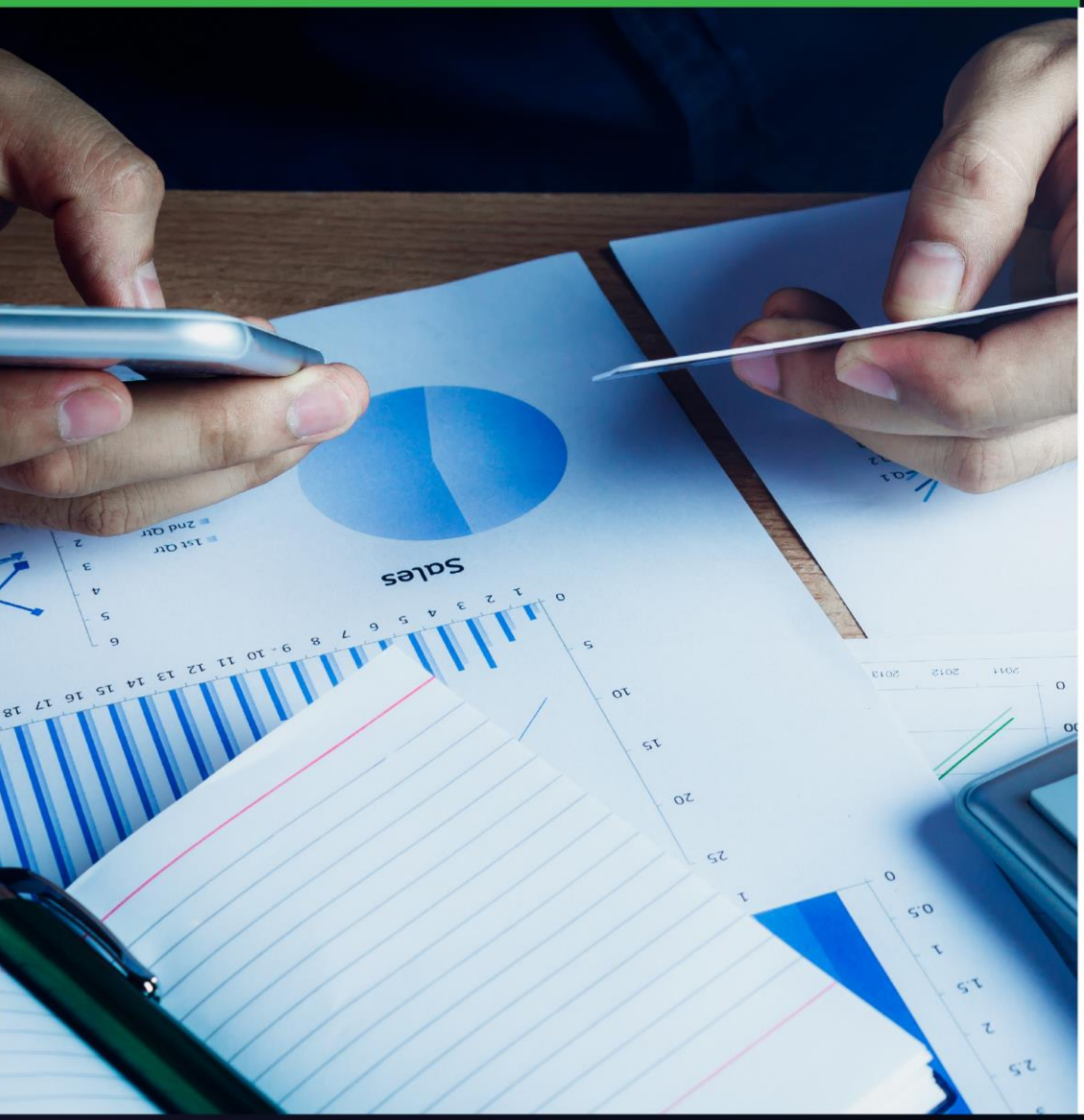
PAYGROUND

NEW AGE PAYMENTS SUMMIT 2020

VIRTUAL EDITION

WHITE PAPER

JANUARY 2021



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1. About the event

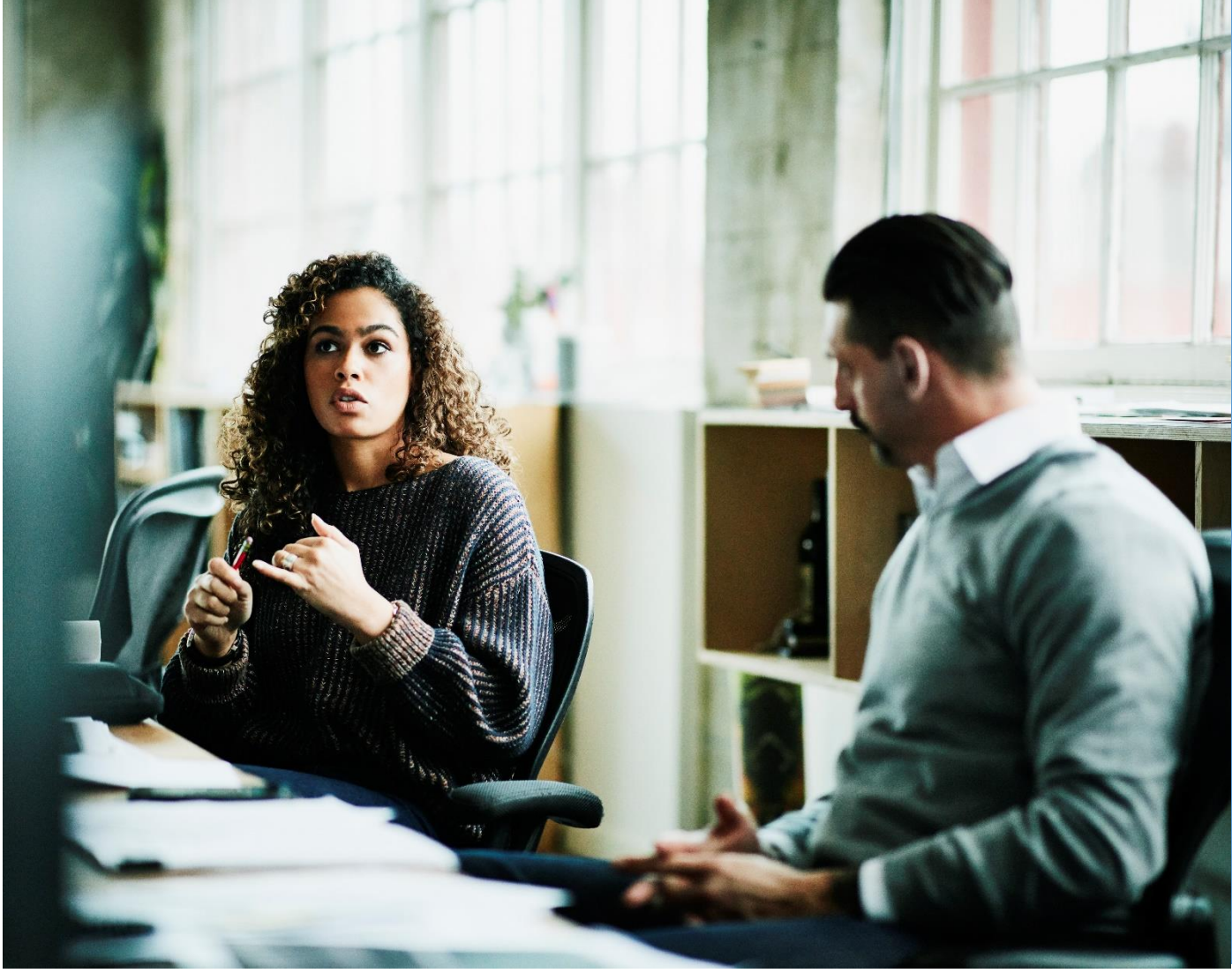
The digital revolution re-defined the way we transact today, causing major shifts in the payments space. In today's digital age everything is inter-connected and with the availability of affordable smart phones combined with increased internet penetration, access to information has become easier and faster. The year 2020 hasn't been without its share of challenges. In comparison to the past few years, 2020 has been the most challenging. The COVID19 pandemic pushed industries and entire sectors to re-innovate the way they function. For the payment space, it has been a blessing in disguise, as it accelerated the adoption of digital payments. As digital payments gradually progress from being the 'new mode' to becoming the 'preferred mode' for financial transactions, governments across the globe are working towards using digital payments as a tool to maximise financial inclusion.

This shift in preference has also resulted in the need for evolution of governing frameworks, and enhanced security measures. As this space rapidly evolves with the evolving demands of the masses, it is imperative to keep abreast with the rapid changes. Sapphire Connect strives to be at the forefront of creating awareness about changing dynamics of various sectors, through its virtual summits and online roundtables. One such initiative dedicated to the payment space was their recently concluded day-long virtual summit PayGround – New Age Payments E-Summit 2020. With an array of distinguished leaders from within this space, engaging in panel discussions, fireside chats, keynote addresses etc. PayGround touched upon some very critical aspects of this space.

This edition of PayGround did not only focus on the evolution of the digital payment ecosystem in India, but also shed light on the growing digital payment ecosystems within the SAARC nations. As each of the SAARC member nations embark on their journey to becoming digital economies, PayGround 2020 acted as a catalyst to this journey. With the participation of senior leaders from SAARC nations, participating as speakers and as delegates, the summit brought to light the current dynamics of the digital payment ecosystem of these nations as well. Leading to a very cohesive learning environment, where best practices were shared at large. The event witnessed more than 30 leaders and visionaries as panellists and was attended by more than 400 delegates from SAARC member nations.

As the summit draw to a close, each session closed with some very interesting and insightful conclusions, discussed in detail in this white paper.

Sapphire Connnect's PayGround – New Age Payments E-Summit was successfully concluded on November 27th, 2020.



KEY THEMES

1. Government services have played a key role in transforming the way we pay

Information and Communication technology has revolutionized the way governments interact with their citizens and vice versa. These interactions are constantly evolving to pave way for better delivery of G2C services, while also opening avenues for digital payments for these services.

