REAL-TIME ACCOUNTING AND DOWNSTREAM PROCESSING NEEDS TO BE IN PLACE. READINESS HAD TO BE ENSURED FOR ALL FINANCIAL INTERMEDIARIES AND MARKET PLAYERS TO ENSURE THERE WAS NO DIVERGENCE IN ACCOUNTING AND/OR REPORTING.

Gloria Thekkudan
Associate Consultant
TCS Financial Solutions (TCS BaNCS)

TATA CONSULTANCY SERVICES

tcs BaNCS™

TCS BaNCS Global Banking Platform - Creating trusted digital relationships

Uncertain times beget innovation. Banking is no different. With the right tools and technology, banks the world over are laying the foundation for transforming social distance into elevated customer management and experiences while bringing in resilient ways of navigating financial uncertainty.

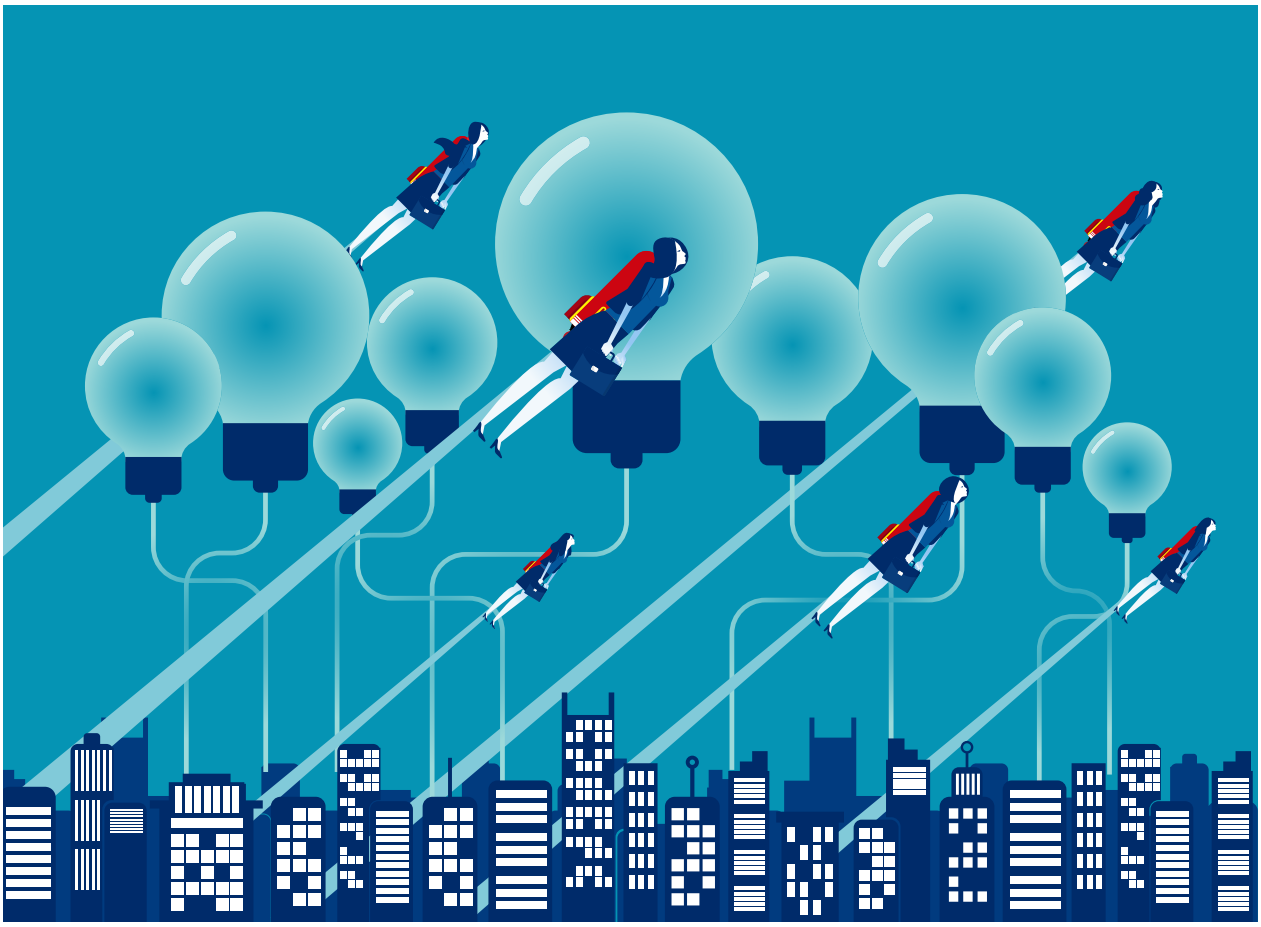
Creating more cohesive and personal digital journeys that engender trust. That's what TCS BaNCS Global Banking Platform is all about.

A contemporary digital banking solution with a global footprint, it leverages a **rich ecosystem of partners and FinTechs, actionable data insights, cognitive tools and APIs,** to help your bank launch new products and even new business models, acting as a platform for collaboration. It can help you dynamically define and create digital products and services that are contextually right for your customers, while also increasing revenue opportunities for your bank. The solution's **cloud native architecture** and microservices based approach paired with agile methodology, can help you scale, innovate and create the experience your customers expect today.

Talk to us to know more. Write to **tcs.bancs@tcs.com**

STRATEGIC BENEFITS OF AN INDUSTRY UTILITY FOR CORPORATE ACTIONS

MUTUALIZING CA PROCESSING WILL REDUCE COSTS, MITIGATE OPERATIONAL RISK, IMPROVE ANALYTICS, AND ENABLE FUTURE READINESS



The financial services industry overspends on Corporate Actions processing, without sufficient corresponding benefit.

There are over 50 global custodians in the financial markets, and each must maintain a "Golden Copy" of Corporate Actions announcements on behalf of their customers. To do so, every custodian will subscribe to as many as 20 announcement feed providers in various regions. The incoming data must be continuously processed while accounting for the various nuances and idiosyncrasies involved. For example, one data vendor may display rates in percentage terms, while another uses absolute values. Some use the latest standards, while others still have proprietary data formats. Then, through another highly complex series of data processing tasks, each global custodian is responsible for sending Corporate Actions notifications to its asset management clients. It's a significant effort to keep up with all the changes, technical terminology, and operational nuances.

After all this work, there's scant practical difference between what one custodian or the other can actually deliver to customers in terms of Corporate Actions data. Several years ago, digital delivery of Corporate Actions elections may have been of interest, but today, such capabilities have become table stakes.

The repetitive effort in Corporate Actions processing is a tremendous expense that delivers little to no competitive advantage to anyone. With rare exceptions, the industry has consistently low error rates, limiting the opportunities for consistent differentiation between custodians on this basis. Nor does the immense effort required to maintain a Golden Copy provide any protection against potential new market entrants, who can start from a blank page to create a Golden Copy of their own using mature solutions from technology providers.

Throughout the financial services industry, AI and Machine Learning have enabled significant improvements in predictive capabilities and zero-touch operations. Yet the present fragmentation of Corporate Actions prevents AI/ML from having a sufficiently transformative impact. No single custodian, no matter how large, has enough of a view of the entire market to achieve the highest level of automated decisioning.

Driving the next level of automation will require a mutualized solution that brings together Corporate Actions processing onto a single industry utility. This move toward mutualized Corporate Actions processing would benefit the entire industry, from custodians and asset managers to individual investors.

We can classify the benefits into four broad categories:

1. **Reduce costs**

   Many financial services providers have already reduced operational costs by moving Corporate Actions solutions from on-premises hardware to cloud-hosted environments. By mutualizing Corporate Actions processing, custodians will further accelerate cost reduction by sharing the expenses involved with processing, connecting, and distributing Corporate Actions data.

   Furthermore, all of the required functions would be easily accessible through APIs and microservices to be easily embedded into operational workflows and front-end interfaces. Custodians can use this opportunity to simplify back-

DRIVING THE NEXT LEVEL OF AUTOMATION WILL REQUIRE A MUTUALIZED SOLUTION THAT BRINGS TOGETHER CORPORATE ACTIONS PROCESSING ONTO A SINGLE INDUSTRY UTILITY.

THE MUTUALIZED APPROACH OF AN INDUSTRY UTILITY FOR CORPORATE ACTIONS WILL ENABLE ADVISORY AND SERVICE DELIVERY CAPABILITIES BEYOND THE CAPABILITIES OF ANY ONE CUSTODIAN, AND THESE BENEFITS WILL ARRIVE AT LOWER COST AND WITH LOWER RISK THAN TODAY'S SOLUTIONS.

office operations while improving front-office speed and capabilities.

2. Mitigate operational risk

A dedicated Corporate Actions utility would be fully invested in operational excellence and data quality. Moreover, a utility would be well positioned to improve data connectivity and standardization with market data providers globally, including rationalization of the disparate mappings, formats, and terminology. Information sharing between multiple custodians would also enable rapid escalation and mitigation of any data issues discovered, to the benefit of all participants.

3. Improve analytics

An industry utility would enable powerful applications of AI/ML on Corporate Actions data. By aggregating data across the global capital markets, an industry utility would enable custodians to share with asset managers better predictive information about the timing and implications of upcoming Corporate Actions elections.

Furthermore, analytics can combine shared industry data with private portfolio data, which will directly benefit retail investors by enabling automated solutions that make informed and timely Corporate Actions decisions in accordance with their designated investment style and risk appetite.

