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TRACING INDIA IN THE UNFOLDING WORLD OF OPEN BANKING

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ABSTRACT:
Like other sectors of global economy, technology has been rapidly extending frontiers of banking. Open Banking is its latest outreach. More countries are finding in 'open banking' scope for making available better product & services solutions to customers and also reaching banking and financial services to large chunk of hitherto unbanked population. Countries across continents have been adopting different styles in adopting open banking. India has been treading the path in its distinctive ways by gradually building the individual modules of ecosystem of open banking. It is however yet to decide on whether to introduce open banking in its full form.
Keywords : Banking, technology, products, application programming interface

1.1 Prologue

Technology has been continuously pushing the frontiers of banking and financial services from computerized banking to online banking to mobile banking and beyond. Its latest outreach has been in the realm of ‘open banking’, which implies giving access to a vastly large product universe to the users of banking and financial products (than what their present banks provide them with) so that they can choose products closest to their need from a large market place.

This seems improbable at the first sight as any individual bank will have only limited product array and it will be unwilling to refer its customer to any other competitor. European Union was the first to take note of the fact that big European banks were treating their customers unfairly. They were sitting on mines of data relating to transaction histories of their customers and also on their surplus funds but making no attempts to get them optimum deal. This led the financial services regulators of EU instructing banks to make available their customers data including transaction history, to regulator-approved third party service providers (fintech firms) if they were so instructed by their customers. These third party fintech could then, based on their knowledge about the spectrum of banking products and analysis of the individual customers’ transaction history suggest to these individual bank customers products or services that are in best fit with their needs.

This new arrangement, which has begun to be adopted in nearly two dozen countries in varying measures constitutes the basic tenets of open banking. Though they are in early stages, yet they promise a revolution in the banking industry. As can be seen from the brief narration above, this is a collaborative model in which two or more unaffiliated parties share banking data to deliver enhanced capabilities to the market place. The sharing of data takes place through API or Application Programming Interface. It may not be exaggeration to say that, the API is the pivot around which the open banking revolves.

Open banking has the potential to act as a catalyst for innovating new product and business model. It is creating new areas of competition between banks and non-banking financial service providers. It is creating pressure upon banks to re-define their roles. There are of course issues regarding the credibility of the third-party service providers, data privacy, data security and regulatory norms. The systems and processes are also evolving based on experience. Presently they can be considered to be ‘work in process’.

No doubt Open banking has to contend with several initial issues, but it represents a paradigm shift in banking and has come to stay. Though, the government and regulators in India are yet to take any call on its adoption, the modules that constitute its ecosystem are being laid down gradually in the country as technology banking keeps making continuous strides and institutional arrangements are being made for data sharing. It is interesting to examine India's position with regard to Open Banking in relation to what has been happening in other parts of the World. This article seeks to find that out by taking a limited tour across 5 continents involving one dozen countries, some of them being economic superpowers.

Before looking at how individual countries (referred above) are approaching or adopting Open Banking we propose to have more clarity on the concept of Open Banking as well as concerns and challenges that underlie it. A good start for further discussion will be to look at 'Open Banking' in terms of its ingredients and aspects.

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1.2 Open Banking -Concept:

The common perception of Open Banking is that it is a form of 'banking' and therefore belonging to the more generic category of 'financial services'. However, it is heavily technology intensive and its conceptual origin may be traced to the domain of technology subsequently making inroad into the realm of banking and finance.

“Open banking” could be considered as a subclass to the “Open Innovation” concept. The term was promoted by Henry Chesbrough, an adjunct professor and faculty director of the “Center for Open Innovation of the Haas School of Business” at the University of California.

The following definition throws light on the technology -intensive character of Open Banking while recognizing its essential character as financial services.

Open Banking is a financial services term as part of financial technology that refers to:

1. *The use of Open APIs that enable third party developers to build applications and services around the financial institution.*
2. *Greater financial transparency options for account holders ranging from Open Data to private data.*
3. *The use of open source technology to achieve the above.*[1]

Indian IT major Wipro Limited with an impressive track record in the domain of financial technology makes it clearer as to how in a mutually cooperative ecosystem banks and technology companies can work together and how Open APIs can be used to translate a potential customer benefit into an actual one. It also mentions how these possibilities are making regulators in increasing geographies to encourage this new paradigm. The company in one of its reports, described Open Banking as below:

Open Banking is an emerging trend in financial technology that uses Open APIs to enable third party developers build applications and services around a financial institution. It facilitates greater financial transparency and helps financial institutions innovate and create new revenue models. Open Banking has been gaining significant momentum across the globe, especially in the European banking industry – driven by changing regulatory mandates. Revised Directive on Payment Services (PSD2), is one such regulatory mandate that aims to standardize, integrate and improve payment efficiency in the European Union.[2]

Open banking involves opening up application programme interfaces (APIs) to third parties, who can use the shared consumer data to create innovative products and services.

*Open banking would involve the transfer of data held by banks (data transferors) to third parties (data recipients) to allow the data recipient to provide a service to a mutual customer (the consumer). Some of this data could concern the products offered by the bank (product attribute data)***.** *Some of it could relate specifically to the consumer, such as their transaction history and account balances (transaction data).*

It must be evident that API, plays a significant role in Open Banking operations. It is through the Open APIs made available by the respective banks to the Third parties, that the latter can access both product attribute data and customer transaction data (obviously with the consent of customers). In an Open Banking Environment, bank APIs are made available to outside developers to allow them develop other value-added apps, with the goal of providing optimum resources to the customers.