1.1. Evolution of digital service delivery for G2C services

Over the last decade, the delivery of G2C services has seen a widespread change through digitization. What started with digitized delivery of select services (like provision of licenses, permits, certificates) has now transformed into provision of hundreds of online citizen services through e-Government portals.

At the start of the decade, the focus of such digitization was towards standardisation and streamlining of application procedures and delivery of services, with low emphasis on payment modes. This essentially led to cash-based payments even for digitally offered services at citizen facilitation centres. Over the years, the ecosystem shift towards online payments encouraged the offering of G2C services on portals such that citizens can opt for self-service and fill out forms, upload documents online itself, without needing to visit government offices/ citizen facilitation centres. This has opened up the option of introducing payment gateway services for payments, enabling usage of credit, debit, net banking options. In the recent past, the demand for UPI based payments has also increased.

In keeping with that, the challenges that were faced by citizens in availing government services through physical presence, with cash-based payments, has been alleviated with the online delivery and payment of such services.

"Earlier we observed that 80% of the volume was cash transactions and 20% was using credit card or debit card. Now, we have seen that the volume which was 80-20 has now become about 50-50 (50% volume as cash transactions and 50% transactions as card/net banking/UPI based transactions)" - Prasad Kolte, Chief Operating Officer, MahaIT.

1.2. Key role of data analysis in enhancing service delivery

The Government, as a consequence of delivering multiple services to citizens online, deals with huge quantities of data. This has created an avenue for the Government to utilize and analyse this data to understand how service delivery can be improved.

With payment apps now taking the forefront for delivery of many government and municipal services, there has been a steady shift in usage of these apps from only a payment collection mechanism to a service delivery mechanism (for e.g. rather than just paying gas bills using online modes, gas can even be booked through these apps). There is scope for this to potentially expand further if predictive technologies like AI and ML are put into play to understand what kinds of services citizens could require. Payment apps can then be used as a plug and play medium for delivery of such services.

In 2018, it was announced that the National Informatics Centre (NIC) would aid the government in utilizing data analytics to improve delivery of services[1]. This would help the government in making better data driven decisions, along with better adoption of services by citizens, consequently leading to higher uptake of digital payments adoption. While these areas are in relatively nascent stages, leveraging them could lead to significant progress in the digital payments and service delivery revolution.

[1] **News Article, Business Standard:** https://www.business-standard.com/article/economy-policy/nic-to-help-govt-use-data-analytics-for-better-delivery-of-citizen-services-118092800600_1.html

2. Taking banking and financial services to the unbanked masses has become a key driving force in the industry

The world has made great strides in expanding the reach of financial services to the masses. However, as per the World Bank's Global Findex findings, 1.7 billion adults[2] across the globe still remain unbanked, a large percentage of this unbanked population being from South East Asia. While there have been efforts (like Jan Dhan account opening in India) to address this issue, the fact remains that the reach of financial products (term deposits, loans, insurance) in the last mile remains low. It then becomes crucial to understand what measures have and can be taken to ensure better delivery of financial services to the unbanked and underbanked.

2.1. Driving awareness through the right products and campaigns

Many experts in the industry believe that the key to effective financial inclusion is driving the right kind of products through tailored campaigns by different kinds of market players.

Small finance banks can drive banking habits by encouraging usage of products like microinsurance, which can be bundled along with other banking products. Additionally, bank account holders are being encouraged to get families to open accounts to simplify transactions within their micro-ecosystems. Introduction of technologies like QR simplifies these transactions and eases the reluctance to use otherwise complicated transacting methods.

Some players have leveraged their natural strengths to make an impact in rural regions. With India being an agricultural economy, tractor finance, for example, is being used to build a presence across the country.

"Agri and tractor finance, as two vehicles of lending, took us wider and microfinance took us deeper (into the country)" - Deepak Sharma, President and CDO, Kotak Mahindra Bank.

Leveraging the data acquired from such lending practices can help build a product portfolio more suited to the needs of the rural population on the ground.

While driving the right products is important, it is also equally important to introduce the right programs and campaigns to create awareness and deliver the right services. Various players in the market, then, can play different roles in bringing about this change. Larger public sector banks have the ability and traction to reach out to the maximum number of people through sheer volume of branches and ATMs. Additionally, they have the capability of deploying, harnessing and upskilling the business correspondent network that can bring the last mile within the purview of financial services and digital payments.

"Digital is the enabler but someone needs to work with them (people in rural regions), and that is where the bank mitras and banking correspondents come in. What needs to happen is that their (business correspondents') skilling and their ability to understand the ecosystem needs to improve" - Arijit Basu, Former Managing Director-Commercial, State Bank of India.

For some other private sector banks, it also bodes well to tie up with or acquire other banks or microfinance institutions with larger branch and small-town presence in order to leverage a larger network and push products. Besides tying up with banks, there is also scope to tie up with fintech and other non-bank payment players to create tailor made service offerings that are easy to use and accessible in low connectivity, low development regions of various countries.

Finally, some small finance banks have the capability to work with various foundations that develop and conduct structured financial and digital literacy programs with beneficiaries of financial services, to enable financial

[2] World Bank Global Findex: https://globalfindex.worldbank.org/sites/globalfindex/files/chapters/2017%20Findex%20full%20report_chapter2.pdf

independence. Such initiatives can help rural citizens understand the power of compounding, the benefits it entails, the movement from nonproductive to productive assets etc.

"If you really want sustained financial inclusion, it important not just to bring in literacy but also extend it to people to be able to get included digitally……..It is integral to financial inclusion, without that it cannot be sustained" - Nitin Chugh, MD and CEO, Ujjivan Small Finance Bank.

2.2. Understanding financial exclusion to further financial inclusion

At a stage where financial inclusion is at the forefront of the development agenda for many countries, especially in Asia, it becomes crucial to understand the needs of the customer at the grassroot level.

"If you have to understand how to take the banking to the unbanked, management tells us to understand what the unserved and underserved needs of the unbanked are. If we are clear about that, unserved and underserved needs itself will present themselves as the universe of our strategies in the coming days…" - Mrutunjay Mohapatra, Former MD and CEO, Syndicate Bank.

A large part of understanding financial inclusion is to understand what keeps customers financially excluded after all. This could be product or channel related exclusion, where customers only get access to basic features of a savings account, without extended benefits like credit. It could also be exclusion due to development or technology related aspects like low or no internet connectivity, making most digital banking services unreachable. It becomes important here for banks and financial institutions to work with technology start-ups that can enable financial services despite hindrances such as low connectivity.

Third, a major part of the problem is lack of qualified banking correspondents in rural regions to further the cause of financial inclusion. Awareness and financial literacy campaigns are slowly accelerating now to ensure that banking correspondents are well equipped to not only deal with basic banking problems, but also push a variety of new services in such regions. Finally, gender biases also play a role in exclusion of women from the financial ecosystem and capitalizing on models such as the BC Sakhi model is crucial to achieve true financial inclusion.

Financial inclusion, and hence uptake of digital payments, can therefore be made possible (and successful) by addressing all these issues as an ecosystem as a whole, rather than targeting only certain sections.

2.3. Smaller merchants are driving transformation to digital

There have been various defining moments in the financial services ecosystem over the last few years that have provided impetus to change the way customers and merchants transact. One of these factors was demonetization in 2016, which did indeed push more people towards using digital modes of transaction. However, it was largely noted that cash resumed to be in active circulation once the effects of demonetization had subsided. The other factor that has had a major effect is the COVID 19 pandemic that pushed not only customers, but even merchants to consider permanently moving towards digital acceptance methods.

Moving one step ahead, merchants have not only capitalized on accepting payments digitally, but have embraced complete digitization of their service offerings encompassing payments as well. Restaurants, for example, now offer apps that cater to the entire customer journey by allowing reservation of tables, placing of orders, payment for orders all on one contactless platform.

Small mom and pop stores are now driving the payments revolution, encouraging more and more such stores to understand the true benefits of digital payments. Many industry stakeholders believe that once smaller merchants get comfortable accepting payments digitally, the ecosystem could change. The idea is that once the merchants start interacting more and more with the bank, they also gain exposure to the other kinds of services of the bank that they could be leveraging.

2.4. Introducing newer technologies to drive safer transactions

The financial services ecosystem is incomplete without the consistent innovations that enhance product features, service delivery and uptake. These innovations have been aided by rapid changes in technology and have the potential to change the way the world transacts. Keeping this in mind, it becomes vital to leverage technology to drive the agenda of serving the unbanked through the various initiatives mentioned earlier in this section.

Basing delivery of financial services on a digital or national ID program, while slow in its uptake in regions like India, still holds promise in the long run as a method that ensures lesser leakage of funds, more secure transactions and better service delivery of social benefits.

"The whole integration of the payment system that the Central Bank (of Nepal) is driving and the National ID system, in a country which is a big recipient of remittances and highly consumption led, and now there are wallet and fintech providers……..that would be our biggest bet (to improve financial inclusion)" - Anirvan Ghosh Dastidar, CEO, Standard Chartered Bank Nepal.

Sri Lanka has taken a big step in embracing technological changes by introducing LankaQR and beginning the process of developing Blockchain based KYC by inviting companies with knowledge in the area to take part in proof of concepts.

Another technological advancement that many players in financial ecosystems across the world are looking to embrace is open banking. It allows for sharing of information between banks and fintech firms that can further allow fintech firms to work on innovative initiatives that can address the specific needs of the banked and unbanked.

3. Going beyond traditional banking

Banking has constantly evolved over the last few decades to pave the way for new products, services and technologies. In the last 10 years, digitization of banking services has been a major focus for the entire industry, and this journey has exponentially accelerated with increasing demand for faster service delivery. It is important to understand this evolution, the challenges faced and how they were addressed with new and innovative solutions.

3.1. Key challenges faced in early stages of the transformation journey

The essential challenge faced by the industry was amalgamation of the technology and business aspects of banking. Additionally, the advent of private sector and foreign banks, that invested heavily in technology, posed a challenge to large PSU banks that were using traditional banking methods.