4. Ensure future readiness

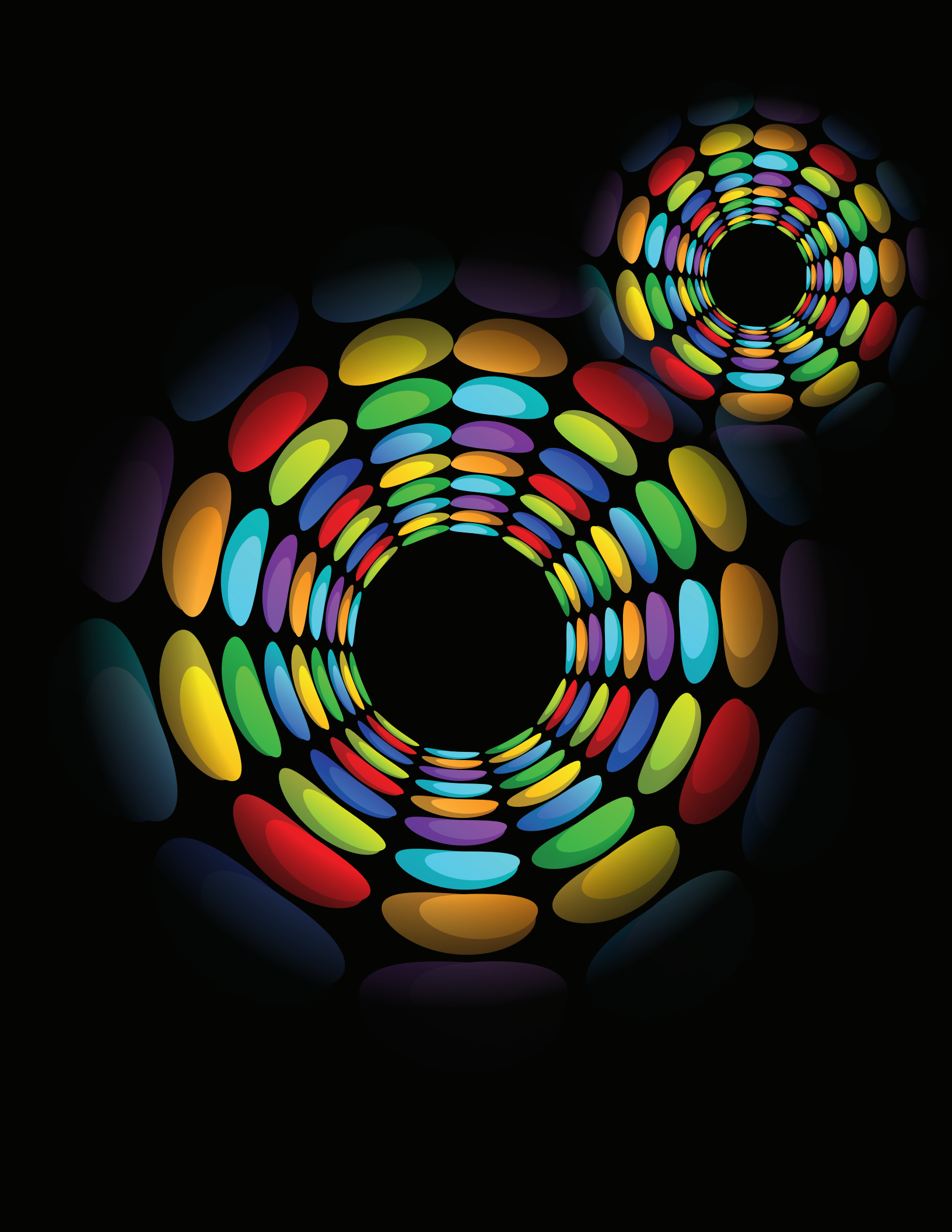
For the upcoming cloud-native generation, expectations are being shaped by DeFi and blockchain trends. Players in the traditional financial services industry are no longer merely competing among themselves, but also contending with new market models from new entrants offering visions of frictionless finance.

Custodians in global financial markets now have a window of opportunity to optimize operations and improve services for real-time asset ownership, in ways that ensure competitiveness and interoperability with emerging market models.

The mutualized approach of an industry utility for Corporate Actions will enable advisory and service delivery capabilities beyond the capabilities of any one custodian, and these benefits will arrive at lower cost and with lower risk than today's solutions. In addition, the mutualization of Corporate Actions data is a necessary and important step toward futureproofing the industry.

We believe the time to act is now. By doing so, the entire industry, along with its customers, will benefit.

Sanjay Prasad
Principal Consultant
TCS Financial Solutions (TCS BaNCS)



DATA STRATEGY IN THE BACK OFFICE

WILL IT ALWAYS BE A CASE OF CATCHING UP?

Data management and strategy is a topic of substantial debate across all securities firms on a continual basis. Given the scale of volumes and with data doubling at a faster rate than ever before, it does look like that the topic will continue to be debated for a long time to come.

A leading industry analyst proposed the 3Vs of Data – Velocity, Volume and Variety, and how it impacts the growth of data in a typical transaction processing world. With advances in analytics and AI, the scale of data becomes a self-perpetuating feedback loop. As the number of use cases for leveraging data increases, its volume and variety increases and harnessed by the use cases, velocity of data generation increases, too. This cycle continues gaining momentum as more data is used and generated, resulting in the further complication of data management architectures that organizations are trying to put in place. This is applicable to both structured and unstructured data; although, the former is ahead in terms of scale.

In the securities back-office world, data, beyond its use in transaction processing, sees three areas of importance - In ensuring regulatory compliance, extracting operational efficiency (cost reduction) and in enhancing client servicing (revenue enhancements). The securities back-office world has been able to manage the data value chain for meeting regulatory needs, albeit, with a patch work of data architectures. The aspects related to costs and revenues are tougher to realize and validate holistically in terms of solid use cases due to challenges in data management.

On the transaction processing side, despite standardization initiatives on the securities messaging side, significant pre-processing effort continues in data capture, cleansing, enrichment, etc. The data fed into our enterprise architectures will consist of global, market and client specific nuances, and this will keep evolving to handle market regulations and every client's need to differentiate. Every enterprise architecture will have to evolve and plan for the variants and nuances. This is the very basis of how ISO 20022 standards in corporate actions are laid

out with the concept of extension blocks – allowing local agents to align to the global standards, while keeping the local nuances alive within the same standard.

Amidst these scale and standardization dynamics – would it be fair to assume that the data problem will always be a step ahead of any solution that will emerge?

One of the aspects we could also consider closely is to look at how other industries are managing data. If we look at large e-commerce retailers and peers in the retail banking business who are so focused on the digital first, mobile first world, they may not have the perfect data management strategy, but they have found a way to exploit its usage across their supply chains or client transaction lifecycles from both, cost optimization and revenue enhancement perspectives. They have also leveraged the cloud and microservices architecture far better than any other industry. Any cloud architecture comes with its own range of tools to handle data – both structured and unstructured, in terms of different options of databases, Big Data/data lakes and analytics and AI engines in a single plug and play ecosystem. This has helped streamline the process of aggregating data from multiple sources into data layers, which is probably the toughest step in any data management strategy for an enterprise.

Of course, we cannot assume, that we can move massive legacy infrastructures overnight into the cloud, but observing these industries shows that they have focused more on exploiting data, working backwards from the end use case perspective on an incremental basis, much better than anyone else. (rather than the traditional approach of Big Bang and so-called ideal technology data management solutions)

Can we consider that all the data needs of the use cases of analytics, AI, reporting, digital client servicing, etc, are seen in a more cohesive manner, rather than as silos, to allow securities firms to exploit data better?

Despite all the challenges, there are three big areas, that securities firms have started working on to leverage data on an incremental basis.

1. Assisted AI for Operations: Traditional operations were structured more as exception- or priority-driven processing and based on the breaks in a transaction, or market cut off windows, or preferred client processing. All of this by default only uses existing transaction data to complete the trade processing life cycle. Increasingly, firms have started moving up the maturity curve of analytics from descriptive to prescriptive to predictive analytics to suggest possible actions to be taken before an event happens. This depends a lot on the available datasets and data enrichment possibilities within a business context or scenario. Of course, AI in this form still leaves the final decision to human intervention given the operational risks involved in any transaction in the securities back office, and the regulatory guidance regarding white-box and explainable AI. This is a process that will continually evolve and will move towards selective self-healing approaches based on the ability of historical data to predict confidence levels of close to 100% for any possible exception.

2. API Marketplace/Catalog: The retail banking industry has stolen a march over securities firms in the adoption of APIs to make data accessible to larger, internal or external ecosystems. This has been facilitated by regulatory initiatives like PSD2 or market bodies for Open Banking. SWIFT made announcements in 2019 about the first results of API pilots for securities settlement status, position, NAV distribution, etc., related to the post-trade securities world. This should provide impetus to the industry at large to consider APIs as a means by which data can be accessed or distributed by the various players in internal and external ecosystems subject to common technical preconditions like security, authorization, consent, etc., to be in place. This will also help organizations co-opt with fintechs in their value chains for operations and client servicing.

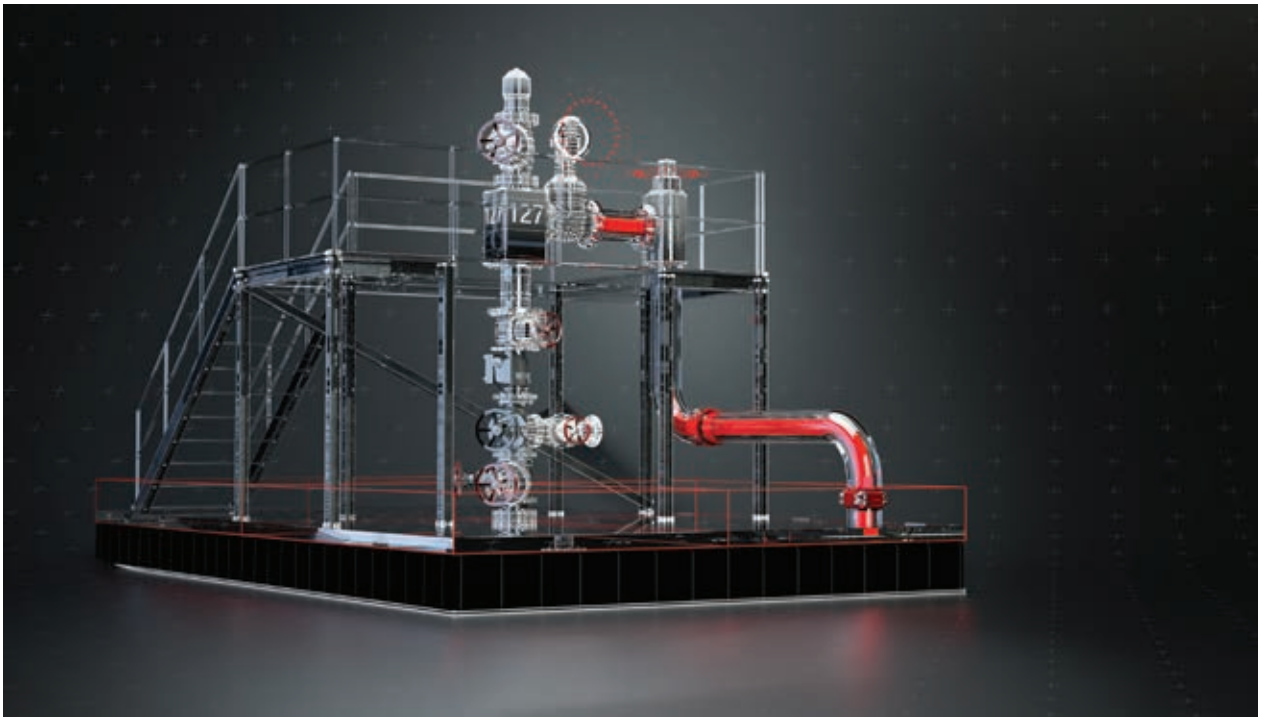
3. Digital Client Servicing: The securities back office also has jumped on to the digital channels bandwagon albeit a bit late by leveraging devices available in the various form factors. The availability of APIs is also a big driver for this. There is almost always an iterative discovery phase that is ongoing in terms of what is the transaction data from the massive back office repository, that could be useful to end clients in real time or near real time to help them make decisions to have a positive monetary impact.

Ideal state data management may be tough to achieve but let's begin by exploiting the potential of data on an incremental basis by applying analytics and AI in a way that has impact on cost optimization as well as client servicing.

Disclaimer: Views or opinions represented in this blog are based on the author's own research and do not represent TCS BaNCS.

Arun Arunachalam
Vice President and Head,
Product Management
TCS Financial Solutions (TCS BaNCS)

INVISIBLE OPERATIONS A VIABLE NEAR-TERM GOAL IN ASSET SERVICING



The highest costs per transactional event of any area in the whole securities ecosystem are found in Asset Servicing, where sizeable operations, uncapped levels of operating and investment risk, and extensive re-work and task duplication is common.

With such a high level of focus and cost applied to the management of the operating risk in the middle and back office, we often overlook the needs of our investor clients, despite the availability of tools that can help them make optimal and well-founded investment decisions around corporate events.