In this connection let us examine how do the tech companies providing 'payment solutions' look at the potential for product development in India by leveraging Open Banking.

A recent survey by Accenture found 74 per cent payment executives stating they would use ‘open banking’ to access customers’ financial information so that they could tailor products with retailers keen to generate offers and discounts based on consumer spending habits.

The report cited some quotations from the industry leaders. One of them read:

“The Indian banking customer, who is enjoying world-class customer experience across sectors like retail, entertainment, ride hailing and travel, can look forward to the best in banking and fintech services,” says Hansa Cequity’s Ramachandran, adding: “Using secure APIs, any fintech company will, with the permission of the customer, be able to access his financial information from any bank for mutual benefit.”[4]

1.3 CONCERNS AND CHALLENGES IN OPEN BANKING

The presence of a set of key factors is necessary for adoption of Open Banking in the financial services industry in a given country. A scrutiny of these factors would reveal that the initial impetus comes from the societal awareness that banks have been sitting *lazily* over large volume of data at a time when various other industries are treating data as nothing less than 'gold'. This awareness transforms into action through the government who are expected to be sensitive to changing needs of society and are convinced that banking data, if effectively shared, analysed and utilized can immensely benefit the bank customers. Then, comes the role of regulatory authorities which must lay down standards and guidelines to ensure all necessary activities e.g., data sharing are carried out in orderly and responsible manner. Another important requisite is availability of advanced technology which can facilitate seamless movement of data across banks, fintech companies and other accredited players. API or Application Programming Interface has emerged as the prime device that facilitates 'data sharing'.

Banks face major challenge with regard to maintaining security of huge database of customers. The risk is greatly aggravated when they are required to share customer data with third parties, as is the case with Open

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Banking system. The Open API is central to the process of data sharing and it is therefore critical to incorporate the right processes and sharing them with only regulator-approved third parties. API involves designing Permissions and access rights to Third Party.
Major concerns in Open Banking include: (a) reliability of third party as customer data are disclosed to them, (b) data security, and (c) data confidentiality and protection.
The issue of customer data sharing has dual dimensions - risks and benefits. If done judiciously on the basis of customer-assent the benefits outweighs the risks. However, many countries still bear the legacy mindset that deeply values the sanctity of data privacy. They have laws that prevent banks from disclosing their customers' data save under specified circumstances and purposes and within the ambit of highly conservative legalistic regime. Proposals for sharing of data for any other purpose is considered almost blasphemous. In a way, the future of Open Banking in a country may be said to bear an inverse relationship with the strength of such conservatism. On the other hand, Open Banking is facilitated when it receives encouragement from the regulatory authorities and supported by availability of advanced technology. As a result, the prospect of adoption and progress of Open Banking in a country depends on how these forces act upon each other and arrive at a resolution. The general perception about the trade-off between data privacy and benefits of data sharing, state of advancement in technology and presence of young tech savvy population are accounting for the differentiated evolution of Open Banking across countries.

1.4 SCANNING OF COUNTRIES IMPLEMENTING OPEN BANKING:
In the backdrop of the above discussions, it may be useful now to gather some idea about the journey path of select countries to the destination of 'open banking' around the world. Basel Committee on Banking Supervision in its report on Open Banking and APIs published in November, 2019, has classified all countries under its jurisdictions and put them under three categories. First, those which follow a 'prescriptive' approach requiring their banks to share customer-permissioned data and require third parties that want to access such data to register with particular regulatory or supervisory authorities. Second, countries following 'facilitative' approach implying that they issued guidance and necessary standards and released open API standards and technical specifications. Third, countries following 'market driven' approach with no explicit rules or guidance that require or prohibit of sharing customer-permissioned data by banks with third parties.
In this article we have considered a sample of 13 countries including India across five continents. This sample, as the reader may observe, contains all three categories as mentioned by Basel Committee. However, it may not be incorrect to say that India stands somewhat apart and probably represents a fourth category.
In India the regulator is yet to take a policy decision on the introduction of Open Banking, but has been building up ecosystem that is necessary for it. This includes institutions, standards, system and procedure, and technology which going forward are likely to give a boost to Open Banking, if and when it is introduced. Our observations in country-specific manner follow hereafter, with the countries in turn organized continent-wise. The case of India, the focus of this paper, comes at the end.

1.4.1. Europe
1.4.1.1 United Kingdom:
Though presently out of the European Union, UK had begun to move towards Open Banking years ago while it was still as part of it. Right since then, the country has been a major driving force behind promoting Open Banking, like many other banking innovations it had pioneered in the past.
The Competition and Markets Authority (CMA) in the United Kingdom is a department which is non-ministerial and has the responsibility for strengthening business competition and to protect and reduce anti-competitive activities. The CMA playing a key role with regard to implementation of Open Banking in the country, adopted a staged approach to clear the path of allowing for smooth implementation of a single API and concentrated on Data Exchange on priority.
To facilitate the carrying out of the regulatory initiatives with regard to Open Banking, nine largest private banks in the country (called as CMA 9) including inter alia Royal Bank of Scotland Group, Barclays Bank, HSBC Group, Lloyds Banking Group, Bank of Ireland were directed by the regulators to set up an Open Banking Implementation Entity (OBIE). One important objective of the new entity was to provide standardized APIs.
Open Banking was launched in the country in January 2018. Although it was made mandatory for the 9 largest banks and building societies, some smaller companies like Monzo, Revolut, Starling Bank are energetically participating to make it popular. By January 2020, there were reportedly 204 regulator-approved providers of Open Banking in the country.