Acceptance of technological advancements and changes in bank mechanisms within the bank, by bank employees, was slow due to resistance to change.

For many large PSU banks, another challenge that still remains is that a majority of the customers are from rural or semi-urban regions where digital and financial literacy is low (as mentioned in previous sections). Only once financial inclusion is achieved can this challenge be efficiently addressed.

These challenges have inadvertently become drivers to facilitate large scale improvements in traditional banking, resulting in massive changes in how banks operate.

3.2. Multiple drivers have changed the face of the ecosystem

Along with the challenges faced by the industry that forced it to adapt to new modes of operation, there have been several other driving factors that have helped banking evolve as a whole.

One of the main drivers has been mobile penetration, with a large number of smartphone users. This in turn leads to availability of modes of transacting digitally and interacting with banking services. Even in rural areas, the spends on smartphones and mobiles are likely to become comparable to that of urban areas, highlighting that rural areas hold potential to drive digitization. In extension to mobile penetration, it has also been noted that internet penetration is on the rise. These factors, in conjunction with one another, can help transform the way citizens transact.

Regulatory initiatives are crucial to the success of transformative initiatives in banking. Over the years, regulators in many countries have played an active role in setting up central payments and settlement bodies, revising KYC rules for better security, introducing sandbox initiatives to test new technologies. These steps have aided multiple players in the industry to go above and beyond and truly offer digitized services to the masses.

Finally, players in the fintech and BFSI space have aided collaboration on technology initiatives like artificial intelligence, blockchain, cloud computing and analytics to further the cause of transformation in banking and improved user experience.

These driving factors as a whole have helped banks move forward along with their customers to create an ecosystem that strives to improve the banking experience for all stakeholders.

3.3. IBA has and will play a crucial role in moving beyond traditional banking

Indian Banks Association (IBA) is an organization that represents banks and other ecosystem players associated with banks.

"IBA as a body is seen for consultation and contribution by the regulator and government agencies as well as stakeholders in the system" - Mohan Tanksale, Strategic Consultant, SWIFT India Domestic Services.

NPCI, which is the retail payments authority in India, was also conceived as a concept in IBA, when the need was recognized to have an autonomous body operating payment and settlement systems in the country. NPCI then went ahead and introduced payment methods like UPI that changed the way the country transacts. It is therefore important to recognize the role that IBA has played in transforming the Indian payments and banking landscape.

IBA is the entity responsible for assessing and evaluating the current financial services infrastructure, its deficiencies, inefficiencies and what needs to be improved in order for it to cater to customers better. It also needs to evaluate various business models on the issuing and acquiring side to ensure that they remain viable for entities to invest in, without which the ecosystem cannot make any progress.

3.4. Providing a gamut of services under one umbrella is likely to further corporate adoption

Some of the major drivers for digitization of financial services are the large volume of B2B transactions across the subcontinent. The entire value chain including vendors, supplier, contractors etc. stands to benefit from a completely digitized ecosystem where invoicing and payments are digitized.

Corporates usually utilize bank services as part of one of six categories- collections, payments, investments, borrowings, treasury and trade operations.

"Any bank which has corporate customers has to ask just two things- How can I help corporates digitize their dealings with the bank in a secure way and How can I reduce the turnaround time for the corporate?" - Sunita Handa, Chief General Manager - IT Channels and Operations, State Bank of India.

As a result, it bodes well for banks to offer services to corporates under one umbrella application or platform that addresses all their needs, digitizes their dealings, accounting operations, invoicing solutions, investment decisions.

4. Impact of technology on digital payments

Technology has played a vital role in shaping up the banking and payments industry in India. It has enabled digital payments to reach rural India and ultimately helped in the government's vision of achieving greater financial inclusion.

The digital transaction volume in India has significantly increased over the past few years with UPI crossing 2 billion transactions in a month.

Technology coupled with robust governance has led to the significant uptake of digital payments in India. The establishment of NPCI has been a game changer and the various retail payments that the organization has launched has had mass adoption across the country. The various channels that the end customers use such as Google Pay, PhonePe, BHIM etc. have significantly improved customer experience manifold.

Earlier, cash was the dominant mode of payment across the country but Covid-19 has had a significant impact on the digital payments landscape. People have started using digital modes of payment and the dominance of cash has gone down. Not only in urban areas, but rural areas have also started adopting various digital modes of payments such as electronic fund transfer, credit card, debit cards etc. In the investment banking sector, the electronic channels have played a key role in the uptake. The per day volumes in NSC which were ~2 billion orders before Covid-19 have now almost doubled and it still is poised to increase further.

4.1 Cybersecurity

While the advancement in technology has significantly contributed to the rise of digital payments, it has also increased the risks of security threats. Even though the banks, PSPs, NPCI and RBI have made significant efforts and strived to provide a secure payments ecosystem, the cyber risks still continue to pose a major deterrent in the overall uptake of digital payments in India. With time, the hackers have also upgraded themselves and identified new ways to create frauds.

Various stakeholder such as banks, PSPs, NPCI and the government need to work in tandem in order to boost customer confidence in the payments ecosystem. Often, the customers due to lack of information are misled which hampers the trust and lowers the customer confidence in the payments ecosystem.

During the Covid-19 pandemic, the number of users of digital payments has increased significantly and so have the scams/frauds. One of the major reason for the same is low awareness and low education level among consumers. People are not completely aware of the data they share, whether it is sensitive/critical information. The level of attention given to data privacy is still low which leads to frauds. It is important to identify this fear and address the same. The government has a key role to play in this regard. They need to identify the fear of customers and evaluate whether the concerns are genuine. The genuine fears should be addressed by introducing policies, regulations, systems etc. but the not-so-genuine fears should be addressed using robust dispute management mechanisms, governance redressal mechanisms and extensive awareness campaigns. Banks should also conduct extensive awareness campaigns as the customer holds the account with them. Efforts should be made to educate customer to ensure that password, PIN and other critical information are preserved, and digital hygiene is promoted. The security aspects should also be given more importance and such concerns should be evaluated and addressed at the product design level.

With the rise in technology, security aspects have evolved due to retina scan, biometrics etc. Organizations have also started laying additional focus on cyber security threats over the past 4-5 years. Cybersecurity and information security has become a key board level discussion today.

Tokenisation, server security, two factor authentication should be assessed more in order to make transactions more secure. Currently, phishing has become a lot more advanced and there is lack of trust in SMS OTP as there are numerous vulnerabilities. There are a lot of data leaks happening across the globe which compromise the

overall system and questions its credibility. There is a need to move beyond two factor authentication and adopt more advanced authentication methods such as biometrics. For example- Touch ID is moving towards biometrics. Adaptive authentication is required in order to reduce cybersecurity threats. This is because the hackers are evolving continuously and are beginning to understand such authentication models. A robust threat handling framework is required to address the same.

The entire customer journey along with its various milestones need to be looked at in order to build a robust system such as onboarding, baselining of people using systems, continuous data analytics etc. Organizations need to ensure that while upgrading their systems and buying expensive systems, the data migration strategy is effective and addresses all the possible risks.

Government has to take the lead in ensuring that the digital payments ecosystem continues to flourish in India. The policies and the framework of security and public policy need to be updated in order to improve the payments ecosystem. It needs to improve laws on data privacy, data sharing etc. Singapore is one of the leading countries which has led from the front in issuing regulations/ policies/ guidelines which have benefitted the digital payments ecosystem.

"Security will continue to remain a concern in digital payments as it is a continuous battle" - Abhaya Prasad Hota, Consultant, Swift India Domestic Services.

"Sessional as well as the transactional elements need to be looked at to ensure robust and secure payments ecosystem" - Shafique Dawood, Heads Sales and Business Development APAC, Group-IB.

"Government should lead from the front and come up with updated legislations and policies which improve the digital payments ecosystem. The other stakeholders need to collaborate effectively and leverage the legislations to evolve the country's digital payments landscape." - Shafique Dawood, Heads Sales and Business Development APAC, Group-IB.

4.2 Impact of technology on Insurance, Mutual Funds Industry

Technology has had a huge impact on the insurance and mutual funds industry. The investment management apps have seen a significant rise and extensively used by customers in purchasing insurance policies / mutual funds. They are able to instantly compare various plans along with its historic performance and take decisions on buying policies/plans. The apps offer various digital modes of payments which has increased the collections. Over the last decade, the industry has matured a lot in its digital journey with SBI being a leader in the same.

4.3 Impact on Rural India

The payments in rural India are largely split in two categories- large value and low value. The low value trades are most common in the retail industry while large value payments are more for corporates. The large value payments are mostly digital but the small value payments are not.

The payments in rural India have been largely paper based and cash dominant. However, this has been changing over the last few years. People have now begun to shift to digital modes of payments despite the internet connectivity issues. The pandemic has also contributed to the uptake of digital modes of payment in rural India. This shift to digital has been observed across the value chain. While the infrastructure issues still exist in the rural parts of India, it is improving and shows a promising future.

"NPCI should work more on making digital payments more inclusive specially in the context of rural India". - Dr. Suresh A Shanmugam, Head MMFSS - Innovation & Future Technology, Mahindra & Mahindra Finance.

4.4 Impact of 5G on payments

5G could be a game changer for digital payments in India. It could significantly boost the adoption of digital payments across the country. A lot of industries such as healthcare, education, retail could benefit from 5G. There are a lot of expectations from 5G in retail especially in the urban and semi-urban areas. The services would improve with the advent of 5G and the will significantly increase the transaction volume.

The use of online channels for payments will increase due to 5G as it would be fast, efficient and easy to use for customers. 5G will open a lot of opportunities for companies and they can target customers by offering better services and products. The customers can be treated as corporates because of 5G. Organizations can adopt earn to pay model to increase their revenue and should work on making the community cloud stronger.

Even in other industries such as Advisory services, 5G will have a huge role to play. The advisory services will improve as investment planning would become more efficient. Kiosk banking can be implemented based on 5G and help in achieving financial inclusion. This could help in remote areas where access to bank is limited. These kiosks can help in banking the unbanked, improve penetration across products.