We believe that a viable and necessary goal for the industry to actively pursue is a highly automated model with largely invisible operations, where investments risks are the primary focus and where operational and back-office challenges are out of sight and mind, and we should adjust our focus to make this a reality.

Technologies and solutions exist to provide such an environment, but we simply have not yet found a way to assemble these in a manner that delivers the desired outcome. Yet the sheer operating costs, risk levels and assumed losses from sub-optimal investment decision making would suggest that most in the industry would agree that this goal is a necessity, and that the business case is clear for a transformational rather than tactical approach.

At a high level, here are four of the key areas needed to underpin a transformational agenda:

1. Digitization

The first key area is to systematically address the lack of Digitization across the lifecycle, with a particular emphasis on issuer announcements, investor instructions and tax documentation. The most significant step forward in issuer announcements was probably driven by the European SRD II regulation that mandated digital event announcements across 27 EU countries and Iceland, Liechtenstein, and Norway, and their issuing companies. We need global solutions that provide access to sophisticated data entry and validation technologies for issuers, issuer and market infrastructure incentives, and regulatory support to drive this forward.

Digitization clearly needs a different level of industry collaboration and will never be achieved by firms acting individually to drive change. Collaboration is critical in terms of effective market advocacy, but also for a collective agreement to incentivise issuers and market infrastructure to provide high quality "golden" digital source records. The role for technology firms is to make solutions economically accessible to local markets and issuers, minimizing the costs to their existing clients.

In terms of investor instructions, we suffer from an extensive lack of integration between the middle and back-office systems and the front office decision-making platforms, where firms need to supplement data to drive their risk assessment of investment decisions. The provision of manual instruction templates does little to reduce the risk of mis-processed instructions. We need to shift towards integrating with investment decision making platforms by bringing in tools that automate the bulk of decisions, which will in turn enable the submission of perfectly formatted instructions.

We also need to eliminate the use of physical tax documents that, by their nature, lead firms across the ecosystem to hold differing statuses and interpretations, and thus require extensive reversals and re-processing. We should use our collaborative advocacy agenda to promote reciprocal use of a master digital record held by the company's local tax authority, accessed through APIs rather than held in a static, unreconciled state.

2. Data integrity

The total lack of transparency on data lineage, including the underlying sources and levels of prior data validation undertaken, causes incredible levels of work duplication and delay downstream. Most players today lack systems to capture such depth of insights, which is a key part of removing duplicated streams of effort.

Most data vendors, intermediaries, or even issuers would be hard pressed to state that absent regulatory requirements overhang, that they would openly accept full liability for their event announcements. To improve that level of confidence, it is therefore incumbent on us to have sophisticated tools for validating data integrity while leveraging historical and trend analysis. Perhaps if information regarding the level of validation undertaken by upstream professionals was made available to clients, we would feel less compelled to repeat these processes downstream. Nevertheless, an ongoing model of acquiring multiple feeds and comparing these to ascertain which one is correct seems ill-founded if the end result is a digital black box. The validation process needs to be open and discoverable by all parties within the ecosystem.

THE TOTAL LACK OF TRANSPARENCY ON DATA LINEAGE, INCLUDING THE UNDERLYING SOURCES AND LEVELS OF PRIOR DATA VALIDATION UNDERTAKEN, CAUSES INCREDIBLE LEVELS OF WORK DUPLICATION AND DELAY DOWNSTREAM.

COLLABORATION IS CRITICAL IN TERMS OF EFFECTIVE MARKET ADVOCACY, BUT ALSO FOR A COLLECTIVE AGREEMENT TO INCENTIVISE ISSUERS AND MARKET INFRASTRUCTURE TO PROVIDE HIGH QUALITY "GOLDEN" DIGITAL SOURCE RECORDS.

3. Converged data

Market players each have differing data models and configurations, such that even the heavy focus on standards fails to overcome the challenges in processing events involving lengthy chains of intermediaries and end issuer/investors. Without a model that brings convergence of systems and configuration, we will continue to see ongoing challenges managing end to end event lifecycles.

We have seen a move away from in-house developed systems over the past 10-15 years, with firms generally accepting that the economics or even business differentiation does not come from top-to-bottom custom development. Still, we need to find ways to drive far stronger convergence – either through a collaborative master platform that gradually becomes the primary processing engine, or by a shift towards utilities that accelerate such alignment. Naturally, some will view these arguments as a case for DLT, but whether these problems are solved using existing database models or a shared distributed ledger model, the important part is that we begin the journey toward data convergence.

4. Connectivity

Globally, we need to move away from a message-centric model based on transactions to more of an open data model, where data is available for update and validation instantly between approved counterparts. It's highly unlikely that we will collapse the complex chains of intermediaries anytime soon, which means that our focus must be on objectively aggregating and sharing data and insights. One example is Unique Transaction Identifiers (UTIs) in the trade settlement domain, an initiative that I believe will carry even stronger benefits to the asset servicing ecosystem by driving forward how firms share data.

There is a core message that underpins each of these themes – the necessity of collaboration. We are seeing great progress by some of the leading industry groups, including ISSA, but we need to align around a common vision of the future and apply our collective weight towards this.

As a footnote to this article: I have not mentioned using AI and ML extensively as a primary pillar of the transformation priorities. In part, these are tools that will be critical to any transformation and will be inherent in more sophisticated techniques around data validation, decision analysis and operating risk management. But I do not feel we should approach such a transformation agenda thinking that AI and ML can solve the fundamental problems with the existing models. Hence, I view these technologies as facilitators and accelerators rather than core foundations of transformation.

Giles Elliott
Head, Business Development,
Capital Markets
TCS Financial Solutions (TCS BaNCS)

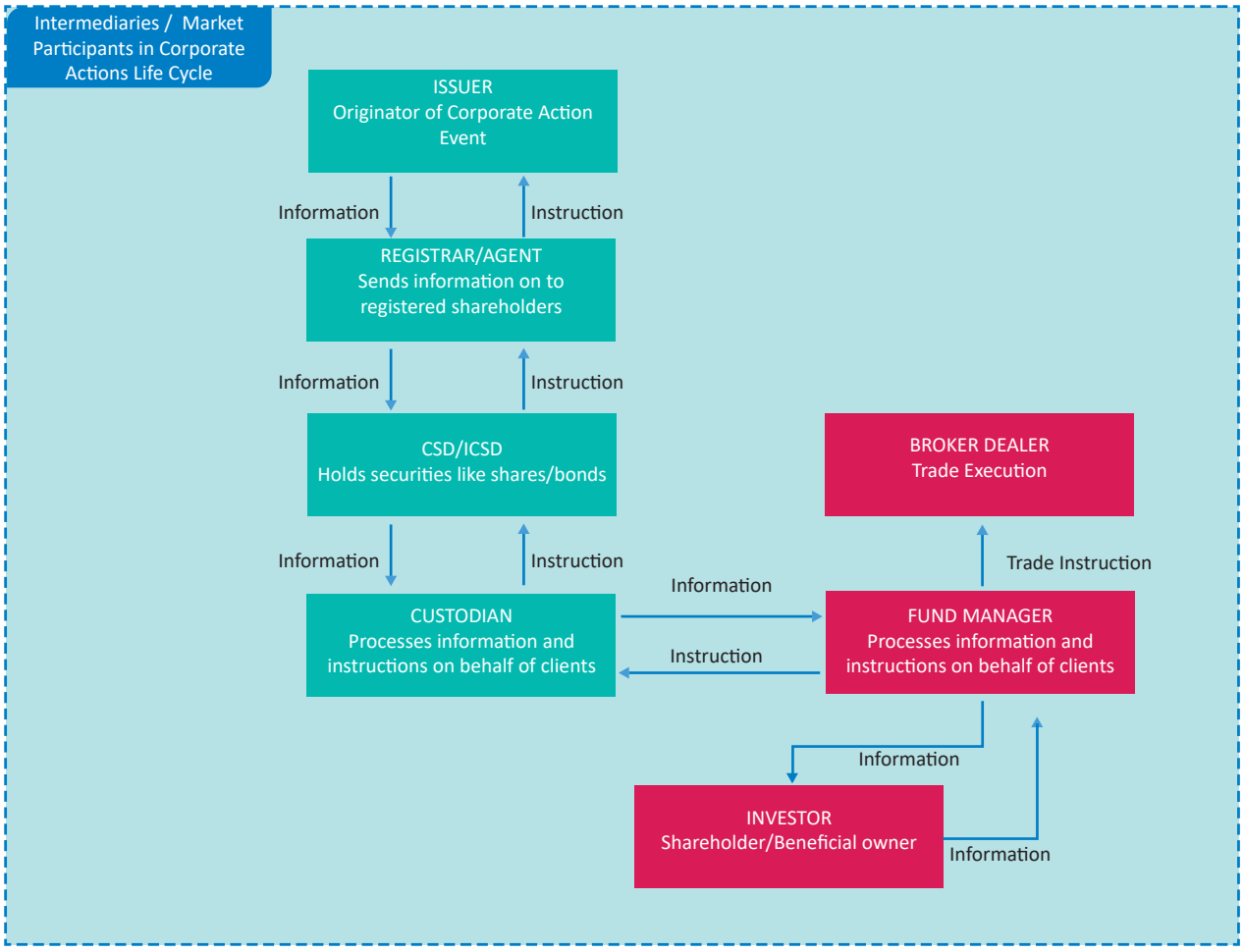
BUILDING A MODERN AND SCALABLE CORPORATE ACTIONS ENGINE POWERED BY A DISTRIBUTED EVENT STREAMING PLATFORM

Synopsis –Event Streaming platforms & technologies will benefit asset servicing firms by accelerating digital transformation period, reduce integration complexities in their ecosystem by utilizing simple pub/sub messaging architecture and adopting an enterprise-wide event driven architecture across entire organization.

Corporate actions processing involves a wide range of intermediaries (Registrar, Agents, CSDs, ICSDs, broker/dealers, custodian, fund managers) that operate between an issuer and shareholder. Software providers who implement corporate actions platforms at these intermediaries (such as local and global custodians in securities services industries, broker/dealers in corporate and investment banks) need to have a robust integration framework to acquire and process the data (client and account information, securities data, positions, trades, tax and forex rates) required for efficiently processing the corporate action. This data, historically (and to date), has been stored mostly in applications developed on aging technology and integration architectures.

The most common cause for failure to implement a corporate actions solution has been its integration with legacy partner systems (such as client data, assets, position keeping and accounting – both cash and stock). The business impact is enormous considering that the securities /asset servicing firms cannot provide efficient, best-in-class corporate actions processing services to their end customers despite having a modern in-house or vendor sourced corporate actions solution. The legacy integration architecture becomes an Achille's heel in their ecosystem.