1.4.1.2 European Union:
Before discussing individual countries, who are members of the Union, it may be useful to throw light on some initiatives taken at the European Union (EU) level that apply generally.
The European Union is pioneer in the field of Open Banking. Its initiatives date back to 2008-2009. It announced the first Payment Service Directives in 2009 to harmonize payment services regulations across the EU. In November 2009 PSD was transposed into their national legislations by all EU and European Economic

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Area (EEA) member states. Its major benefits were to enhance market competition, improve transparency and protect consumers. Significantly, it created a regulatory format that allowed non-bank companies also to conduct financial transactions. This resulted in a new genre of players viz., fintech companies to enter and bring in technology-based competition in financial services. PSD1 also facilitated bringing in transparency by making it obligatory on industry players to communicate maximum execution time for a transaction, rates, fees and brokerages. PSD1 contributed to the development of the single euro-payment area (SEPA) to facilitate execution of payments.

Since 2009, the financial services industry underwent significant technology advancement. As a result, the scope for using technology in improving payment services for the benefit of customers increased substantially. In commensuration with these changes, Revised Payment Services Directive 2 (PSD2) was issued by European Council of Ministers in November 2015, providing inter alia a framework for Open Banking APIs. PSD2 aim**ed** at securing e-payments and expanding the financial service Ecosystem.

The relevance of PSD2 in the context of Open Banking can be appreciated from the fact that PSD2 supports innovation and competition in retail payments while enhancing security of payment transactions and customer data. It allows third party providers (TPPs) too in this space and the latter are expected to offer better and varied tech supported payment solutions / products while adhering to the elevated security standards and norms. The TPPs can, like existing players, offer services based on access to information from the payment account of the customer. It needs to be mentioned that PSD2 provides for both 'payment initiation services' and 'account information services' and it gives all payment solution providers including the TPPs a level playing field. The TPPs can also issue card-based payment instruments and request 'confirmation of the availability of funds from the payment service provider servicing the account'. On the whole the banks and the TPPs are allowed greater space and flexibility simultaneous with greater responsibility to preserve the customers' rights over their data such that both can, through competition or collaboration, extend the frontiers of Open Banking.

PSD2 legislation was to become effective in January 2018. Every EU member country was required to transpose PSD2 as a law of the nation by 13 January 2018. However, as security aspect has been a major issue, many banks were delaying due to their lack of satisfaction on that count.

Some member countries faced a special problem with regard to dealing with the issue of customer right of privacy over personal data. It may be noted that the banks and financial services providers in EU countries need to contend with the provisions of General Data Protection Regulation (GDPR) while implementing PSD2 directives. The problem arose due to the fact that there are some overlaps between these two sets of directives. As stated already each country needed to transpose PSD2 by passing appropriate statute to give effect to its provisions. The latest version of GDPR, which too came into effect in 2018, is basically an evolution of the same basic data protection principles that were earlier announced in 1995 emphasizing purpose limitation, data minimization, transparency and data subject rights. The GDPR in its latest form imposed strict obligations upon data controllers and processors. It also provided heavy penalties for violations. Its provisions apply to all EU based companies as also those entities dealing with personal data of citizens of EU countries. As said already, there are some areas of intersection between GDPR and PSD2 like the scope of sensitive personal data and sensitive payment data, mode of obtaining customer consent and domains of regulatory authorities, etc. Thus, while formulating national law to implement PSD2, each EU nation has been required to keep these issues in view and provide clarity. In a few cases, the Netherland for example, the lack of clarity had interfered with the rapid offtake of Open Banking. This has been so because Open Banking is based on PSD2 but while implementing it financial service providers were required to ensure that they do not violate the dictates of the GDPR.

Two deadlines were set up for PSD2 compliance - March 14th 2019 and September 14th 2019. By the first deadline, banks were to 'have a testing sandbox set up, including APIs, documentation and technical support for external developers.' September 14th 2019 was fixed as the final deadline for banks to comply with full provisions. Incidentally, like the UK forming OBIE, the EU also set up OBE (Open Banking Europe) a platform for market players to collectively address issues of standards and tools, which is expected to help them navigate through necessary procedures.

With the benefit of these insights relating to initiatives taken at the level of European Union, the cases of two member countries with differing degrees of progress may be examined.

1.4.1.2.1 Sweden

Sweden has been one of the early adopters of Open Banking amongst EU countries. Factors such as high digital literacy, smartphone penetration and levels of per capita non-cash transactions in the country contributed to this phenomenon.

The provision in the PSD2 that banks allow licensed third parties secure and 'consent-based' access to their customers' account data has been generally welcome in the country. The fintech companies have also been excited about building applications around customer data to improve the quality of financial products.