"5G will have a significant impact on country's vision to achieve financial inclusion. For eg- Kiosk banking could be setup in remote areas to bank the unbanked and improve penetration across products" - ShivKumar Bhasin, Chief Technology and Operations Officer, NSE.

4.5 Driving innovation in the future

A lot of innovations are happening across multiple areas such as cybersecurity, acceptance points, behavioural aspects etc. related to payments. But there is a need to collect and build a credible, granular and accurate data. Currently, this data is lying in segments with various companies and it is not very accurate. The data should be accurately captured, tracked by companies and shared in an aggregate manner which can be used to foster innovation. For example- the number of active users is still not accurate with companies, percentage % of users who have gone contactless etc. The publishing of geographical data should be mandated and done in accordance of data sharing guidelines.

This data could be used by innovators / startups to identify grey areas and tap into the untapped markets. The innovators get great value if such credible data gets published and would significantly help in fostering innovation. This will create a collaborative ecosystem which will help in the digital transformation journey of the country. Companies should do targeted innovation based on this data.

It is also important to understand the constraints in doing such activity. One of the key challenge is that this data collection would require a lot of bandwidth. Companies will have to spend tremendous efforts and resources in gathering such a data. In addition to this, discussions with RBI need to happen to identify the ways in which such data could be used.

"AI should not just be in theory but should be in practice now and companies/startups should leverage such new technologies to do targeted innovation based on data" - Subhojit Roy, Senior Vice President & Chief Information Officer, SBI Mutual Fund.

5. Establishment of New Umbrella Entity

5.1 The need for NUE

RBI has taken a significant step to boost digital payments in India. It has been taking numerous steps to evolve digital payments in India and has been looking at such opportunities very closely. In this regard, it has decided to set up another entity similar to NPCI which would focus on promoting digital payments in the country.

Despite making tremendous efforts in digital payments over the past decade, cash still continues to be the dominant mode of payment in India. Majority of the people especially in rural India prefer cash over other digital modes of payment. The market has still not matured and would need nearly 20-25 years to reach that state.

It is believed that 80% of the transactions are still in cash mode which implies that there are a lot of white spaces that fintechs can focus on and tap into the untapped market.

5.2 Expectations from NUE

The establishment of New Umbrella Entity (NUE) will promote healthy competition in the payments ecosystem in India. The NUE should focus on identifying new use cases which will resolve the existing challenges. The impact of Covid-19 has been significant on digital payments as it has forced not only customers but also merchants to adopt digital modes of payment. Small traders and merchants such as food, groceries etc. have also started accepting digital payments.

"The NUE will not be a competition to NPCI. It will infact help NPCI grow further as the ecosystem is evolving"- Abhaya Prasad Hota, Consultant, Swift India Domestic Services.

The key challenges need to be addressed in order to boost digital payments in India. It is critical to have accurate data which helps identify and build new solutions to these challenges. Currently, the data is not accurate in terms of number of active customers. There is lack of clarity as different reports publish varying numbers of active users. The scrutinizing of data is important and the NPCI, Visa and MasterCard should work collaboratively to identify the correct number of active users. This data should be baselined and used to bring innovative solutions. The ecosystem has not yet matured and hence, increasing competition and bringing in more players in the market will only boost the digital payments landscape in the country.

"Setting up of New Umbrella Entity is one of the best examples of network effect" - Navin Surya, Founder and Director, So Hum Bharat Digital Payments.

Interoperability is a key factor which will drive digital payments in India. A lot of such solutions have been built keeping in mind the interoperability. This helps multiple stakeholders to offer better solution and provides enhanced customer experience. The standards laid out to promote interoperability can also be leveraged for building other innovative solutions.

For these innovative solutions to be successful, it is crucial to understand the way digital payments work in India, the way the products are being used and in-depth analysis needs to be carried out. This should then be further evaluated based on the demographics split of the country. The understanding of usage behaviour i.e. the sub conscious mind in decision making whether to use cash or credit card/debit card as per various use cases would be a key in creating new offerings. For example- clusters could be built based on such analysis which consists of few large sets of homogenous groups and then numerous small heterogenous mini/micro segments. The products/services that would be built should be catering to these segments.

"Payment is not much about products but more about use cases and customizing those products specific to use cases" - Navin Surya, Founder and Director, So Hum Bharat Digital Payments.

6. Data Governance in Digital Economy

Data is said to be the new oil in the world. Companies across the globe have been investing significantly on data gathering, analytics and leveraging the findings to build products/services. Whether it is government sector or private sector, both have now stared focussing on utilising data to sustain/grow business.

Due to mobile banking revolution, even the rural areas have started utilising digital modes of payment and started to adopt digital e-commerce. Government has also started promoting digital modes across a range of services. This has helped them in financial inclusion and providing better services to citizens.

Newer technologies such as blockchain can be evaluated further to see how privacy and security can be maintained. The government has also started leveraging new age technologies such as blockchain, AI. For example- Tamil Nadu government introduced blockchain highway which various departments can use to get data. Also, they have introduced policies on ethical AI which will lay the foundation of leveraging AI by various companies in the state. The other state governments should follow such steps and inculcate the best practices.

6.1 Data in Insurance Industry

Insurance industry has been one of the oldest industry to leverage data and build innovative products suiting varying needs of customer. Recently, the industry has begun to see another transformation where chatbots, risk-based pricing are being used.

For example- By gauging driving behaviour, the premiums/discounts of policies are being decided, to insure cattle, RFID and biometrics are being used. The industry has begun to see a revolution called “InsureTech”.

“Data has been the core for us, and we started leveraging it long back to build products in the insurance industry” - Avez Sayed, Chief Risk Officer, SBI General Insurance.

6.2 Key Challenges in Private Sector

With huge amount of data being used, there are numerous challenges that the organizations and regulators need to deal with. Organizations need to build a comprehensive data strategy that cover all aspects of the business.

1. A culture of data privacy should be built so that critical data remains secure.
2. Even though, product portability exists currently, data portability does not. Process and regulation should be defined for data portability.
3. Transparency should be maintained with third party service providers and companies should check if the third-party service providers are aligning with the security measures and complying with policies or not.
4. Consumer awareness is a must and is lacking currently. They need to be educated on the kind of data that should be shared and the kind of data that is sensitive.
5. Consent management system should be re-designed so that consumers are a lot clearer on the terms and conditions.
6. For new age technologies such as IoT, it is critical to ensure that the right practices of data governance are setup.

6.3 Key Challenges in Government Sector

Government sector organisations have huge amount of data of customers collected over several years. This data can be very useful for them if utilised effectively. However, the following key challenges need to be addressed:

1. Data integrity and duplicacy is one of the major challenge in government sector. These companies have stored large amount of unclean data which may consist of redundant data, incomplete data.
2. Numerous data silos exist in government sector among various departments. Ensuring that this data is cleaned and integrating it across departments is a major challenge.
3. Government sector still has a lot of legacy data and nearly 80% of the data is still in physical format.

"In the government sector, data silos and data duplicacy is a major challenge which needs to be addressed" - J A Chowdary, Chairman India Blockchain Standards Committee & General Partner, Succeed Indovations Fund.

6.4 Resolving the challenges

In order to resolve these challenges across both the sectors, a comprehensive approach should be taken. It should include awareness, defining/updating regulations and policies and process. The government should lead from the front in handling such issues and the organizations should effectively comply with policies. Some of the measures that various stakeholders can take include the following:

6.4.1 Government led steps

1. The government should build laws around IoT and AI that ensure effective management of data collected and analysed using these technologies.
2. Government should address the concerns of customer and keep a check on fake news circulated through various modes, especially social media. It should lay out policies/guidelines to control such information.
3. Government should update the guidelines and put in place strong controls related to cyberattacks.

"A lot of fake news is being circulated on social media which affects the confidence of consumer. Government should address this to maintain trust in the ecosystem" - J A Chowdary, Chairman India Blockhain Standards Committee & General Partner, Succeed Indovations Fund.

6.4.2 Organization led steps

1. Introduce better tools and systems to minimize data and ensure that only relevant data is captured and analysed. For this, reducing use of excel is recommended as the end user control offered is limited using excel
2. Organizations should know the data they hold of customers better and ensure the practices laid out are being followed internally
3. They need to assess the As-Is state of data governance and protection and then prepare the To-Be state that address the shortcomings and challenges
4. Organizations should look at reducing data foot print and reduce duplication of data. They can leverage third party providers to reduce duplicacy
5. Post Covid 19 pandemic, majority of organizations are offering work from home to its employees. For this, a culture should be built that considers remote working, ensure controls on data are in place and are investment friendly and develop agile processes that facilitate remote working
6. Data lakes should be created within the government sector so that they are able to effectively leverage it and offer enhanced services. Though, the government sector has started doing so, there is still a long way to go

7. The impact of blockchain and decentralization on digital payments

The rise of blockchain in undeniable. From being a technology shrouded in mystery, blockchain is now becoming more common place with numerous solutions hitting the market to address customer needs. Despite this increased visibility, the BFSI and insurance industries have been slower to adopt this technology despite the obvious increase in operational efficiency, data stability and security through decentralization of data ownership. There is a significant potential for blockchain in India and with smaller countries like Estonia able to integrate blockchain solutions into their ecosystems, there should be considerable progress in widespread adoption across the country.

7.1 Adoption challenges in Insurance

Prior to the opening of the sector in 2001, the insurance process in India was offline and labour intensive. Market needs drove innovation in the insurance market with the introduction of workflows leading to a change in the industry normal. Post SBI's digitization in 2013-14, there was no excuse for any other industry player to resist the digital revolution. All these major shifts in the basic operations of the industry experienced several challenges, which are being arising again in the adoption of blockchain.

Insurance is a capital-intensive industry and significant investments have always needed to be carefully planned and thought through. Smaller insurance players are not able to invest heavily into newer technologies like blockchain while they are in their nascent and early stages. Larger players need to, and have been investing in blockchain driven solutions, for example: Bajaj's Travel Ezee, a blockchain enabled travel solution that simplifies and quickens the claims process. Only once solutions are developed and successfully implemented by the larger players can smaller players justify the investment required.