There have been significant investments made by the financial services industry to reduce the risks associated with the processing of corporate actions and in achieving high STP rates via the adoption of standardized messaging such as ISO 15022 and, more recently, ISO 20022. However, the investment needed to modernize these legacy applications



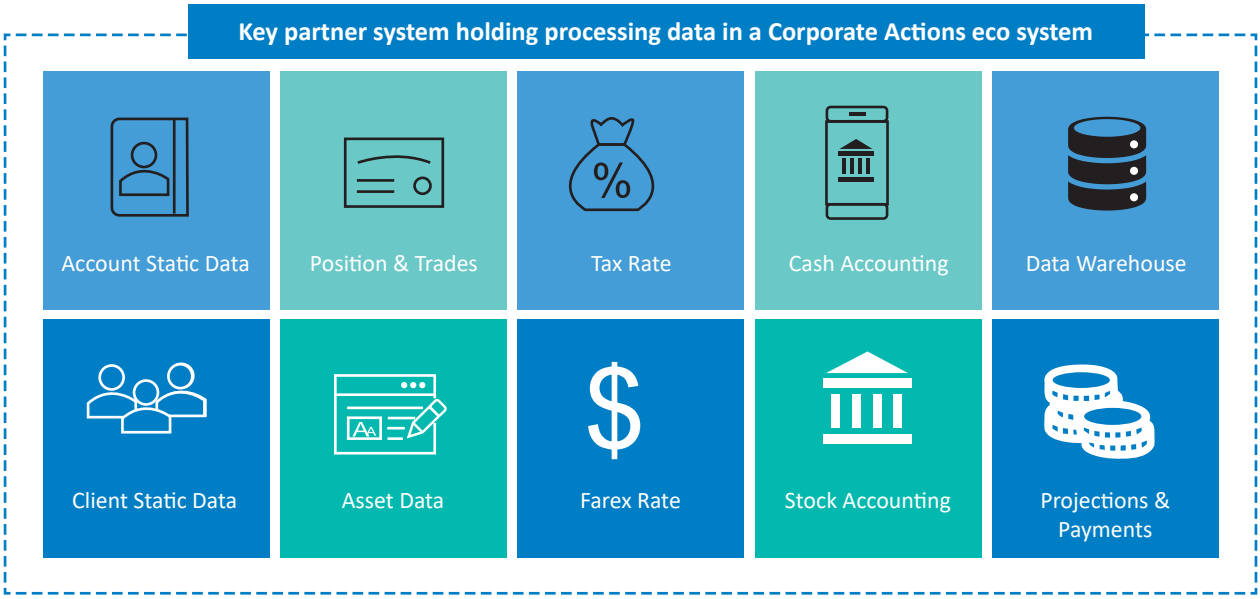


Figure 1: Key partner systems holding processing data in a Corporate Actions Ecosystem

to reap the benefits of available technologies has been low to moderate.

The current crop of corporate actions platforms that can seamlessly integrate with downstream or upstream partner systems (mostly legacy platforms that were built decades back in Mainframes) use traditional Point-to-Point architecture. While this architecture has some advantages, it comes with drawbacks related to scalability, tight coupling and time-consuming maintenance and upgrades.

With the evolution in integration architectures and the availability of modern, scalable platforms based on real-time event streaming, API based

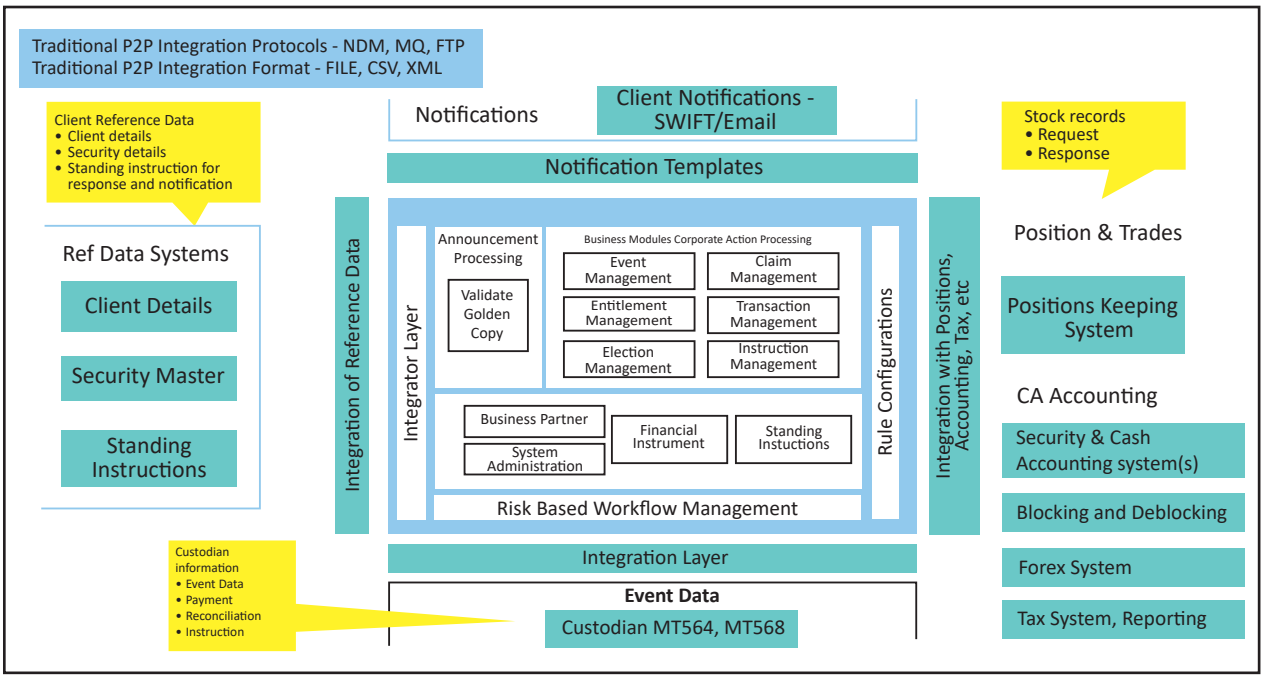


Figure 2: A Representative Integration Landscape of a Corporate Actions platform in an Asset Servicing Firm

integration and similar technologies, these corporate actions platforms along with the entire ecosystem of asset servicing organizations now have the right set of tools /ammunition to handle complexities and expedite the modernization of their legacy applications.

"Distributed Event Streaming Platforms (ESP)" now allow for modernization to happen at lightning speed. These platforms model their architecture on pub-sub messaging and asynchronous service-to-service communication used in serverless and microservices architectures. They are highly scalable, distributed, durable and fault-tolerant event streaming platforms and are now widely used across industries for data integration, from manufacturing to banking to insurance and telecommunications.

The unique capability of Distributed Event Streaming Platforms is their ability to support multiple types of integration architectures such as:

a) Queuing (Point-to-Point) – Traditional Architecture

b) Publish-Subscribe (Pub/Sub) – Modern Architecture

Using Distributed Event Streaming Platforms, corporate actions solution providers do not have to worry about the challenges of integrating with

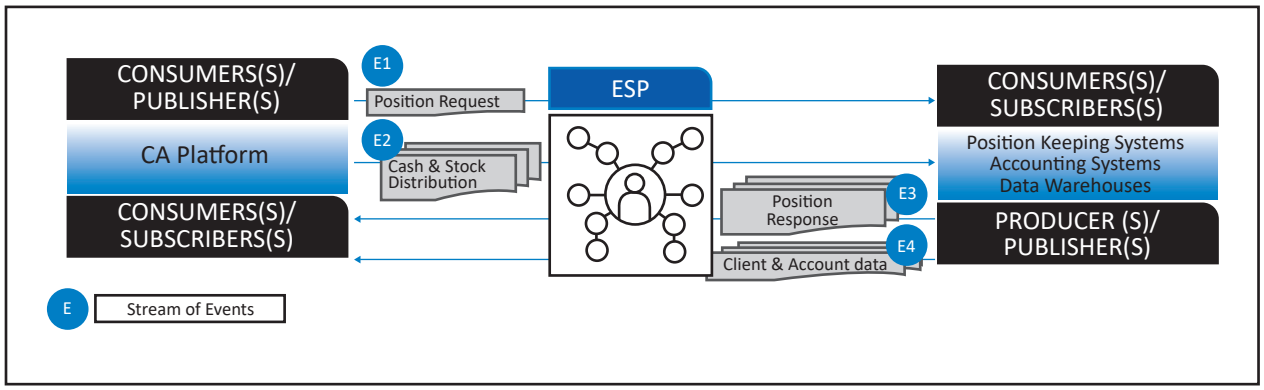


Figure 3: Representation of Corporate Actions data flow using an Event Streaming Platform

Some of the well-known benefits of Distributed Event Streaming Platforms are outlined under Fig 3.