To quote a couple of examples,

A premier European Financial Group viz., Nordea, which happens to be a leading player in Sweden had opened its Open Banking platform in 2017 and started making available 'test data' through its portal to the third party

fintech companies. Nearly 2500 developers evinced interest to build applications and got themselves registered with it. In order to have access to 'real data', the third parties required to have PSD2 license from relevant regulatory authorities.
Swedbank, had opened up a beta version of its Open Banking platform by autumn 2017 too. By January 2019, it went live with 2000 registered developers and third-party providers.
Under the PSD2 framework, the developers can use both AIS (Account Information System) API and Payment Initiation Service (PIS) API for the purpose of generating financial solutions. The end users or the customers on their part, can themselves, authenticate and give consent for necessary access to accredited third parties. It is clear that players like Nordea, Swedbank and several others view the PSD2 as an opportunity to work together with others which can add value in providing financial services solutions to the customer.
Such positive psyche is not confined to a couple of banks or banking groups. Generally speaking, there exists a positive outlook towards Open Banking in the country. There is a growing realization that it gives scope for cooperation, collaboration, and co-creation of valuable financial products, by working with third parties. Nordea, for example, is even prepared to open its API to its competitors.

1.4.1.2.2 The Netherlands
The Netherlands has been also been known for taking early initiatives with regard to Open Banking. However, the widespread acceptance of Open Banking by people at large seems to have been stuck somewhat on the issue of data privacy. Thanks to the aggressive campaigning of General Data Protection Regulation (GDPR) by the European Union in 2012, the bank customers in the country have been rather wary about allowing their banks share their data with third parties. By way of slight elaboration, the EU had launched GDPR with the laudable object of helping the citizens- both individuals and businesses- of its members countries to derive optimum benefits that are associated with the digital era and simultaneously sensitized them about the importance of data protection and having control over own data. *There were extensive deliberations on the later issue and* it took nearly 4 years for all stakeholders to reach agreement on what GDPR involved and how its provisions will be enforced. The net impact *of such prolonged exercise* on the people of the country was a kind of general 'wariness' about sharing of financial data. Against this background, PSD2 based Open Banking, which came later, suggested the benefits of sharing data with third party developers. The two sets of directives were apparently creating conflicting perceptions although there was no rationale for this. As a matter of fact the provision for data sharing envisaged under Open Banking came with adequate safeguards and it was meant to help customers maximize benefits of digital era in a safe or secure manner. In a way it can be viewed as refined addition to the GDPR safeguards. But this message did not seem to have adequately sunk in the psyche of customers, in general. Curiously, not even large advertisement campaign in favour of Open Banking in the country has so far produced commensurate results. However, in the era of globalization, one may surmise that it may not be very long before Open Banking finds greater acceptance in the country.

1.4.2 Australia and Oceania
1.4.2.1 Australia:
Faraway from Europe, Australia has been taking considerable initiatives to introduce Open Banking. The country with its historical links with United Kingdom has drawn lessons from the latter's initiatives and it is trying to improve upon. The challenge in Australia is somewhat different considering that nearly 95% of market share in the country are held by its four largest Banks-Commonwealth Bank of Australia (CBA), National Australia Bank (NAB), Westpac and The Australia and New Zealand Banking Group (ANZ).
The government first announced a commission to review into Open Banking as part of 2017 federal budget. Next year May, the government accepted all recommendations of the commission. Initially the big 4 banks were encouraged to introduce Open API by year 2018. These banks were asked to make available their product data relating to debit and credit cards, deposit and transaction accounts by July 2019. On August 1, 2019 the Australian Parliament passed the Consumer Data Right Law which gave the consumers control over their data and the right to share with others. Accordingly, the customers of the big four banks were entitled to ask their banks to provide their debit card, credit card, deposit account and transaction account data to authorised organizations. This would come into effect from July 1, 2020. From November 1, 2020 the scope would enlarge and cover mortgage and personal loan account data as well. Banks other than the big 4 have been required to provide access to product, account and transaction data in 2 phases, starting with February 2021. By November 2021 every bank in the country will be required to provide access to product, account and transaction data for personal loan and other accounts.

1.4.3 North America
There are considerable variations with regard to approaches, acceptance, and introduction of Open Banking amongst countries in North America. Significant differences are observed even amongst three large countries such as Canada and United States.

1.4.3.1 Canada

Canada is a unique case, not only in the continent, but even globally. Its financial system and regulatory authority are two good examples. Canada has one of the most trusted banking and financial system. This makes its people who have been accustomed to the assured safety of financial savings remarkably risk averse. Second, its regulatory environment is based on nature of entities versus nature of their businesses. This makes the job of regulating Open Banking related entities difficult as a variety of different types of entities participate in its ecosystem.

Having mentioned about these twin factors that are not in favour of Open Banking, surveys found out that the people are keen to derive the benefits of it. The government is also keen that the benefits reach the people by scrupulously addressing the areas of risks such as threat to consumer rights, data privacy and data security. On their part, the industry players like banks, financial institutions etc. are also unwilling to be left behind as the rest of the world takes a leap forward.

Way back in 2017 Canada had started a consultative process to elicit opinions of individuals and organizations on meaningful benefits that were expected out of Open Banking, as well as risks posed to consumer protection, privacy and security. This was to be helpful to decide upon the role of government on the issue. The feedback encouraged the government to take next step.

In November 2018, the Department of Finance had appointed an Advisory Committee on Open Banking to evaluate the merits of Open Banking framework for the country. It was to hold a two-phase consultation process for this purpose. In early 2020 the Committee released a report recommending that the government may move ahead to enable Open Banking and develop a framework to set the guardrails in a manner that protects consumers and participants, while allowing innovation to flourish. As regards establishing the technical standards and technical approach, the Committee opined that these should be 'nimble and avoid being over-prescriptive'. It also expressed the view that industry should act as the driving force for establishing these standards and approaches. The Committee recognized that there were several other intricate issues concerning consumers and other stakeholders, which would have to be addressed both by the Committee and the Department of Finance.