On the flip side, traditional insurance segments like life insurance that have some of the larger market players, are hindered in their technological evolution. Significant lifetime technology investments make additional investment into emerging and unproven technologies a lower priority and harder to justify. Relatively newer market segments like health insurance are looking towards adopting blockchain enabled solutions more rapidly due to their relatively lower lifetime technology spend and increased digital flexibility.

Another factor contributing to the slow adoption of blockchain solutions is the availability of established alternatives in areas where blockchain can have a significant impact. One example of this is Know Your Customer (KYC). The successful implementation of UIDAI and the Aadhar database eliminated the need to look at blockchain as a solution for a centralized database. Another more recent challenge is the changing priorities in the industry. Due to the global pandemic and the immediate need to adapt to the changing market conditions and standard operating procedures, the focus has been drawn away from blockchain.

7.2 Banking on the Blockchain

When it comes to adoption of blockchain in banking, the lack of awareness has been a major challenge There are very few decision makers in BFSI companies who truly understand the technology and the significant advantages for the industry. Conflicting reports on the true costs and TCO has not helped alleviate the confusion and lack of confidence surrounding the technology. Reports of increased cost efficiency are contradicted by reports of increased transaction costs due to repetition of tasks at every node (applicable to public blockchains). Private and hybrid blockchains have tried to address these issues but then move away from the decentralization concept of blockchain and the inherent trust that it builds.

Like the insurance industry, the successful implementation of UIDAI has reduced the need to prioritize investment into blockchain. With blockchain no longer needed as a solution for a centralized database, the use cases for blockchain have become more niche. Banks are looking to fintechs to provide more customized and solutions rather than invest in development costs themselves. Despite the outsourcing of the development of these potential solutions, BFSI companies have been holding back on investing due to the relative infancy of the technology and lack of numerous successful implementations.

Apart from just technical challenges, the implementation of blockchain faces a cultural challenge. A potential reduction of control has proven to be unsettling for companies in the past. Blockchain brings about a lack of control which is something that people are not ready to give up. Employees want to be able to make decisions and changes and not have a technology make these decisions based on coded instructions.

Blockchain needs time to become an integral part of our lives. The internet was met with similar scepticism with the average executive not understanding the finer aspects of the new technology. Today, not having a website and mobile application is unheard of and the technical details of the same are well known and available. This will also be the case for blockchain. Customer requirements will also drive the need for adoption. IOT and data aggregation use cases will be dive the need to build consumer trust, an area addressable by blockchain. If blockchain can address these customer pain points successfully, customers demand would force adoption across the industry.

Large scale initiatives and pilot programs like Bankchain, a community of banks exploring building and implementing blockchain solutions, the launch of the Blockchain Infrastructure Company (BIC) and NPCI's Vajra platform and the Income Tax Department's blockchain solution pilot are evidence of live use cases in the market and the confidence of the industry in the technology.

"Culturally, it is deeply unsettling, even for someone who understands blockchain, to think about a whole lack of control that this technology brings about" - Anindya Karmakar, Business Head Digital Lending, Aditya Birla Finance.

7.3 Payment Regulations

Regulation development, implementation and evolution is a key aspect of any new technology. When considering blockchain, the regulatory requirements are needed more in relation to the potential use cases than the technology itself. Blockchain is enabling use cases that were not were not available previously. Taking cross border payments as an example, the concept of cross border payments is not a new one, but the introduction of real time services has required regulatory development and changes.

Current regulations are angled towards protecting and enhancing financial stability and the introduction of blockchain largely through smaller fintech companies does not align with these historically established principles. For this reason, regulators across the world have been slower to accept blockchain despite the advantages. Despite this apprehension, in many parts of the world, regulators have been looking to blockchain for use cases like trade finance showing a warming towards the technology. A number of large scale POCs have been undertaken by banks and regulators globally to demonstrate the advantages of blockchain for payments in trade finance. With increased education and successful use cases emerging, regulators are getting more comfortable with the technology and enhanced regulations are helping drive adoption.

Regulators need to be convinced of the legitimacy and benefits of blockchain solutions despite the instances of blockchain and cryptocurrencies being used for illegal purposes. Regulators need to be convinced that crypto currencies and their inherent risks are only one small piece of the overall blockchain puzzle and there are a number of additional use cases currently available. Attacks on blockchains have also occurred but majority have been due to weak protocols and fewer risk controls installed by the technology providers. Developing cyber security protocols, even off the blockchain, is key to assisting in developing blockchain specific regulations. Regulators need to accelerate sandboxes to develop and analyse use cases to ensure no unintended consequences from using the technology. Regulators also need to ensure there is no systemic risk from using blockchain before it can be adopted freely.

"About 90-95% of all central banks are researching central bank digital currencies in some state or form shape… Interoperability will become very important as well as building standards and interoperable systems" - Syed Musheer Ahmed, Founder & MD- Finstep Asia, Founding Board Member – FinTech Association of Hong Kong.

8. The customer is King, and it's all about the King's experience!

The customer experience is about ***"time, convenience, visibility and control"*** says Srinivas Kasturi, Global Head of Mass Payments & Country Product Management, Corporate Bank, Barclays. The customer experience is driving innovation and adoption in the digital payments space. The ideal digital payment process needs to be invisible and non-intrusive while also providing complete security and peace of mind to the customer.

8.1 Is customer experience driving payments in India?

Customers demand payments need to be seamless, low on effort and secure. With a shift away from cash transactions, customers have started to expect an easy, safe digital payment method from their banks. India has been at the forefront of the digital payments revolution with other countries looking to replicate India's UPI and IMPS. UPI is a global success story for leveraging technology to enhance the customer experience with one major factor driving this enhanced customer experience is the near real time availability of funds for customers post a transfer.

Corporate clients on the other hand prioritize visibility and control as drivers for their customer experience and in times of growing pressure and uncertainty, these are major factors driving consumer behaviour. Corporate clients have also begun to expect more from their banks and banking service providers and want to be offered similar services as retail customers like an omnichannel banking experience, enabling of workflows and the reduced dependence on paper transactions. These are the challenges being faced by corporate banks to help their clients work towards enhancing the end user experience.

Apart from the changing requirements from the customers, the entire method of providing enhanced customer experiences is changing. Banks are looking to take a back seat and allow fintechs to drive innovations and provide additional services to clients while providing a stable and seamless backend integration to ensure that all transactions are swift and secure and customer confidence is not impacted.

India also has the additional challenge of providing banking services to their under or non-banked population. This segment requires a different and unique approach towards customer experience with trust building being one the most important aspects. These consumers need to build confidence in the systems and the process as they turn towards digital solutions. This confidence can only be built through education and awareness development of the process and systems. For this segment, the brand also brings an inherent trust with larger names like Google Pay more likely to be adopted than smaller niche branded products.

"The two pillars of payments are convenience and safety and there are the drivers of an enhanced customer experience" - Sharatee Ghosh, Sr. Executive Vice President - Kotak Mahindra Bank.

8.2 Catering to changing customer requirements

Payments are becoming an integral part of many ecosystems and plays a huge part in determining the overall customer experience. Customers want seamless payment integration and a higher number of payment options at their disposal. Insurance policy purchases and claims are some of the areas where this is clearly evident. Customers can purchase policies online and are given a wide variety of payment options (card, UPI, etc.) and schemes (EMI, etc.) which increases the accessibility and affordability of this product to the general public. In terms of claims, customers can now make minor claims through mobile applications (and submit supporting evidence) and insurance companies can approve the claims digitally and make the payment seamlessly directly to the customer's account. Even the travel insurance and claim process is being streamlined with blockchain

enabled solutions allowing for automatic customer compensation for delayed flights, etc even without customer initiation.

India has the additional challenge of providing banking services to their under or non-banked population. This segment has been historically left out and require a different and unique approach towards building customer experience. With this segment being extremely loss averse and time poor, simplicity and trust are two major factors in developing customer experience. The solutions on offer need to be simple to understand and easy to use but unlike the more technologically advanced segments, the intermediary plays a major role. The digital experience for these customers is more “phigital” due to the need for handholding even for simple processes like using a mobile application. The strength and training of these intermediaries is paramount as they are integral in building the consumer trust in digital systems and processes. This confidence can only be built through education and awareness development of the process and systems. Once this awareness and confidence is built, the inherent advantages of using these new payment methods will drive adoption.

When considering SME and corporate customers, an additional consideration is the seamless integration of systems. Corporate transactions involve the end users, business partners and suppliers and the banking ecosystem and integration between these systems is needed to provide a smoother experience. Banks need to develop mechanism to ease the process and reduce the timeframes of banking integrations. Banks are working towards addressing this challenge of making payments less intrusive and provide corporates with the toolkits to able corporates to provide the new digital experiences on offer without being tied to the bank. Developing these experiences builds consumer trust in the overall experience.

Building trust is paramount to developing customer experience across all segments. The industry is taking a new approach to predicting customer journeys and focusing more on the worst case or alternate scenarios versus base case scenarios. While ensuring the best case and most used customer scenarios are seamless is still extremely important, the importance of exception planning and handling has increased in order to protect customer experience in all scenarios. With a new set of customers entering the market with the increase in mobile and bank account penetration, the need for develop and nurture consumer trust is even more vital as any negative experience could have a wider spread impact than just one individual.

Customer satisfaction was originally one of the main indicators to assess customer experience and predict customer loyalty. This correlation was disproven, and customer satisfaction is no longer considered an indicator to predict customer loyalty. CSAT and NPS scores were some of the primary metrics being used to track customer experience and satisfaction but have proven to not capture the complete picture, despite NPS being an upgrade over CSAT. The financial services industry especially has been moving towards using customer effort scores (CES) as a gauge for customer satisfaction. Customer effort scores are defined as the customers intention to continue doing business with the institution. These include number of repetitive large transactions conducted by the customer and the effort spent for each (number of signatures, capture of repetitive information, etc)

“In the analogue world, the payment went to where the goods were, in the digital world, the payment doesn’t go anywhere, it is part of an experience” - Srinivas Kasturi, Global Head of Mass Payments & Country Product Management, Corporate Bank, Barclays.