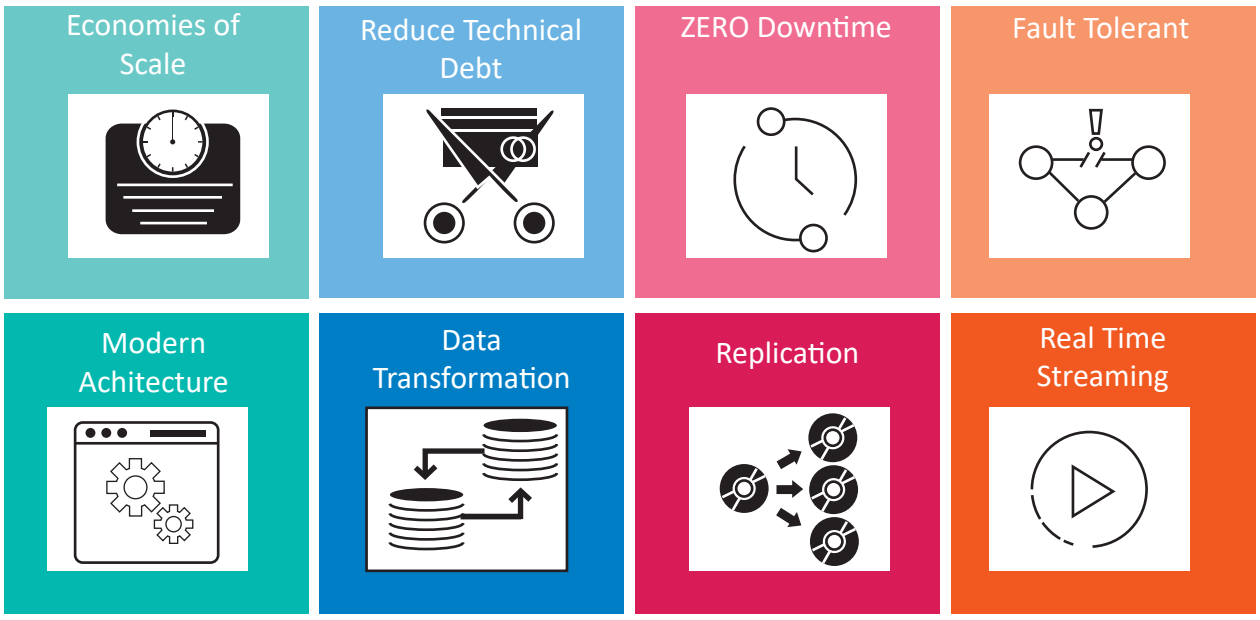


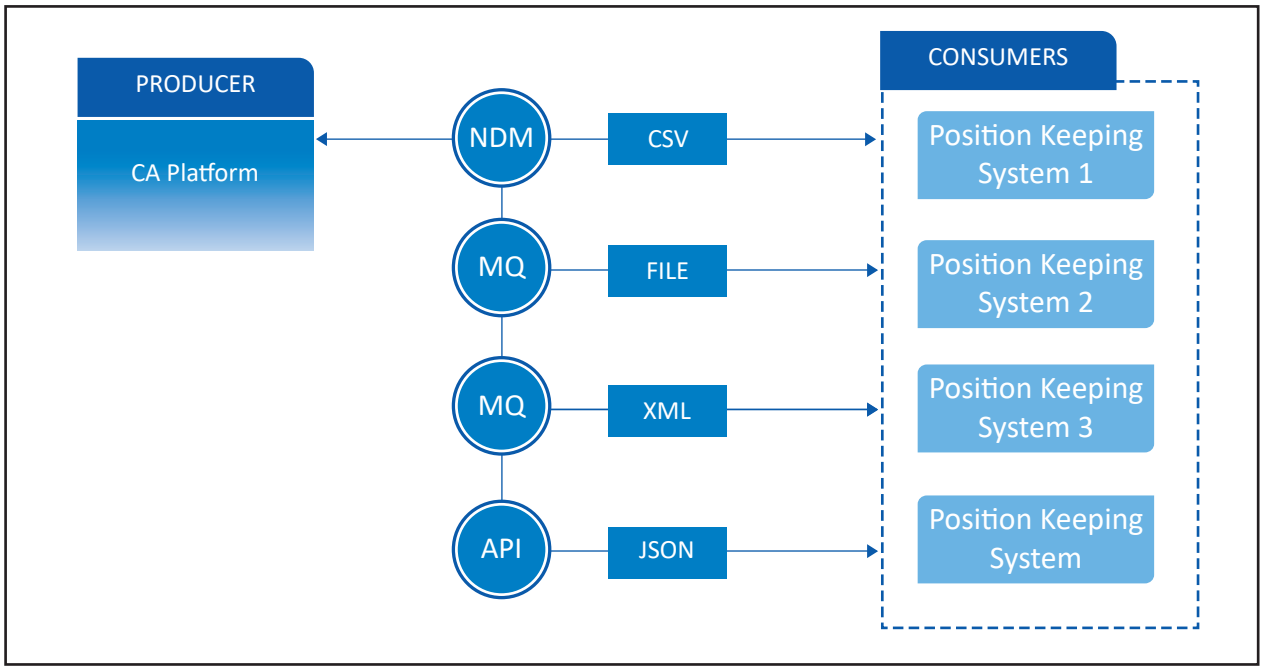
Figure 3: Benefits of Event Streaming Platforms

multiple downstream systems of similar kinds. For example, it has been seen that many large asset servicing firms, especially custodians, maintain multiple position keeping systems. Without an integration layer in between corporate actions platforms and legacy partner systems, in most of the cases, the onus is on the corporate actions solution provider to integrate multiple position keeping systems, first connecting via different protocols (MQ, NDM) and then publishing and receiving data in multiple formats (flat file, CSV, XML, JSON etc.).

Distributed Event Streaming Platforms address the above challenge through a "Publisher-Subscriber Architecture" allowing corporate actions platforms to broadcast real time data continuously and synchronously to multiple consumers.

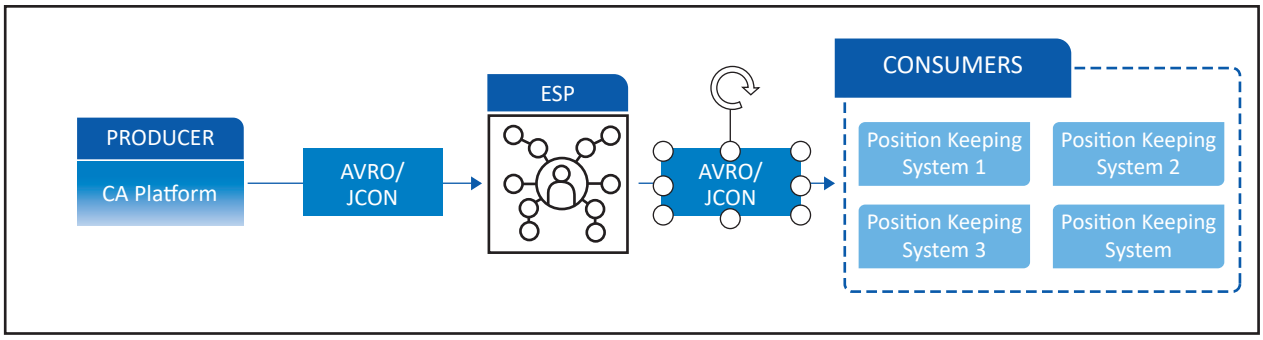
Traditional Integration Model for Corporate Actions platforms: P2P with Legacy systems

The diagram below provides an overview of the traditional exchange of asset servicing data by a data vendor providing a corporate actions platform and a data consumer like an asset servicing firm. The traditional method of one-to-one interaction is via legacy protocols such as NDM, FTP, MQ and formats such as CSV, FILE, etc.

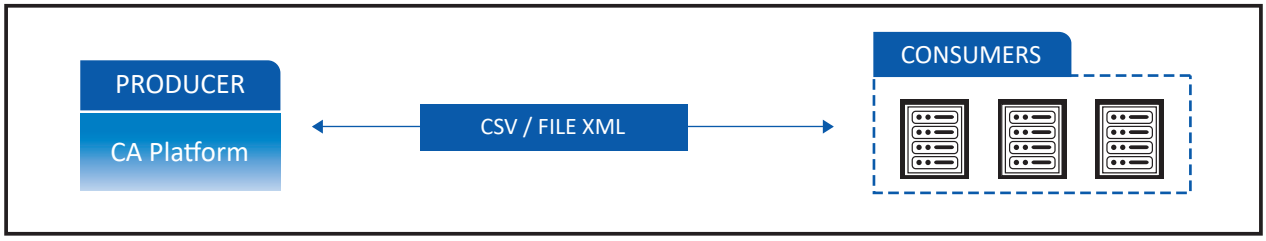


Modern Integration Model for Corporate Actions platforms via Distributed Event Streaming Platforms – Pub Sub Architecture.

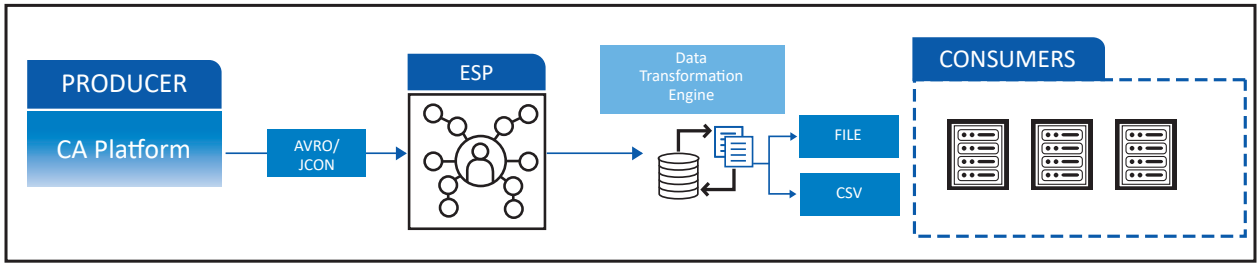
In the diagram below, the data exchange between producer/publisher and consumer/subscriber is modelled on a pub-sub architecture, which enables the movement of messages between different components of the system without these components being aware of each other's identity.



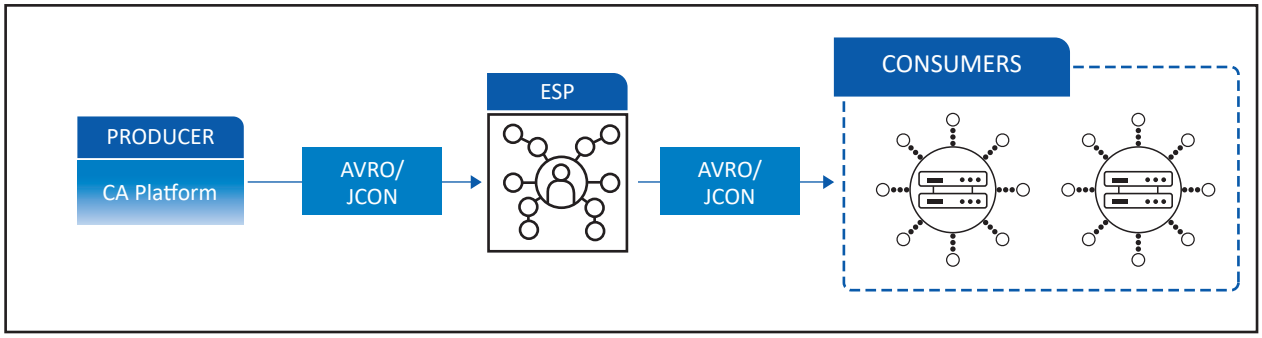
Having said that, it is important to understand that the path to modernizing the integration landscape may not happen with a big-bang approach given that there are known technology limitations of legacy systems within asset servicing firms for direct integration with Distributed Event Streaming Platforms. To solve this problem, one must carefully review the capability of each legacy system and decide the right path forward. Based on legacy system capabilities, one can envisage three paths for integration:



1. The Traditional Path - P2P Connectivity – For those legacy systems who are unable to connect to the Distributed Event Streaming Platforms due to technology limitations, the data will be published in the legacy format and protocol.



2. The Tactical Path – For those legacy systems who can remove some of their technology limitations but would need some sort of transformation layer in between, Distributed Event Streaming Platforms can transform the data in various formats, such as File, CSV, XML and protocols such as NDM, FTP, MQ.



3. The Strategic Path – For the new-age partner systems, which unlike legacy partner systems, do not have technology limitations allowing them to be quickly onboarded to Distributed Event Streaming Platforms.

Gulshan Gandhi
Senior Consultant
TCS Financial Solutions (TCS BaNCS)

POV: ISO 20022 ADOPTION

BUSINESS CASE DRIVEN BY CSD ADOPTION, REGULATORY REQUIREMENTS, AND OPERATIONAL BENEFITS

Swift messaging standards can be traced back to 1973 with Proprietary MT for Payments, FX and Trade. In 1984, ISO 7775 for securities was adopted and later superseded in 1999 with ISO 15022, which is still widely used in the Asset Servicing community.

In 2004, ISO 20022 standards were released. Over the past 10 years we can see the adoption of the 20022 standards in the following examples –

- T2S
- Various CSDs / NCBs – VP Securities, Euroclear ESES and Finland
- TARGET2
- JASDEC
- ASX
- DTCC

The adoption of the 20022 standards is mainly driven by regulations, either at the country or regional level. In Europe, the recent go live of SRD II has 20022 at its heart, given that the Shareholder Identification process and the new Proxy messages are only available on 20022 with no 15022 equivalents.

Looking ahead, the SCoRE initiative by ECB, whilst focussed on Collateral, from a CA perspective will see 40 event

types adopting 15 new standards by November 2023. The remaining events are to adopt 20022 by November 2025, and the proposal is to phase out 15022 messaging by 2028.

In a recent ISSA survey, one question was asked about the current methods of receiving and publishing CA notifications. The results showed that CSDs are certainly using 20022 messages when publishing and are at similar levels of their websites and portals. However, banking and brokerage intermediaries still have a low take-up of receipt of 20022 messages and a low volume of using 20022 in their notifications.

It appears that the drive for the adoption is coming from the top down, driven from regulators and CSDs, and not the bottom up. This means the intermediate layers of financial institutions, as well as end clients, may continue to request Corporate Actions information in traditional formats (15022/email/letter/fax etc.) for some time to come.