Interestingly, the Committee while finding worth of Open Banking thought a lot of benefits flowing emanating in the form of 'consumer directed finance' and went to suggest that the moniker 'Open Banking' be substituted by 'Consumer Directed Finance'. It also strongly advocated a timeline for its implementation, which it thought could be 1 or 2 years. Canada is working out its own equivalent of PSD2 in the form of a regulatory framework.

1.4.3.2 United States:

In the United States, the approach towards implementation of Open Banking has been quite different from countries such as United Kingdom in Europe or Canada, its neighbour in North America. The banks and the banking industry in the US have been more proactive in favour of Open Banking than the regulators. The latter are however trying to facilitate the process in benign ways by creating necessary framework but without imposing things from above or fixing any deadlines.

Few important regulatory initiatives adopted include inter alia the followings: 1. In 2018 Financial Services Information Sharing and Analysis Center (FS-ASAC) published API standards that fulfil many of the functions mandated in PSD2 by the European Union; 2.National Automated Clearing House Association (NACHA) Electronic Payments Association was to launch 16 APIs; 3. In July 2018 the Treasury advised the Bureau of Consumer Financial Protection to let TPPs access financial accounts and transaction data; 4. The Consumer Financial Protection Bureau (CFPB) issued guidelines laying the outlines of principle for data sharing. They involve security of customer data, providing transparency to customers about what data is being collected and duration of their storage. They also provide for disputes resolution mechanism for the benefit of the customer. 5. The Federal Financial Institutions Examination Council (FFIEC) has issued guidelines on topics concerning areas such as retail payments system and outsourcing technology services.

Generally speaking, banks in the country realize that they need to introduce Open Banking to remain competitive. They are however not under any pressure but being guided by business motive. Incidentally, there are several smaller banks which have outsourced large parts of their technical process. In their case, the pace of introduction of Open Banking will depend on the IT service providers.

Before closing, two initiatives by US deserve mention. Th Financial Data Exchange (FDX) was launched in October 2019 reflecting an industry-wide movement to enhance consumer and business control of financial data. It was founded on five core principles of Control, Access, Transparency, Traceability and Security. FDX API and technical standards were supposed to help realise these objectives.

Close on the heels, there was another significant development when The Clearing House (TCH), the membership organization of the banks, released a Model Agreement to help financial institutions and the fintech companies establish legal terms in respect of sharing the bank-held customer data. This was done with inputs from member banks and non- bank financial institutions as well as fintech companies. It is expected to facilitate, inter alia, negotiations between these entities in the matter of data sharing.

Both these initiatives can help in facilitating Open Banking in the country. There are many who feel that the government and regulators are not doing enough to give a push. They must extend support and guidance - both legislative and regulatory- to give Open Banking a push in the country.

1.4.4 South America

In Latin America, Brazil happens to be the biggest country and economy and the Open Banking initiatives taken by it are likely to have impact on other countries in the continent.

1.4.4.1 Brazil

Brazil banking industry has been dominated by 12 large banks which command over 80% of total businesses. This has led to lack of competition, high interest rates on loans, hefty bank charges, inefficiency in banking services, absence of innovation and presence of a large number of people remaining outside the banking services. Banco Central Do Brasil (BCB), the central bank of the country had reasons to seek solutions to these maladies when it disclosed fundamental requirements for implementation of open banking in Brazil vide its Communique 33455/2019 in April 2019. That communique presented the objective, the definition, the scope, regulatory strategy and actions towards implementation of open banking.

In this context it will be interesting to examine how did the BCB look at open banking. This reveals from its Communique issued on the occasion of its announcement defining open banking 'as the sharing of data, products and services by financial institutions and other licensed institutions, at the customers' discretion as far as their own data is concerned, through the opening and integration of platforms and infrastructures systems in a safe, agile and convenient manner.'

The BCB also added that it expected the open banking will help fintech companies develop app-based banking APIs which will increase efficiency and transparency.

The agenda clause in its communique gave indication of the benefits it was looking to result from open banking which can be summed up as achieving (a) higher efficiency in credit and payments market, through (b) greater financial inclusion and competition, while (c) preserving security of financial system and ensuring consumer protection.

The BCB also laid down the benefits of open banking in a way that can be readily comprehended by an ordinary man. Thus, it said, open banking will ensure better product at lower price and he or she will be able to proceed with transactions using a single app without having to access the website or app of his or her own bank.

It may be added here that the scheme of open banking encompassed licensed institutions, which included banks, payment institutions and other entities licensed by the central bank. As regards the scope of customer data, the customers include both individuals and legal entities, and data may relate to both registration and transactional. Customer consent was to be the fundamental condition for data sharing.

The BCB made it clear that it was looking at open banking as part of push to promote digitization and transparency of financial services in Brazil, as well as to welcome new market players and business models.

Thereafter through its public communication 73/2019 it allowed interested parties to submit suggestions and comment up to January 31, 2020 on the open banking proposed regulations.

1.4.5 Africa:

In quite a few countries in Africa financial inclusion has been a huge problem. Therefore, reaching wider population with financial services has remained amongst important economic objectives of various governments. In this regard Open Banking is being seen as an important means to achieve that goal while simultaneously achieving modernization of their banking systems. It is also interesting to observe that telecom companies have been acting as a vehicle for promoting the Open API technology in these countries.