8.3 Impact of regulations on customer experience

Regulations are key to both driving adoption as well as protecting both end user and financial institution. India has been at the forefront of the digital payment revolution and the regulatory activity has been one of the major contributing factors. European regulators have taken some inspiration from their Indian counterparts and have introduced the PSD2 regulations to enhance open banking adoption in the region.

PSD2 has had a major impact on the regulatory environment. Transparency is one of the primary pillars of PSD2 to allow customers to have a complete view of the transactions they are undertaking. This is focused more on protecting the end consumers from being at the mercy of financial institutions in terms of transaction rates and fees. An example of this would be foreign currency cash withdrawals and the foreign exchange rates that would

apply for such a transaction. The customer may not have any control or influence on the rates being applied but need to be aware of the same at the time of the transaction.

Fraud protection is another major angle that is covered by PSD2. As banks make it easier for customers to transact, it becomes easier for criminals to also conduct fraudulent transactions. PSD2 outlines some of the security measures like two factor authentication that need to be in place to protect banks as they are liable for any fraudulent transactions. This regulatory framework helps prevent banks from incurring large scale fraud and protect the customer as any instance of fraud would also have a major impact on the customer experience.

PSD2 also worked towards providing customers with additional choices. The opening of the innovation ecosystem and introduction of open banking aims to help enhance the overall experience for both the end customer as well as payment initiators. Neobanks and Fintechs are blossoming due to the opening up of the innovation ecosystem which are subsequently enhancing the embedded payment experiences for customers.

"Any process has to have zero ambiguity... any consumer needs to very clearly know what the next steps and final step is" - Anand Bhatia, Chief Marketing Officer, Fino Payments Bank.

9. How can AI shape the bank of the future?

"Everybody talks about AI, it is the most abused and used word in banking and other areas" - Vinoth Sivam TS, Head Technology - Enterprise Mobility, Digital Payments, DevOps & Innovation, ICICI Bank.

Artificial Intelligence and Machine Learning are terms that everyone uses but not many have a complete understanding of these technologies. Despite these use cases arising across many segments, some of the strongest and most developed use cases are found in banking. Banks are transforming and undertaking efforts to digitize and implement new technologies and tools to enable this transformation.

9.1 Where is AI making an impact?

Banks are looking at new cases related to artificial intelligence including transforming current data reserves into cloud-based warehouses with some companies adopting a lake formation in the cloud. Some of the other use cases like fraud detection, customer management, risk modelling for investment banks, conceptual and personalized marketing and customer lifetime value prediction are also growing in popularity. Predictive analytics continues to be an area of growth with recommendation engines using new technologies like big data and predictive analytics to provide more personalized and focused recommendations to the customer. Even areas like customer support are getting a boost with these technologies with companies like Amazon and Swiggy completely revolutionizing their customer support.

These new use cases are also forcing banks to look at their current systems in order to maximize the impact and value of the AI implementations. Any modernization of systems and technology needs to begin with managing the mass amounts of customer data generated by banks. New age master data management software and customer data platforms are available that help extract the maximum out of AI implementations & deliver the value that legacy systems were just not able to. These new age systems also support the targeted marketing opportunities that arise through usage of artificial intelligence.

Recommendation engines are growing exponentially in sophistication. These engines are able to predict customer behaviour as well as provide recommendations based on previous behaviour and spending habits. This again circles back to the data management and segregation. Artificial Intelligence and machine learning is based on the data available and therefore the quality of data is as important in order to ensure success. Without sufficient and accurate data, the potential of the system would be significantly hindered.

Customer lifetime value prediction is another area that is growing in importance. If a business has the ability to estimate the lifetime value generated by an individual customer. Factors like the sustainability and profitability of the relationship are key in helping businesses grow. Comprehensive data including transaction, geographic and market also helps build a holistic, 360-degree view of the customer and add to the prediction potential. These functions are completely dependent on AI as the quantity of data makes it impossible to conduct the segregation and sorting manually.

One of the major challenges being faced in widespread adoption is the ability to justify the technology spends required to gain the maximum out of these new technologies. Smaller market players may not have the resources to dedicate to such major transformations and therefore would lag behind in offering these services to their customers.

9.2 Keys to banking on the cloud[3]

Apart from AI, cloud computing is the next big thing in the evolution of banking. With changing consumer expectations, it is vital for banks for leverage cloud technologies and use them to access new capabilities and innovative products and collaboration and introduce flexibility into business operations. There are a number of factors to consider when considering cloud computing, there include:

1. **Customer Centricity:** Customers expect banks to anticipate their needs and continue to evolve to offer the best customer experience possible. Cloud computing allows banks to maintain flexibility and react to customer demands without having the technical challenges of legacy infrastructures
2. **Cost:** Cost is becoming an increasingly important factor with the sharp growth in fintechs in the banking and payment space. Banks need to adapt to these challenges and provide services at competitive costs. Cloud services help banks save development costs by reducing the investment required in dedicated hardware, software and services
3. **Open Banking:** Cloud services are designed to facilitate open banking and API integration. This would allow banks to quickly integrate solutions and onboard partners, provide seamless data exchange with third parties
4. **No downtime:** Cloud services allow for minimal downtime. Through encryption and other strict security protocols, cloud computing offers high levels of data security and protection against any unplanned downtime due to malicious attacks

When considering significant changes and upgrades to cloud solutions, there are several aspects that need detailed consideration and planning prior to undertaking of any significant steps or investments.

1. **Understand the risks:** Prior to setting off on the transformation journey, it is important to identify all the potential risks that could hinder a successful implementation. These could include risks related to the bank's strategy, structure, governance, culture, local regulations, processes, and technology stack. Identification of these risks can both help plan for them as well as assist in selecting a technology partner that can address and mitigate these risks
2. **Prioritize workloads:** There is no right place to start. Every bank would have its unique path to getting onto the cloud. It may begin with non-core functions or even greenfield projects that may not be supported by current systems. It is important to conduct a thorough internal assessment to identify the roadmap that is most suited to the bank
3. **Partner Selection:** As mentioned earlier, the correct partner selection is vital to addressing challenges and potential risks unique to the bank or region. Selecting partners based on brand or size may not be the best solution as excessive customization of generic cloud services can increase work load as well as increase the potential for problems
4. **Run Pilots:** Running small pilots with multiple vendors, helps identify and iron out teething issues and also is a strong way to evaluate vendors. In many cases, pilots also help align internal cross-functional teams that would drive larger migrations in the future. Pilots also help the IT function to prepare for driving large-scale adoption of cloud within the organization. Many of these pilots could also evolve into real projects and yield benefits for the IT function
5. **Stakeholder Buy-in:** Ensuring all business stakeholders are on board with the transformation is key to ensuring tis success. Building the anticipation and excitement by informing all business stakeholders of the advantages of the cloud can be key to ensuring a rapid and successful adoption

[3] **Whitepaper, Cloud4C:** Up in the cloud: Banking Industry ready to Take off

10. Key Takeaways

1. The digitization of multiple G2C services has encouraged citizens to pay online, thus promoting the narrative of ease of convenience of online payments
2. The Government is actively looking at leveraging data analytics in a secure manner to ensure more targeted delivery of G2C services, which could lead to more citizens availing these services and transacting online
3. It is crucial to drive the right products to ensure engagement at the rural and semi-urban level in order to achieve financial inclusion. Microfinance is expected to be the driving force for such engagement in the future
4. Collaboration between banks and non-bank financial service providers is key in order to ensure that financial services can be delivered at a grassroot level through branches and business correspondents. Collaboration also helps ensure development of innovative technologies that can further the cause of targeted and tailor-made financial services
5. It is important to address financial exclusion factors like product exclusion, technology exclusion, gender exclusion, collaboration exclusion in order to develop products, services and financial services campaigns that can overcome these hindrances
6. Industry experts believe that the digital revolution will be truly successful once smaller merchants start accepting payments digitally, thus driving change at a granular level
7. Innovative technologies like AI, ML, Blockchain, Open Banking are making strides in improving delivery of digital payment services
8. Mobile penetration, internet penetration, regulatory initiatives and technology collaborations with startups have helped the ecosystem move beyond traditional banking
9. Digitization of corporate payments and corporate engagement with banks presents a huge opportunity in digitization of payment transactions in the B2B value chain.
10. Consumer awareness and education is a must in order to reduce frauds and address not-so-genuine fears of consumers, thus promoting trust in the digital payments ecosystem
11. New age technologies such as blockchain, IoT, AI should be explored more to improve products/services, security aspects around digital payments
12. Government should lead from the front and introduce regulations, policies and laws that address concerns of the customer and organizations
13. Biometrics should be leveraged in order to reduce security threats as hackers have begun to understand two factor authentication and the likelihood of breach is increasing
14. 5G will be a game-changer in digital payments as it will allow enable users to leverage online channels more for various products/services across industries
15. A comprehensive database of active users should be built by collaborating with various large organizations such as NPCI, Visa, MasterCard. Guidelines should be laid out to utilize such data and shared with startups to enable them to leverage the data and come up with innovative solutions
16. New use cases, potential white spaces can be identified using the data and products/services around these can be built
17. NUE will not be a competition to NPCI but it will only help NPCI grow further
18. Data integrity, redundant data and data silos are the key challenge in the government sector that need to be addressed
19. Due to the Covid-19 pandemic, organization's culture must also evolve to facilitate work from home/ remote working for employees. Not only effective controls should be in place but also the culture should evolve keeping in mind data integrity and privacy.