We believe there are cost benefits and operational efficiencies to be gained by adopting 20022, and these benefits will increase as the CSDs servicing the Markets use it more. By adopting, you will remove one layer of translation and conversion and associated cost of manual update and risk. At the same time, you may also see your clients using 20022. Further, 20022 being in XML format is more robust and flexible and easy for integration, with support for multiple languages, special characters and larger data sizes in the message.

The business case now favours adoption. Many CSDs are already using 20022, recent and planned regulations have been built around 20022, and 15022 may even become obsolete within the next 7 to 10 years. If market participants delay adopting 20022 despite take-up from CSDs and Account Servicers, the operational cost of constantly reading, converting, rekeying one message into another format and back again will only increase, along with the risk of non-compliance with regulations.

In addition, during the intervening period of transition from 15022 to 20022, it is anticipated that there will be operational intervention required for proper translation of event information from one format to another. To avoid linkage and message-type issues, the same Institutional client will not subscribe to both 15022 and 20022 formats. Also, data conversion will not be seamless due to differences between 15022 and 20022 in terms of field lengths and support for special characters.

As an intermediary step, organizations will certainly need to receive 20022 messages. However, to meet end user and client needs and obligations, we will see the need to publish 20022 messages, as well as 15022 and non-Swift proprietary formats.

Institutional client end users will benefit from receiving 20022 messages, as it will increase their own rates of straight through processing, allow greater synergies when using more than one CSD or Custodian source, and give greater operational efficiencies.

TO AVOID LINKAGE AND MESSAGE-TYPE ISSUES, THE SAME INSTITUTIONAL CLIENT WILL NOT SUBSCRIBE TO BOTH 15022 AND 20022 FORMATS. ALSO, DATA CONVERSION WILL NOT BE SEAMLESS DUE TO DIFFERENCES BETWEEN 15022 AND 20022 IN TERMS OF FIELD LENGTHS AND SUPPORT FOR SPECIAL CHARACTERS.

Alan Lawman
Consultant
TCS Financial Solutions (TCS BaNCS)

STREAMLINING PORTFOLIO VALUATIONS - THE IMPACT OF CORPORATE ACTIONS ON THE COST OF AN ASSET

The valuation of a portfolio gives an overall picture of the client including assets/liabilities and forward positions. The positions of a portfolio can be valued at the latest available market rates and aggregated to arrive at the total portfolio value in the base as well as other performance currencies. Various market forces affect asset prices worldwide. One such event which affects the valuations of portfolio securities is Corporate Actions (CA), which is designed to have some effect on the share price. This effect may be purely mathematical, I.e., if the number of shares is doubled in a subdivision, then the market price is halved, or it may follow market sentiments depending upon how a corporate action is perceived in the eyes of an investor. This change of market price is immediately reflected in the valuation reports of the investor's portfolio. However, quoting the current market price alone in the valuations without considering the adjusted cost basis will be erroneous. This is because investors won't be able to report actual gains or losses when filing tax returns and may miss accounting for unrealized gains or losses. This task becomes more complicated when stocks are purchased over a period and several CA's such as mergers or splits have happened over them.

Traditionally, financial institutions like broker dealers and wealth managers have been looking for solutions that evaluate the impact of corporate actions on assets to generate correct valuations. But in today's competitive scenario, these services are increasingly becoming popular among custodians in a bid to provide better value-added services to their customers.

The solution to correct asset valuation lies in effectively tracking and updating the client's positions records with adjusted cost price. Hence, part of the process would rely on the:

1) Ability of the positions management system to maintain the cost price of all the asset positions (at the tax lot level).

2) Ascertaining of all corporate action types which can impact securities cost.

3) Determining procedures to adjust the cost basis for each such corporate actions. The principle of all procedures remains the same i.e. the total book cost of the portfolio securities would remain same before and after the execution of CA. Few examples here illustrate this:

- A stock split of 1:2 would mean that the number of shares in the customer portfolio will double hence the cost price of each position would be halved.
- Rights issue –distribution of the rights intermediate instrument is done free of cost; hence the cost price of the intermediate security position would be zero.
- Consolidation of the stock is another CA in which two or more shares are replaced with a single share. This would increase the cost price in the same proportions as the consolidation.
- The final step would be the ability of the CA system to post the adjusted cost basis information in the security movements.

Further, as newer laws require the financial institutions to track client's asset cost more closely, the importance of accuracy in reporting is increasing. Hence, correctly adjusting the cost price would be one of the crucial steps towards realizing this aim.

Disclaimer: Views or opinions represented in this blog are based on the author's own research and do not represent TCS BaNCS.

THE SOLUTION TO CORRECT ASSET VALUATION LIES IN EFFECTIVELY TRACKING AND UPDATING THE CLIENT'S POSITIONS RECORDS WITH ADJUSTED COST PRICE.

Abhishek Malik
Consultant
TCS Financial Solutions (TCS BaNCS)

MACHINE-FIRST SOLUTIONS

INNOVATION HUB HIGHLIGHTS AI AND MACHINE LEARNING

TCS BaNCS Alpha Bank, an award-winning innovation hub located in Bangalore, was created to transform how banks operate.

The Alpha Bank incubates and showcases new solutions designed using machine learning, augmented & virtual reality and APIs, demonstrated through a "model bank" concept with simulated customer transactions. Since its launch, the Alpha Bank has conducted hundreds of demonstrations to top decision makers from FSIs of all sizes and kinds from around the globe.

Here are five of the latest "MachineFirst Solutions" that are incubated and developed at Alpha Bank and are now deployed within customer implementations of TCS BaNCS.

1. Intelligent Workflow Classification

Automated workflow allocation of compliance alerts.

Instead of having to rely on human judgment to classify AML/compliance alerts, an automated learning agent replicates those judgements using a two-level classification solution that learns over time. The AI algorithm relies on the most influential attributes within the data set.

The initial model, based on 300,000 historical production records, is continuously tuned using actual customer data. The solution enables compliance teams to set their own thresholds for confidence scores. The two-level classification approach uses alternative methodologies to reduce the risk of misclassification.

The solution delivers near-Zero Touch automation, which reduces human

Intelligent Workflow Classification

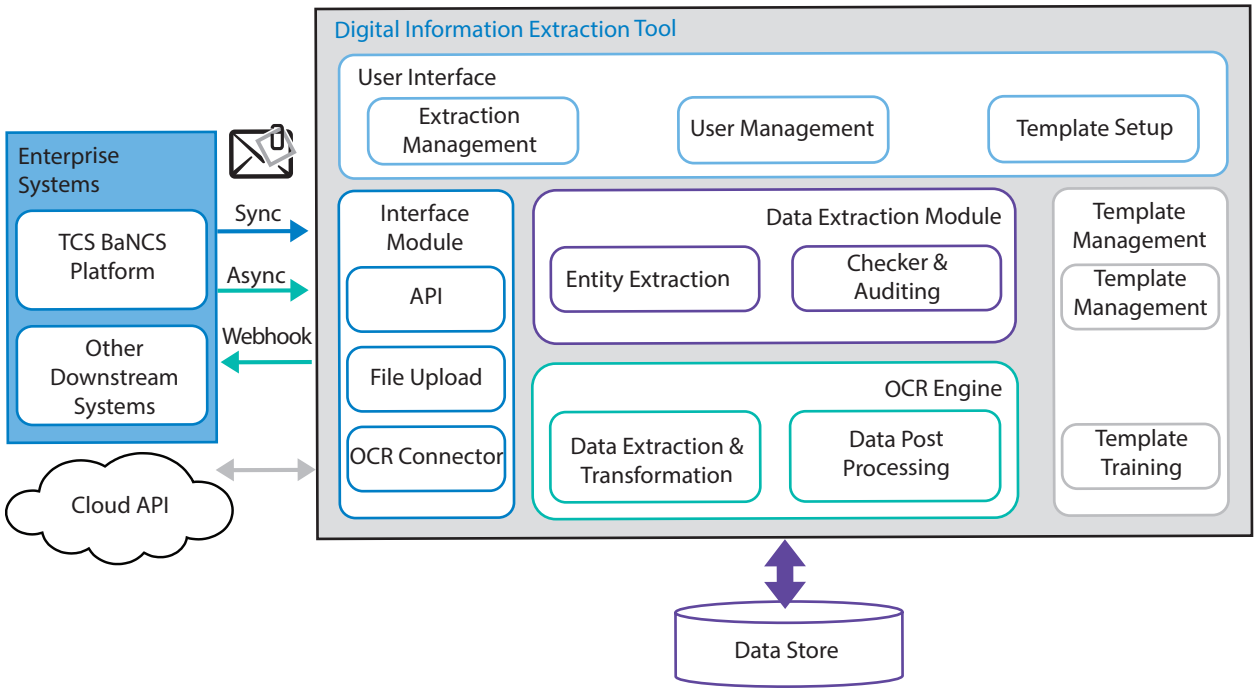
error, lowers exposures to financial risk, and improves organizational performance and customer service with 100 percent visibility of critical information.

Intelligent Workflow Classification is live at customer implementations in multiple countries.

2. Digital Information Extraction Tool (DIET)

Automated solution for extracting structured and unstructured data.

At the center of DIET is a data extraction model that identifies and extracts relevant information within documents, with additional checks and auditing capabilities to ensure ongoing reliability. Data extraction processes can be saved as templates for reuse, and AI-based training fosters increased accuracy over time. DIET also includes an OCR



Digital Information Extraction Tool (DIET)

engine, a set of flexible interfaces to TCS BaNCS and other downstream systems, connections to data stores, and a customizable user interface.

DIET has been put to work in several banking domains, extracting data from account statements, financial statements, commercial registration certificates, utility bills, and daily closing statements. The solution also supports Corporate Actions with data extractions for proxy voting and announcement creation from documents.