There are considerable variations across countries in the continent with regard to their approaches to Open Banking. We make a brief mention of two countries Rwanda in south-central and South Africa in the south-east of the continent. From the brief narration that follows, albeit brief, it is possible to observe how these two countries differ with regard to their views on the issue of role of the regulator vis-a-vis market forces to facilitate implementation of Open Banking.

1.4.5.1 Rwanda

Rwanda’s approach towards Open Banking has been based on European Union’s PSD2. Provisions were made in the legislation for new types of payments providers and regulatory sandbox design. The Open Banking regulation in this country included in its ambit small businesses & consumers and it addressed issues such as data portability & data sharing. The purpose has been to encourage innovation, efficiency, developments of new products & induction of new players. The architecture in this regard is built on the pillar of 'informed customer consent', as is the case with PSD2 in Europe. It is significant to note that telcos (telecom companies) are playing important role in fintech development in the country, which is a key requirement for the success of Open Banking. It is therefore imperative that both the telecom companies and mobile service providers also be brought under the purview of the Open Banking regulations that are evolving. In alignment with the country's aspiration to transform its economy into one which is both service oriented and knowledge-based, the umbrella

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of financial services has been fast spreading. As per Rwanda's Vision 2020, the country has a target for 90% financial inclusion by 2020. Considering the rapid spread of financial inclusion and rather early initiatives taken with regard to introduction of Open Banking, Rwanda makes an interesting case in the continent.

1.4.5.2. Republic of South Africa

Traditionally, the banking and financial markets in the country have been highly regulated. This may be attributed to its past colonial linkages with Great Britain. The banks have to adhere to array of financial, consumer protection and data legislation. Such a legacy tends to make authorities take a mandatory approach towards Open Banking.

At the same time however, the country is also saddled with the problem of a huge problem of financial inclusion. The banking & financial industry operating under tight leash of regulatory regime find it difficult to reach a vast population deprived of financial services. The challenges before the regulatory authorities have been to ensure financial inclusion without compromising on areas such as consumer protection & privacy, data protection and other statutory compliances.

The solution to the problem seemingly laid in the banks finding out some kind of 'workaround' and fintech companies coming forward to help. In this connection it may be mentioned that the Telcos have been playing an important role across the continent in reaching limited range of financial services to unbanked population. They have been playing a significant role in South Africa too.

Interestingly, the awareness of open banking in the country was remarkably ahead of many other countries. By end of 2016, the country had set up an Intergovernmental Fintech Working Group (IFWG). This initiative was taken by the National Treasurer, the South African Reserve, the then Financial Service Board and Financial Intelligence Centre. It acted as a platform for engagement with the industry on select areas including inter alia Open Banking.

With the legacy of a conservative and cautious mindset unlikely to change at a stroke banks have been trying to get over the limitations through improvisations wherever feasible. For example, while a comprehensive legislative framework on Open Banking is awaited a common API called Secure-X has become the standard across the country. Its application is for sharing consumer data – from statements to utility bills – in over 40 South African financial institutions.

Simultaneously as already said telcos have been playing an important role. Given the presence of a significant unbanked population, Africa as a continent found the 'mobile-first' policy useful to reach financial services to masses. Accordingly, in RSA the Telcos are reaching people some benefits which are associated with Open Banking. Few mobile solutions e.g., M-Shwari, M-Pesa, Tala deserve special mention.

It needs however to be mentioned that RSA is yet to come out with any comprehensive legislation on Open Banking. One does not yet know what shape that will take- whether it would be cautious and conservative or be an energetic facilitator of Open Banking. Till then, the banks, financial institutions and Telcos are likely to find out their own ways to reach the benefits of Open Banking to people, especially the unbanked masses, in ways and manners they keep improvising**.**

1.4.6. Asia

In Asia, a wide variation is in evidence amongst countries with regard to how they are approaching open banking. South Korea has made a spectacular launch in 2020. Some are in early stages of implementing it. Countries like Singapore, Hong Kong and Malaysia have formulated regulations on open banking. Singapore was the pioneer of open banking in Asia and it continues to remain at the forefront. In both Singapore and South Korea, the regulatory authorities and market players are acting energetically and it in sync with each other. Japan on the other hand represents an approach where the government and regulators issues standards and specifications but left it to banks and third parties to decide whether or not to adhere to them. China has been pursuing a different approach with few of its giant bigtech companies taking initiative in building up the open banking ecosystem, more specifically the APIs, while the government and the regulators have not yet come forward with adequate legislative and regulatory initiatives. India is treading a different path. It is the best example of an approach, which is encouraging both regulators and some industry players build up the ecosystem for Open Banking but the government remains far from taking a policy decision on whether or not to introduce it. Obviously, the nod for Open Banking has to come from the legislative side. As regards the regulatory framework, India is allowing 'data sharing' with adequate safeguards cautiously laying down eligibility conditions for accessing the data network. Alongside such 'prescriptive' style, industry players are making rapid stride in technology domain. Three countries in the continent adopting three different approaches are discussed below before we take up the case of India, the prime focus of the article, in more detailed manner.