20. Transparency should be maintained with third party service providers and relevant checks should be done by organizations to ensure that security guidelines/policies are complied with
21. In addition to product portability, data portability should also be evaluated to enable organizations to reduce costs, improve offerings
22. With UIDI and other supporting technologies in place, it is evident that there is no single solution to introduce the Indian insurance industry to blockchain and its obvious benefits. Due to this, it is also a lower priority for the industry and players will need to weigh the costs and benefits before investing.
23. Introduction of UIDAI slowed the adoption of blockchain due to providing an alternate solution for a centralized database.
24. There is a dependence on fintechs for technology development in the blockchain space which is bringing about potential instability in the market
25. Large consortiums like Bankchain are key to driving development in blockchain and provide POCs for various use cases
26. Despite initial apprehension, regulators are warming to the idea of widespread blockchain adoption in areas like Trade Finance
27. Smaller players in both the insurance and banking industries are dependent on the larger players proving the worthiness of technologies like blockchain before investing themselves
28. There is a cultural shift required for widespread adoption of blockchain due to the reduced control that is brought about through the technology.
29. The customer experience is about time, convenience, visibility and control
30. The ideal digital payment process needs to be invisible and non-intrusive while also providing complete security and peace of mind to the customer
31. Building trust is a key factor in the building consumer confidence in digital payments
32. Despite the digitization of the entire customer journey, there is a significant portion of the population that still would require intermediaries and handholding to gain confidence themselves
33. Regulations are key to both driving adoption as well as protecting both end user and financial institution.
34. In order to maximize major technological transformations to include AI functionality, banks must look at their customer data practices and software to ensure that it is able to deliver the maximum value

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SPEAKERS

- **Abhaya Prasad Hota, Consultant, Swift India Domestic Services**

Mr. Hota has served as a central banker for 27 years (1982-2009). He has also worked at National Payments Corporation of India as MD & CEO for 8 years (2009-2017) of which, significant part of his career has been in the area of design and implementation of Payment systems in India. At Reserve Bank of India (a Management trainee to MD & CEO), he played a key role in implementation of MICR technology in Cheque Clearing, Electronic Funds Transfer, Automated Clearing House and Cheque Truncation System in India.

- **Anand Bhatia, Chief Marketing Officer, Fino Payments Bank**

Anand has been in the business of – Seeing what everybody sees, hearing what everyone hears but thinking through what others do not. This has been the mantra behind his entrepreneurial venture – Ormax Money. Where he was the Co-Founder and the CEO. Ormax is India's most respected firm of consumer behaviourists working on marketing and product design challenges for India's leading BFSI brands. He continues in a non-executive role as an investor.

- **Anasuya Ghosh, Senior Vice President & Head, Star Union Dai-ichi Life Insurance**

A Founding member of three life insurance companies, she was responsible to scale up & lead one of the largest Underwriting and Operations teams that handled volumes of 2.3 million policies annually at its peak, also led the teams during the consolidation phase and managed the business and key stakeholders efficiently by implementing automated underwriting, process improvements and service excellence. Experienced in Operations Strategy, Customer Lifecycle Management, Risk Management & Execution with a demonstrated history of building winning teams.

- **Anindya Karmakar, Business Head Digital Lending, Aditya Birla Finance**

Anindya Karmakar is a digital thought leader in financial services. He is an AI practitioner and has implemented AI solutions in solving problems in unsecured lending, investment and financial advisory, customer service and sales. He has led multiple initiatives in large-scale digital transformations. Anindya heads the Digital Lending business in Aditya Birla Finance Ltd where he is scaling up the consumer lending business on the backbone of data and algorithms and using AI and digital technology for large-scale and real-time decision-making in KYC, underwriting, cross-sell, offering tailored products, and collections.

- **Anirvan Ghosh Dastidar, Chief Executive Officer, Standard Chartered Bank Nepal**

A senior banker with over 25 years of experience, Anirvan has held a variety of senior positions in the Bank, including CEO, Sri Lanka and CEO, Philippines. His extensive experience spans risk and corporate governance and both wholesale and retail banking. He was serving as CEO and Head of Retail Banking in Brunei prior to his Nepal assignment. He has undertaken various Corporate Management courses including that from the Said Business School, University of Oxford and INSEAD.

- **Ankit Goenka, Head of Customer Experience, Bajaj Allianz General Insurance**

Mr. Ankit Goenka is Head of Customer Experience at Bajaj Allianz General Insurance Company. Bajaj Allianz General Insurance has been awarded Digital Insurer of the Year twice across Asia, is ranked #7 amongst the

global top 100 digital insurers & figures in IDC's 20 Best Insurers for 2020 in the Asia/Pacific. Mr. Ankit's distinguished career spanning 17+ years with Bajaj Allianz, GE Capital & IndiaIdeas.com, his forte has been driving customer experience across the value chain by combining new age technologies with customer insights and exceeding customers' expectations, profitably.

- **Arijit Basu, Former Managing Director - Commercial, State Bank of India**

Mr. Basu is a graduate in Economics and a Master of Arts in History. He started his career with State Bank of India in 1983 as a probationary officer. He has held several key positions in various circles of SBI including the bank's office at Tokyo.

- **Avez Sayed, Chief Risk Officer – Heading Risk Management, Information & Cyber Security at SBI General Insurance**

Mr. Avez Sayed is a double Post Graduate with master's degree in Business Management from Pune University and a Master's in Insurance and Risk Management from City University London. He has a wide range of expertise in Business & Strategy Management, People Management, Risk Management, Operational Risk Management and currently is spearheading the Enterprise Risk & Information Security function for SBI General. He has more than 15 years of experience in the financial services industry.

- **Deepak Sharma, President & Chief Digital Officer, Kotak Mahindra Bank**

Deepak Sharma heads Kotak Mahindra Bank's digital initiatives where he drives digital transformation, business model innovation and future ready initiatives of the bank. He is responsible for efficiency, productivity, customer experience and growth of the business through digital intervention across digital channels, lending, payments, investments, insurance, trade & forex, for the Retail, SME, Private Wealth and Institutional Banking segments. Deepak also leads Digital IT & Product Engineering, Innovation Lab, Design Studio, Fintech partnerships and the Start-up ecosystem participation for the bank.

- **J A Chowdary, Chairman India Blockchain Standards Committee & General Partner, Succeed Indovations Fund**

Mr. Chowdary served as the Founding Director of Software Technologies Parks of India (STPI), Bangalore, Hyderabad and Chennai. He was one of the key architects for setting up the IT ecosystem in Hyderabad & Cyberabad. He was one of the founding members of Portal player which was responsible in designing & manufacturing the core Silicon Chip for Apple's iPod which got acquired by NVidia Graphics. He became the MD for NVidia India before starting his new EdTech startup Talentsprint. He later was invited by Government of AP to advice the Government for promoting the IT industry in New ANDHRA PRADESH.

- **Jijy Oommen, CTO, Kinara Capital**

Jijy brings 23 years of industry experience. She is presently working as the Chief Technology Officer of Kinara Capital. Prior to Kinara, she managed technology for leading companies like Wonderla Holidays, Bajaj Capital and Manappuram Finance during which she successfully led many high-impact technology and digital transformation programs. She has been conferred with many prestigious industry awards such as CIO Crown – Digital Genius, CIO Power list - Analytics Icon, Enterprise Technology Leader, CIO 100, CISO 100, leading

Woman Technical Officer, Data Centre Specialist Award, etc. and has featured in leading IT Magazines and Publications.

- **Mohan Tanksale, Strategic Consultant- SWIFT India Domestic Services**

Mr. Mohan Tanksale is a career banker with over 4 decades in the Indian banking industry and has led Three major Indian Public Sector banks in this span. During his illustrious career, Mr. Tanksale has spent time and contributed in every area of banking. Mr. Tanksale is presently engaged as an Advisor to SWIFT India (SWIFT India Domestic Services Private Limited, majority owned subsidiary of Society of Worldwide Interbank Financial Telecommunication, Belgium) providing support to the adoption of high-quality financial messaging services in India and giving insights on developing market opportunities.

- **Mrutyunjay Mahapatra, Former Managing Director & Chief Executive Officer, Syndicate Bank**

A senior Banker who headed one of the oldest and trusted large Banks of India as its CEO and is credited with all-round transformation of the Bank. In the past, he has headed the global strategy, payments, transactions, and transformation programmes of SBI as its Head of Strategy and Chief Digital Officer. Prior to that he was the CIO of the bank and led IT, Data and Analytics, innovation of India's largest Bank and SBI Group. He has also served as a Member of Insurance Advisory Council of India and has had long stints abroad in the US and the UK. He is considered a thought leader in the industry.

- **Navin Surya, Founder & Director, So Hum Bharat Digital Payments Pvt. Ltd.**

Mr. Navin Surya is a distinguished name in digital and retail payment systems and FinTech in the country. He is the Chairman of Fintech Convergence Council (FCC), which is part of IAMAI/PCI Industry association, as well as the Chairman Emeritus of Payments Council of India (PCI). Additionally, he is a Member of Innovation Council of National Payments Corporation of India, non-executive Director of a green field Housing Finance Company, Indie Homefin Private Limited (Indie) and Advisor to Mitsui & Co. Ltd, Tokyo, Japan, on some of their specific investment portfolio companies. Earlier stints include Management Consultant with TCS and a leadership role with Itz Cash Card Ltd, India's first ever multi-purpose prepaid cash card.

- **Nitin Chugh, Managing Director & Chief Executive Officer, Ujjivan Small Finance Bank**

Nitin Chugh joined Ujjivan Small Finance Bank in August 2019 as President and took over as the Bank’s MD & CEO from December 1, 2019. Nitin is a career banker with more than two decades of experience in retail banking. In the past, . He has served and worked with Standard Chartered Bank and HDFC Bank for over 21 years, of which the last 18 years were at HDFC Bank. His last role at HDFC Bank was as Group Head for Digital Banking. He is a well-regarded banker w ith a varied and rich experience across sales, liabilities, assets, credit card, channels, HNW, marketing and customer service. Nitin is best known for his work in digital banking at HDFC Bank, where he oversaw and led the digital transformation of the Bank from 2013 to 2019.

- **Prasad Kolte, COO, Maharashtra IT**

Experienced and confident business leader, Mr. Kolte seeks to use his core IT skills, communication and shrewd business sense to inspire and lead the organizations through transformation. A digital transformation leader who has been pivotal in successfully re-engineering numerous government functions. With Quick business acumen combined with IT, sales strategies, market trends, and finance he has played a pivotal role in achieving organizational goals. He is an excellent negotiator with good track record of successfully navigating profitable IT and business arrangements. A strong team player who has nurtured strong relationships throughout his career. These relationships have helped him maintain diverse perspective. In his spare time, he is an experienced global trotter who is enthusiastic about learning about different cultures.