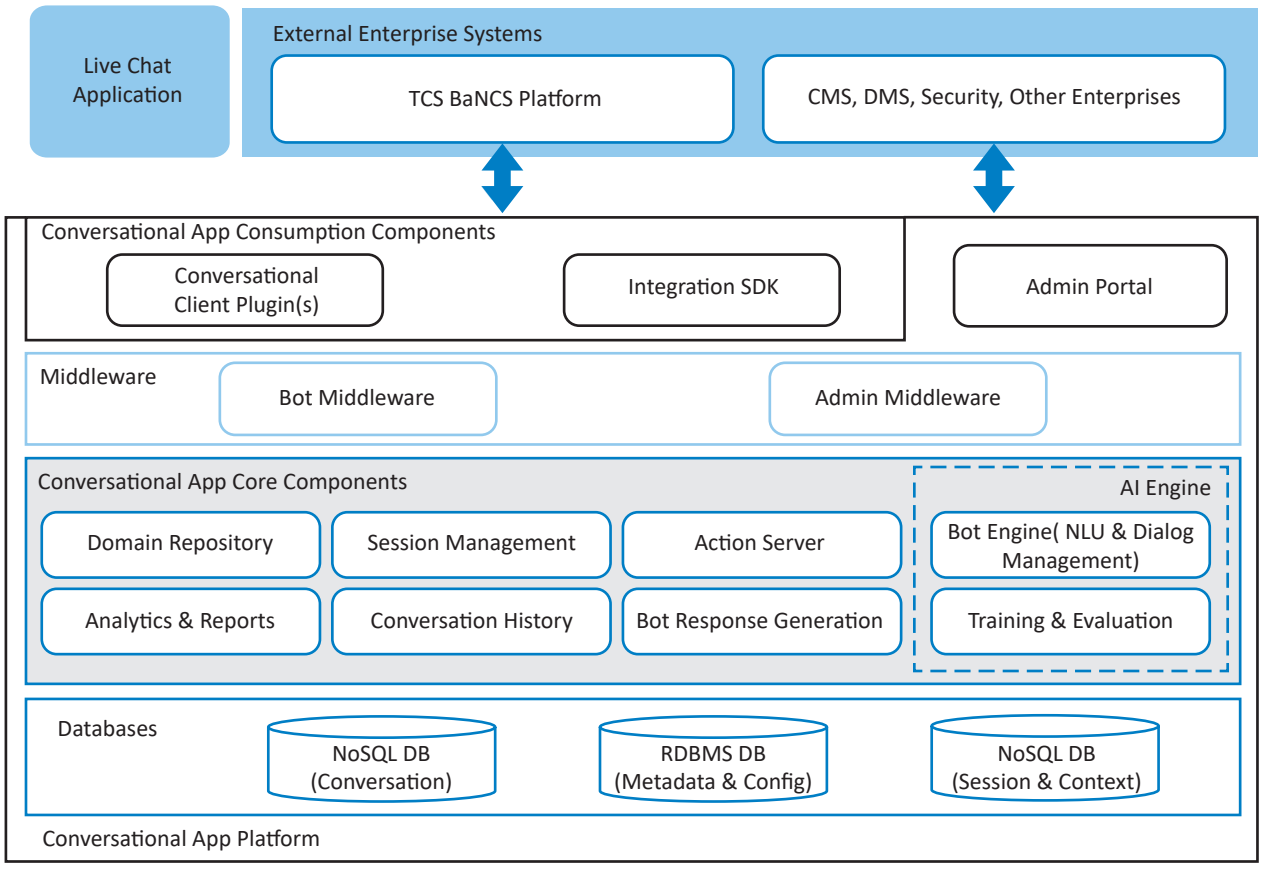
DIET is live in production for banks in Brazil, and implementations in progress in Bahrain & UAE.

3. Conversational App

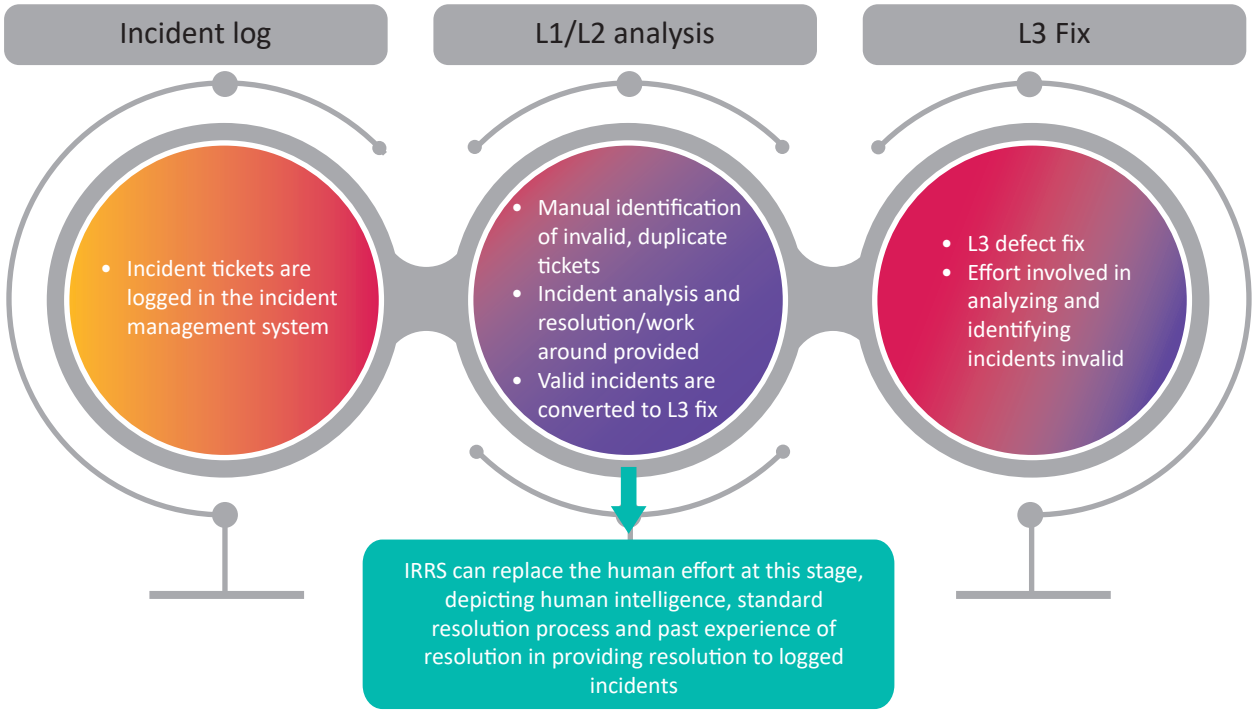
Conversational journeys tailored for specific banking domains.

Financial institutions can deploy live chat applications that use AI-based, domain-specific capabilities to understand speech, giving customers quick and easy access to the functions they need. For just about every function that a bank teller would perform, there's a predefined conversational journey that guides customers from login to balance inquiries, funds transfer, statements, and even to the level of infrequent service requests such as PIN resets and debit card blocks.

THE ALPHA BANK INCUBATES AND SHOWCASES NEW SOLUTIONS DESIGNED USING MACHINE LEARNING, AUGMENTED & VIRTUAL REALITY AND APIS, DEMONSTRATED THROUGH A "MODEL BANK" CONCEPT WITH SIMULATED CUSTOMER TRANSACTIONS.



Conversational App



IRRS - Production Incident Management Workflow

The underlying platform includes AI training and evaluation capabilities, flexible middleware, an SDK for developers, and connectivity with multiple data stores and enterprise systems.

4. Intelligent Incident Resolution System (IRRS)

Replicates human intelligence capabilities for incident resolution

Every incident ticket logged into an incident management system must be analyzed for validity, severity, and likely path to resolution. With IRRS augmenting human involvement, these tasks can be handled automatically using a standard resolution process based on experience in resolving logged incidents. Over time, the continuous-learning capability of IRRS gets better and better at classifying incidents into L1/L2/L3 buckets without human effort. This not only ensures that the highest-severity incidents receive the highest priority, but it also frees up people to perform incident resolution for the most difficult/new cases.

Designed with industry-specific domain modeling, multilingual learning, and integration to standard technology stacks, IRRS has been implemented within TCS BaNCS for Insurance for production support, user acceptance testing, and system integration testing. Support teams using IRRS have observed 30 percent efficiency increase due to faster incident analysis and improved turnaround.

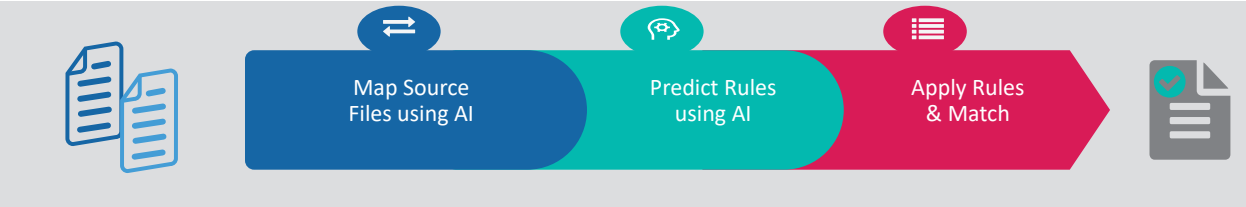
5. AI in Recon

Optimized and advance ML based matching

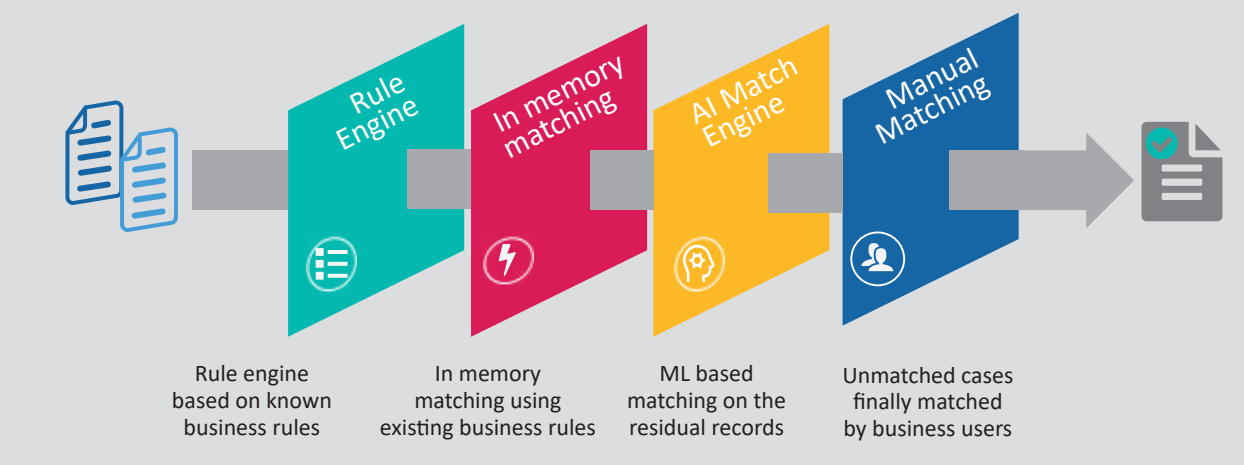
Reconciliation, traditionally a time-consuming manual process, has been transformed with automation by AI. Using AI optimization techniques, the solution maps source files, predicts rules, and applies those rules to

INSTEAD OF HAVING TO RELY ON HUMAN JUDGMENT TO CLASSIFY AML/COMPLIANCE ALERTS, AN AUTOMATED LEARNING AGENT REPLICATES THOSE JUDGEMENTS USING A TWO-LEVEL CLASSIFICATION SOLUTION THAT LEARNS OVER TIME.

TCS BaNCS Reconciliation - AI Rule Prediction



Rule Matching- Optimization with AI



match incoming transaction data with information held within internal systems.

Entities within incoming files are automatically identified and mapped using advanced AI techniques, and rules are predicted with a confidence score to assist oversight. In-memory database enables extremely fast processing of dynamic data, and any exception items are automatically flagged for manual review.

Unmatched data will further go through in-built proprietary AI match engines for matching suggestions which can further reduce manual effort from operations teams, improving efficiency and accuracy.

With supervised learning, processing breaks can be analyzed to ensure that similar occurrences can be handled automatically in the future.

DIET HAS BEEN PUT TO WORK IN SEVERAL BANKING DOMAINS, EXTRACTING DATA FROM ACCOUNT STATEMENTS, FINANCIAL STATEMENTS, COMMERCIAL REGISTRATION CERTIFICATES, UTILITY BILLS, AND DAILY CLOSING STATEMENTS

Sanjeev Karadagi
Program Director
TCS Financial Solutions (TCS BaNCS)

LEADERSHIP VIEWPOINT

DeFi - A perspective

There is an app for everything today. And a computer has made its way into almost everyone's hands.

The smartphone has moved up in its adoption curve in the last decade, and its demand is fast approaching saturation. The next frontier may well be an ecosystem of transparent and permission-less (or part permissioned) financial services, what is termed, Defi or decentralized finance.