1.4.6.1 Singapore

The Monetary Authority of Singapore had rightly anticipated way before others the indispensability of APIs in bringing radical improvement in financial services area. Thus way back in 2013, the MAS introduced "the "Finance-as-a-Service: API Playbook" and the Finance Industry API Registry. It rightly realized that APIs were critical to ensure greater digital connectivity. As of November 2019, 470 APIs were published in the API

Register by the financial institutions operating in Singapore. Both the MAS and the financial institutions in Singapore are unanimous on the fact that opening up of customer data lead to innovations.
The initiatives by the MAS have encouraged banks to expand their digital platforms and work in closer partnership with fintech companies in formulating more customized solutions. As a matter of fact, the banks have often adopted greater customer centric approaches and attempted to create such product solutions that take care of both financial and non-financial needs of their customers.
In 2018, Singapore was ranked #1 in Finastra's Open Banking readiness index. Its high API adoption was the dominant consideration in this regard. It may be noted that Singapore was the first to provide a framework for Open Banking in the Asia Pacific region. Its initiatives so far have given a upward push to the quality of its financial products and services, though, what keeps it apart from full scale Open Banking is lack of a legislative framework. Further, in spite of proliferation of APIs, their standardisation is a task that remains to be fulfilled.

1.4.6.2. South Korea
South Korea happens to be the first country to launch infrastructure for common API for financial institutions. The Fintech Open Platform was launched in 2016. The authorities had rightly assessed that the future of financial services in the country would hinge on technology and hence close coordination between financial institutions and fintech companies would give a boost to that industry. The Financial Services Commission (FSC) on the occasion clarified that this platform 'would serve as a direct communication channel between fintech developers and financial services operators and also play a role as a test bed for new services.' The FSC claimed such a venture was first of its kind globally and it would make South Korea a leader in fintech field. As a sequel to this move, in March 2019 the FSC announced its plan to revamp the regulatory framework concerning electronic financial businesses and to introduce an open banking system. It was considered necessary to enable fintech companies to share the payment networks of the banks. The transition to open banking was envisaged to happen in three phases. First, voluntary agreement among banks on open banking system. Second, bringing legislation on open banking system. Third, fintech firms securing direct access to financial payment system.
With quiet determination, the country achieved these milestones and launched a splendid version of Open Banking on December 18, 2019 through a mobile application. According to the FSC this app allows bank customers to access nearly all banking services provided by all banks at one single place. Nearly 26 banks and 31 fintech companies began to offer this facility to their customers. This step is being considered as quantum jump. With the infrastructure becoming more efficient and cost of operation coming down, the players from the entire financial sectors will have to participate in open innovation and compete to offer better products and services to customers.

1.4.6.3. China
China has not yet set up any legislative framework for Open Banking. However, it has a very vibrant bigtech and fintech space. Several bigtechs like Alibaba, Tencent etc have emerged as world leaders. These two companies in particular, which dominate the payment market with their APIs, publish details of their API documentation. In comparison, banks are still lagging behind. Chinese fintech companies may be said to be providing several features of Open Banking to consumers but it is remarkable that there are no universal industry standards applying to their operation, such standards relating to inter alia data privacy, data security, consumer protection, etc. The absence of a sound regulatory framework are matters of concerns to the market players and people of the country as well. The National Internet Finance Association (NIFA) had, in a symposium, highlighted the need for setting up a regulatory framework so that industry standards be framed and systemic risks be guarded against.
Finally, we take up the case of India and examine the country vis-a-vis its attitude and preparedness to accept and implement Open Banking.

1.4.6.4 India:
In the context of Open Banking, India is an interesting case. Both the government and the Reserve Bank of India which regulates the banking industry are yet to decide whether or not India should implement open banking. As a matter of fact, that question per se has not managed to enter into the mainframe of discussions amongst government, regulators and banks as yet. There are a set of issues relating to data sharing, protection of personal and financial data, etc on which the country is yet to take a series of decisions. They have important bearing on the decision on adoption of open banking.
Simultaneously however, some other key components of open banking which concern technology, systems and processes are being built up steadily in the country. Technological changes have been sweeping the financial services industry in general and banking in particular. Though there is not standardized interoperable Open API across the financial sector, few banks are considering Open APIs at individual level albeit for restricted purposes. However, the NPCI being RBI subsidiary dedicated to building up an efficient tech-based payment system connects to most banks and other industry players through its API.

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Then, a breed of young fintech companies is fast emerging. The regulatory bodies in the financial sector are in the process of building up institutions, instruments, systems and processes that support and protects the integrity of customer data and financial transactions. On the whole, the country is in a juncture where it has built up the infrastructure to a considerable extent but must wait for the 'nod' from the government and 'push' by the regulatory bodies to the paradigm of open banking.

In the following paragraphs we propose to indicate the manner India has been gradually creating an infrastructure that can support open banking if and when a decision is taken on its introduction. The discussion encompasses both technology as well as issues of data sharing, data protection and data privacy.

Reserve Bank of India has striven systematically and over a period of time to usher into an efficient payment system. As said already NPCI or the National Payment Corporation of India, its subsidiary has been spearheading technology powered changes in the 'payment services' space. Shifting parts of paper-based payments like cheques, drafts to electronic platform like the ECS began way back in 1990s. That was an important reform. However, these transactions depended on bank branches for origination, modification and termination. In course of time parts of 'payment' transactions were shifted to electronic platforms like NEFT, RTGS and IMPS. It became possible for customers to initiate transactions by visiting their banks as well as directly by them through net banking and mobile banking without any dependencies on branches.