- **Prasanna Lohar, Head-IT- DCB Bank**

Prasanna Lohar currently serves as Innovation Head & Technical Architect at DCB Bank. As part of DCB's Digital Transformation, he is closely associated with new & latest technology assimilation, experimentation, innovative customer servicing & engagement, robust architecture implementation, Fintech & Startup alignment, open innovation practices, collaboration with other Banks on Blockchain initiatives. Prior to this role at DCB, he was Digital Bank Head and was a part of various deliveries like India's first Aadhaar & Biometric enabled ATM, Straight Thru Fixed Deposit A/c Opening product - Zippi, India's first Omni-Channel Framework for Bank, Mobile banking & Mobile Apps, Internet Banking Initiative, Unified Payment Interface (UPI), Bharat Bill Payment, API Management, Switch & Cards relevant initiatives.

- **R A Jayalath, Asst Governor, Central Bank of Sri Lanka**

A Former Superintendent of Employees' Provident Fund Department as the Assistant Governor in-charge of the departments of Bank Supervision, Supervision of Non-Bank Financial institutions and Employees' Provident Fund. Mr. R A Jayalath has served the Central Bank for 26 years and worked in the Departments of Internal Audit, Banking Development, Economic Research, Bank Supervision, Secretariat, International Operations, Domestic Operations and Employees' Provident Fund (EPF). Mr. Jayalath is a member of the Governing Council of CMA Sri Lanka, Quality Assurance Board of CA Sri Lanka and holds positions in number of other boards and committees representing CBSL. He served as a member of the Committees of EPF Investment, Monetary Policy, Financial Sector Stability, Risk Management, Foreign Reserves Management, Sovereign Bond Issuances, etc.

- **Shafique Dawood, Heads Sales and Business Development APAC, Group-IB**

Shafique Dawood is a 16 year technology veteran who received his Bachelor of Computing from National University of Singapore and graduated magna cum laude before pursuing his Masters of Technology 2 years later in which he was awarded the Dean’s List. He is forward thinking and is a subject matter expert in National Security and Intelligence having worked with companies such as BAE Systems and many government agencies throughout Asia Pacific. Shafique is committed to educating the next generation of technologists in both the areas of National Security and Intelligence along with Digital Transformation in Banking. He embraces forward-thinking and mission-critical oriented applications that will serve in the next generation of Cyber Security on all levels ranging from a National Security mid-space level of protection, Counter Terrorism Financing to FinTech and cryptocurrency.

- **Shaleen Srivastava EVP, Head of Fraud, Solutions, Alternative Data and Marketing Services**

Over 10 years at Transunion, Shaleen has steered the establishment and growth of several business verticals in the India market including Decisioning, Fraud, Alternate Data and most recently B2B Marketing Services. In between his tenure at TransUnion, he took a year and a half to help establish– Fast Lane Automotive India Pvt. Limited- an innovative startup company in the field of Automotive Data and Analysis. Prior to TransUnion, he has worked at Citibank in Australia where he helped setup businesses for analytics and customer contact for the Bank. He started his career at American Express where he gained significant experience in setting up customer contact and management solutions across 26 different countries.

- **Sharatee Ghosh, Sr. Executive Vice President- Kotak Mahindra Bank Limited**

Sharatee heads the omni-channel Customer Experience Centre and Virtual Relationship Management platform for the mass affluent segment at Kotak Mahindra Bank. She is responsible for the customer service provided by the Bank across channels such as phone banking, email and social media. Additionally, she also drives customer outreach and manages cross-sell campaigns through the Bank's outbound contact centre. Sharatee joined Kotak in 2007, prior to this role, she was EVP- Service Quality and Principal Nodal Officer. She led the bank on a journey to deliver the goal of a differentiated customer experience, spearheaded by measurement metric change to the Net Promoter System, in 2017. Along with NPS, she also worked on customer journey maps, customer experience principles and embedded CX best practices into the Bank's DNA, processes and standards.

- **ShivKumar Bhasin, Chief Technology and Operations Officer, NSE**

Shiv is Chief Operations and Technology Officer for transforming National Stock Exchange as Fair, Equitable and Interoperable Institution, transforming businesses across the globe by redefining consumer experience, innovating products and digitizing channels. Shiv was Chief Technology Officer of State Bank of India reporting to Group Chief Executive and Chairman of the Bank. He is a global CXO level executive with more than 23 years of experience and has worked across Fortune 500 Financial Services companies, as a catalyst for the Digital transformation, Customer Experience, Design Thinking, IoT & Robotics, Applications and Infrastructure Re-Engineering, Large Applications Transformations, Infrastructure Modernisation, an Orchestrator of Enterprise wide Digitisation of business processes, promoting usage of social media technologies & machine learning, Datawarehouse modernization – introducing extensive usage of Big Data, Data Lake and complex Data Analytics, Machine Learning, & Robotics for enhanced customer service, customer social media feedback analytics, and recommendation engines/Chatbots for digital channels, Data Centers Consolidation, Human Resources Transformation in IT etc.

- **Srinivas Kasturi, Global Head of Mass Payments & Country Product Management, Corporate Bank, Barclays**

Srini Kasturi is responsible for Mass Payments and Country Product Management for the Barclays Corporate Bank. In this role, he has oversight of the payments innovation agenda as well. He has worked in North America, EMEA and Asia, in regional and global roles with some of the most reputed banks and financial institutions. He is a patented inventor and fintech founder based out in London.

- **Subhojit Roy, Senior Vice President & Head - Information Technology- SBI Funds Management**

Currently, Subhojit Roy is Head of Information Technology at SBI Funds Management Private Limited, which is an Asset Management Company for SBI Mutual Fund and is the largest AMC in the country as per AuM. He has been Chief Information Officer of the company for more than 14 years. With more than 27 years of diversified experience, Subhojit Roy has been working in the asset management domain for a long time, primarily in IT & IS security leadership role. He has expertise in strategic planning & budgeting, enterprise architecture, technology evaluation, program management and implementation of large cross-functional projects.

- **Sudin Baraokar, Industry Expert, Global IT & Innovation Advisor, CIO**

World's Top Ranked technologist on AI (Artificial Intelligence), Automation, Cybersecurity, Adaptive Security, Data Science, Blockchain, Fintech, IOT, Cloud, Engineering & Development, Payments, Digital Tech, LCNC - Low Code/ NoCode, Quantum Computing, Complex Event Processing, Risk Management, Core Banking Systems, ERP, Building Industry Alliances and Networks, Industry Consortium Builder, Joint Community IP Development, Product Development, Strategy, Governance, Finance, Business Process Management, Audit, Compliance, Consulting, Enterprise Architecture, Mobile Apps, Digital Transformation, Complex Event Processing, FinTech, E-Commerce, Payments, Platform and Product Innovation, Data Science, Machine Learning, Artificial Intelligence, Open Stack Cloud, Analytics, Big Data, M2M, IOT, Virtualization, Visualization, Data warehousing, VMware Cloud Director, Amazon EC2, Rabbit MQ, Tivoli, IBM Cloud, AMPQ Messaging, Cloud Application Migration, Information Workload R&D, Mobile Innovation, LTE, SMSC, Product Roadmap Strategy, Business Development.

- **Sunita Handa, CGM (IT – Channels & Ops), SBI**

State Bank of India's first lady CGM (IT Channels & Ops) Ms Sunita Handa has over 3 decades of insightful experience in various spheres of banking; more than half of it in technology initiatives and implementations, involving inter-alia, Tech-Channels, Payment Systems, Digital Solutions for MSMEs, Corporates & Govts and digitalisation of SBI's overseas offices. An energetic and enthusiastic Team Leader with a proven track record in business & revenue enhancement and stepping up digital transformation through large scale technology projects using her exceptional analytical skills.

- **Dr. Suresh A Shanmugam, Head MMFSS - Innovation & Future Technology, Mahindra & Mahindra Finance**

Researcher, Philosopher, Architect, Rural & Urban Planner, Data Scientist, Business Information Solution Technologist with a strong background in Business Process and Technology creating Digital Business Information Technology Solutions using the available Technology at Affordable Cost and ensure the Rural Crowd gets adopted easily and use the Technology which is "Simple" to use. Strong people skills with a proven record as a problem solver recognized for focus on cost reduction, meeting aggressive deadlines, aligning teams, digitizing operations, leveraging the digital ecosystem, and maintaining a hand's on approach to achieve organization's business goals.

- **Syed Musheer Ahmed, Founder & MD- Finstep Asia, Founding Board Member – FinTech Association of Hong Kong**

Musheer is the Founder of FinStep Asia, which is a Venture Builder powering Asia's next generation of Businesses and providing advisory on Fintech & Digital ecosystems in Asia. FinStep Asia is running a series of initiatives to enable fintechs to scale and expand across Asia and works with Corporates who wish to engage with startups in their innovation journey. Musheer is the cofounder and board member of Fintech Association of Hong Kong and has an extensive background in financial services and technology, having been a global markets trader for a decade, and a management consultant previously.

- **Vinoth Sivam TS, Head Technology - Enterprise Mobility, Digital Payments, DevOps & Innovation, ICICI Bank**

Banking Technology / FinTech Professional with 19 years of experience with below specialties practiced at various senior leadership levels. Engineering evangelist in Technology Transformation, Digital (eCommerce, Mobile Technologies, Internet & eChannels), Digital Payments & API Gateways, DevOps, Blockchain, Artificial Intelligence and Open Banking. Domain expertise on Digital, eCommerce, Banking - Core/Retail/Transaction/Wholesale/Investment/Lending Engineering Consulting, Program Delivery & Management, Product Strategy & Innovation, Product Life-cycle Value Creation, Large Implementations, Greenfield Expertise, Offshoring.

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MA/June 2020 – M&C 6310