Premised on a set of deflationary technologies such as blockchain or distributed ledger technology (DLT) as its foundation, DeFi applications are expected to counter the rising inflation across economies worldwide. They allow users to access similar financial applications as they would in traditional finance with a strictly software-based intermediary, rather than a company facilitating the transaction. Just like how email, http based pages have played a role in accelerating the adoption of the Web, DeFi's Open-Source protocols help create and issue assets, and could well form the basis of what we are increasingly referring to as Web 3.0. Composability is an important characteristic of the software stack (read layers) that the system is built on as the components belonging to each layer can be composed together to fashion a DeFi app. DeFi elements can be a cryptoexchange (DEX), a stable coin or a lending service or wallet.

The total value locked in DeFi this year exceeded USD 100 BN, with most crypto assets allocated to lending protocols and DEXs. Programmable blockchains and the software applications written on blockchain make it possible for sellers, lenders, buyers and borrowers to interact in a peer-to-peer model. It has made transactions faster, more so in the case of cross-border payments where the cost of transactions and delays caused bottlenecks for both the senders and receivers. It has begun to democratize banking by allowing everyone to take loans and even lend fiat against cryptocurrency collateral. The DeFI system has facilitated tokenization, wherein digital assets can be created, issued and managed on a blockchain network ushering in a new form of economy. This may well be the future form of securities too.

Increased adoption has led to the growth of DeFi-based prediction platforms where users are forecasting the outcome of future events and trading value. Smart contracts dictate (and protect) how the DeFi apps function based on specific terms and conditions, such as a P2P loan and when the terms are not met, collateral can be liquidated. Besides lending protocols, automated market makers (AMMs) help pool passive liquidity from market participants who are interested in deploying their idle assets for further yield.

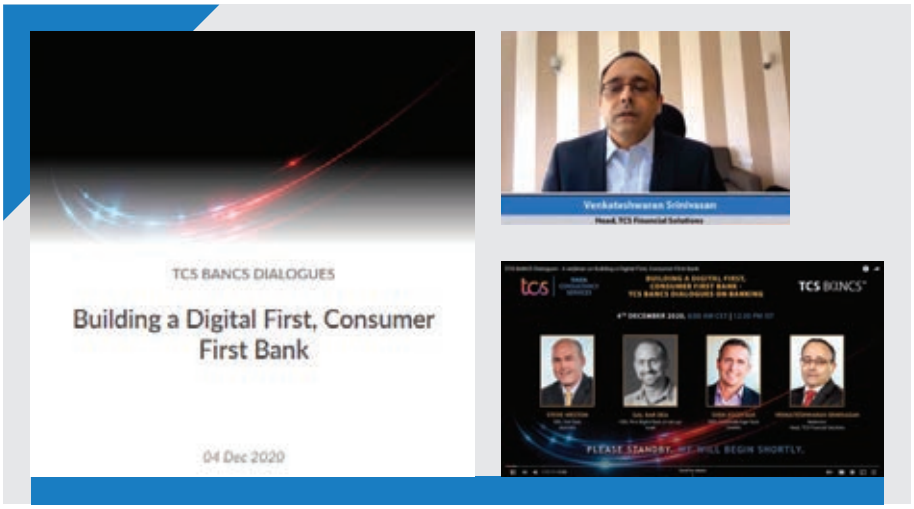
Perpetual futures contracts (and their underlying insurance funds) are by far the largest crypto markets by volumes today, and their success is being extended to the derivatives market. They use models that allow for the immediate availability of liquidity, without a counterparty.

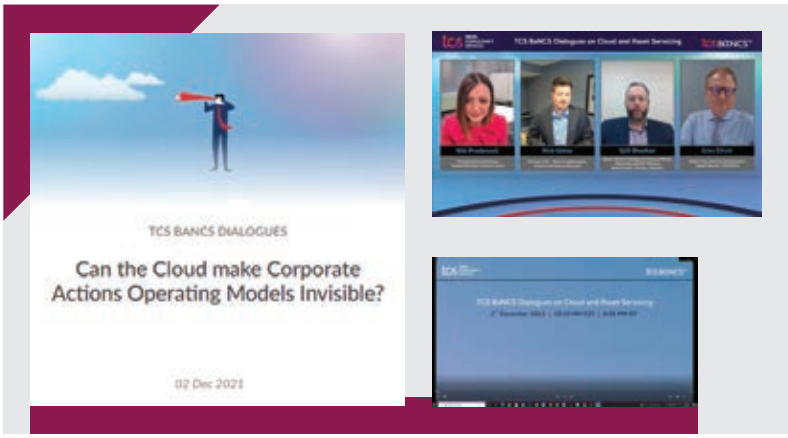
The growth of stable coins and their popularity, asides from being faster, cheaper to transfer and fostering financial inclusivity, lies in the approach of combining traditional asset stability with digital asset flexibility.

The possibilities for the next decade are incredibly exciting given the pace at which these innovative concepts are accelerating. At the same time, as stable coins are subject to frequent upward and downward price stability, we are seeing the growth of an emerging asset class, the non-pegged stable coins, which can become less volatile, decentralized reserve currencies that are less prone to monetary policy or economic environmental changes. Neither of these are finding support from Central Banks, naturally; given the instability they may cause to traditional monetary policy management and banking systems. Central Banks will have to accelerate the creation of CBDCs and their adoption, hoping to wean people away from their growing interest, even fascination for crypto currencies. At the same time, in some ways the crypto world may have to relearn the history of traditional financial services and use that knowledge to continue to build on its innovative and pioneering effects.

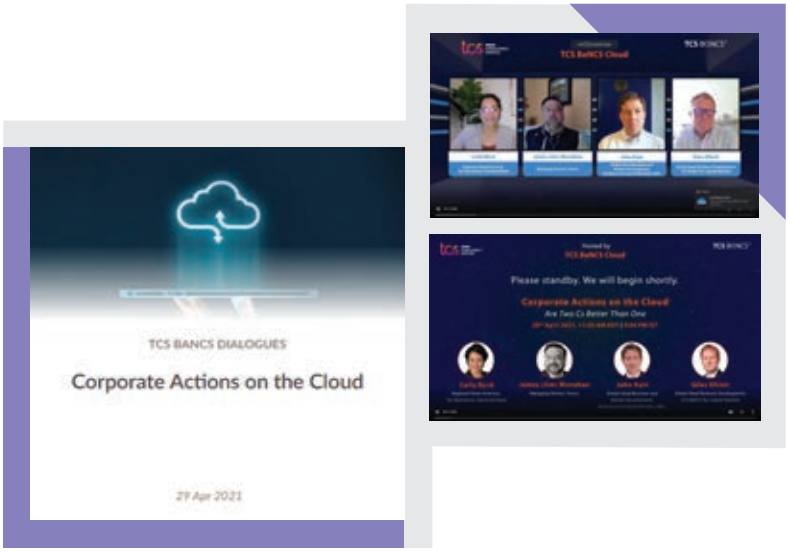
R Vivekanand
Global Head – BFSI Products & Platforms
Tata Consultancy Services

TCS BANCS DIALOGUES

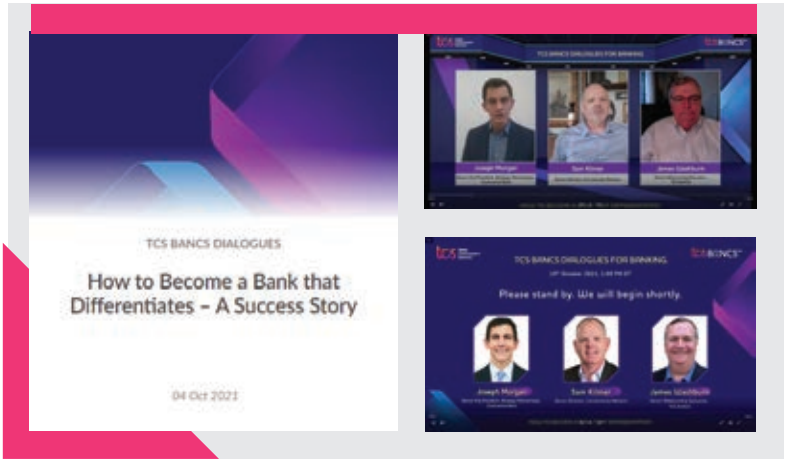



TCS BANCS DIALOGUES
Can the Cloud make Corporate Actions Operating Models Invisible?
02 Dec 2021


TCS BANCS DIALOGUES
Real-time Payments - A Platform for Innovation
25 Jan 2022


TCS BANCS DIALOGUES
Corporate Actions on the Cloud
29 Apr 2021


TCS BANCS DIALOGUES
Growth and Transformation in Insurance Enabled by Intelligent, Digital Solutions
07 Jul 2021


TCS BANCS DIALOGUES
How to Become a Bank that Differentiates – A Success Story
04 Oct 2021

EDITOR'S NOTE

Dear Readers,

Hope you enjoyed reading this edition of the TCS BaNCS Research Journal.

The world is heading towards an approach of ecosystem everything. One where Google may soon login into our accounts with our permission. And where virtual and real spaces are connecting almost seamlessly.

To keep up with the varying tastes of our readers (and time pressures), we decided to bring you both long and short articles/ blogs in this edition. From subjects ranging from Decentralized Finance to AI, ISO2022 adoption, Open Banking, US retirements or blockchain security, we also wanted to give our SMEs an opportunity to share their viewpoints and write in the way that they are most comfortable with. We've also transcribed some of the recent webinars we conducted along with our customers on topics such as real-time payments, Open Banking and Asset Servicing on the Cloud for your reading. Some of the stories herald new approaches while others are hankering for more conversation.

We look forward to hearing from you and beginning a dialogue.

Best Regards,

Anjana Chandrika

Anjana Chandrika
Head - Marketing,
Communications and Research
TCS Financial Solutions (TCS BaNCS)

TATA CONSULTANCY SERVICES

tcs BaNCS™

Served
On-Demand, Pre-configured and Ready to Go – TCS BaNCS Cloud

The pandemic has set banks and financial institutions on evolutionary paths of exploring new, resilient business models and collaborative, connected ecosystems. **The Cloud First approach has become a game changer** for how financial institutions will operate in the future. After years of focusing on the cloud for its technological value as a faster, asset light and more elastic alternative, they are now looking at it as the always-on backbone of innovation.

TCS BaNCS Cloud delivered on a SaaS model is a comprehensive suite of pre-configured solutions for financial institutions of all sizes and types, with regulatory and data residency compliance built in. Resting on a strong digital core and designed on a **microservices** and **API-based architecture**, it can help institutions leverage the power of **Open and enriched ecosystems**, with curated partners from the TCS BaNCS Marketplace.

Be it updating systems faster or rebuilding transaction processing applications into leaner platforms, or executing on a consistent data delivery strategy, or applying cognitive tools like Optix for insightful decision making, TCS BaNCS Cloud is the solution that can drive your institution's purpose-driven journey into the future.

More than 100 MN transactions run on TCS BaNCS Cloud daily, and as evidenced by the 200+ customers who run their applications on the solution, it has steadfastly delivered on the promise of trust, accessibility, security, resilience, scalability, and compliance.

Write to us at ***tcs.bancs@tcs.com*** Or, Visit our website: ***https://www.tcs.com/bancs***