In the year 2009, RBI had through its directives on 'prepaid payment instruments', effectively opened up scope for non-bank entities, in addition to banks, to offer a variety of payment products to their customers. Those included inter alia smart cards, internet wallets, mobile wallets and paper vouchers. One could also see a collaboration coming up between banks and non-bank players in offering 'payment solutions' to customers. A good example was Oxigen Services Pvt Ltd combining with State Bank of India creating a Mobile Wallet. However, given various limitations imposed on participants in the payment ecosystem especially non-banks, these lacked both in efficiency, convenience, and variety.

The emergence of UPI or Unified Payment Interface, during the de-monetization drive in 2016 proved to be a game changer. The challenge of equipping vast masses with some form of digital money prompted the regulator to allow a few reliable payment service providers (PSPs) also to enter into the UPI ecosystem, although they were still needed to forge partnership with any of the 'member' Banks to be able to provide their payment products.

UPI offered an architecture framework and a set of standard API specifications to facilitate online payments. The network is owned and operated by NPCI and it provided 'a single interface across all NPCI systems, thereby creating interoperability and superior customer experience.' Amongst several value-added features, the network enabled a banking entity directly interact with the UPI switch, offered great improvement in speed of transaction-processing, and also provided higher level of security through 1 click 2 factor Authentication. While it primarily admitted only banks as members of the network, a non-bank entity meeting with the norms, could participate as a partner with a banking entity. UPI framework thus allowed large technology companies / 3rd party processors/ merchants/ aggregators to connect to banks and provide extensive services to the end-customers. It may be noted that the UPI API is minimalistic, fully functional, and allows 'innovations in user interfaces, convenience features, authentication schemes, and mobile devices to be brought in without having to change the core API structure.' This has attracted a number of bigtech companies and other non-bank players in offering a range of exciting payment solutions to the end users and rapidly add to their customer base. They include inter alia giants such as Google pay, and Amazon pay, as well as other companies such as Paytm, Phonepe, and Mobiwik. As a matter of fact, the tech-enabled companies have managed to grab a chunk of market share in the payment solutions from the banks by now.

With regard to the issue of data privacy and data sharing, India has greater challenge to meet due to a strong legacy mindset that deeply respects 'data privacy'. This psyche pervades not only customers but banks, regulators and even judiciary. The initial change in this regard came on the issue of sharing 'credit related data'. This was probably driven by the fact that NPA was weighing heavy on banking industry and sharing of information about the track records of borrowers was thought to be useful in societal interest.

Under the Credit Information Companies Act 2005 third party organizations could provide credit information to lending banks and financial institutions. However, the CIC could furnish information only to its members while maintaining the principle of privacy envisaged under Section 20 of the said Act. In another significant step in 2016 the government passed the Insolvency and Bankruptcy Code which proposed to set up Information Utilities (IU). Like the CIC under the Act of 2005, the IUs too was empowered to create database of financial information that could help banks and other lending institutions to make quality credit decisions.

Meanwhile in 2011 the government had taken another initiative which was impelled by a different consideration viz., the rapid adoption of IT technology by banks and other financial institutions. The IT (Reasonable Security Practices and Sensitive Personal Data or Information) Rules 2011 sought to create a robust architecture which, while aggressively protecting sensitive personal data of customers, allowed banks to release data when the customer has explicitly consented to such disclosure.

More recently, the government of India has prepared a draft legislation viz., Data Protection Act 2019 which seeks to create a robust architecture for protection of data of various types (including financial), in the country and set up a Data Protection Authority for this purpose. It gives high priority for individual rights on data

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protection. Under the proposed Act citizens' personal information cannot be collected, processed and shared without their consent. However, while it seeks to protect the customers' right of privacy of their personal data, it may simultaneously open up new possibilities for sharing of customers' personal financial data on the basis of 'customer consent'. The bill is engaging the attention of a Joint Parliamentary Committee.

India took another significant step towards 'data sharing' by starting the Account Aggregator ecosystem in 2016. The joint regulatory bodies of the Reserve Bank of India, SEBI (Securities and Exchange Board of India), IRDAI (Insurance Regulatory and Development Authority of India), and PFRDA (Pension Fund Regulatory and Development Authority) created a special category NBFC called as Account Aggregator (AA) through the Financial Stability & Development Council (FSDC). Under the arrangement banks and other entities regulated by any of these above mentioned regulatory bodies can participate in the system both as 'information provider' and 'information user'. One has to be a provider first to be eligible as a user of information. The AA is 'data blind' as the data passed on to it is in encrypted form and the data opens only on the device of the end user. The data transmission is based on customer consent. Although, the scope of data exchange through AA is limited at present, the potential to expand is large.

Considering variety of initiatives as indicated above, it appears that India has been making impressive progress with regard to technology while inching towards creating a secure ecosystem of customer data sharing based on customer consent. There are of course gaps that still remains. For example, the issue of standardized Open API that is interoperable amongst banks themselves. However, these gaps are likely to close once the country decides on data privacy and data sharing issues through legislative and regulatory initiatives.

It may also be added that India has made spectacular advance in the realm of APIs that are connected to extremely valuable kind of data such as biometric identity, digital signature, of the citizenry etc through an initiative called India stack. This mechanism gives an opportunity to banks, financial institutions, fintech companies etc to secure access, with reasonable safeguards of course, to a vast treasure house of data relating to Aadhar, e-KYC, e-signatures, and digi-lockers of potential customers. This can make unique contribution to the success of Open Banking, if and when the latter is introduced.

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