Mahindra COMVIVA

vritti

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Blurb

Hello Friends,

I hope you enjoyed reading the articles published in edition 1 of **Vritti** just as much as we enjoyed creating them. We were delighted with the feedback and reception the magazine received. Many of you mentioned that the articles were too long and in some cases the text was too small to read. We have taken all the feedback in our stride and created a leaner and better Vritti.

We have packed in this edition with topics that we believe is of interest to you. Read on **biometrics** as means to combat financial fraud including identity theft in “mobilution”. With **Payment Bank** licenses being issued in India, we have tried to bring to light what these entities can do, their business model and key challenges that await payment banks in “trending now”. Learn what **block chain** is and the finer nuances in “technically speaking”. More on how the mobile phone and mobile money has revolutionized **governance** across the globe in “changing lives”.

We would love to hear your suggestions for topics of interest and do send across your inputs on how we can make Vritti better. You can share your feedback at vritti@mahindracomviva.com.

Happy Reading!

Srinivas Nidugondi
SVP and Head of Mobile Financial Solutions
at Mahindra Comviva

Blockchain FOR THE UNINITIATED

When it comes to technology, block chain figures in the top 10 hottest technology trends for sure. Some even tout it as the biggest disruption since the internet.

by Amrita Bannerjee

Block chain is a methodology to maintain truth states in distributed computing. It is therefore really surprising how many so called “geeks” (yeah that’s what cool people call technology enthusiasts) equate block chain to bitcoin. In my attempt to deciphering block chain, there were many “Aha” moments which I attempt to share with you through this article.

So let’s first try and understand what distributed computing is.

Let’s say that we are solving a crossword. There are 5 of us and 10 clues to be solved. Each of us have the same objective – solve the complete crossword. So each of us pick up a copy of the crossword and start solving. Every time any one of us solves a clue, we inform the others. Everyone notes the solution and starts focusing on the remaining clues till we solve all 10 clues.

Now if each of us were a computer then this is distributed computing. Each computer or node works towards the same goal by using the resources available given the constraints.

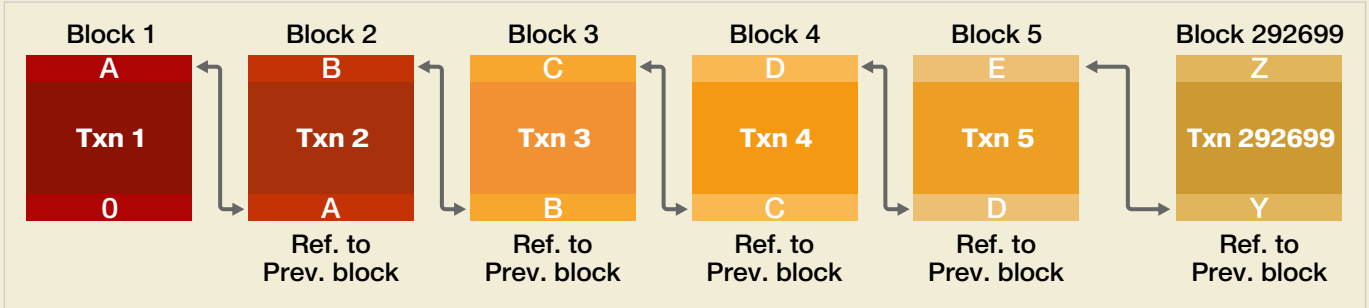
Block chain is a distributed database

If you treat each crossword puzzle as a database that maintains a record of words where every new record is linked to the previous record entry through a common letter, then this is an example of a distributed database. Even though the data is distributed across multiple database systems, there is only one true state at any point of time. There is specialized software which looks for changes in the state and if detected then a process is initiated to bring all databases to the same state thereby ensuring data consistency.

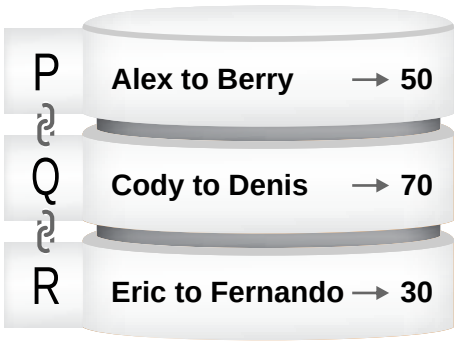
A block chain maintains a list of data records

In case of crypto currencies, the data record being maintained is that of a transaction. Every database node would maintain a record of all transactions that have occurred since the first transaction ever. However, the fact that the change needs to be detected and then there is a time lag while it is transmitted to every database for the records to be in sync allows for asynchronous states to exist. Thus the essence of block chain is in the mechanisms it has for handling such discrepancies in a distributed computing environment. There are essentially two things that are a part of block chain that enables this. Firstly, every block always carries a reference to the previous block in the chain. Thus it helps establish the sequence of events.

GENESIS BLOCK



Secondly, at any point of time, in case of discrepancies, all systems would always align to the longest chain available. Let us try and understand this through an example taken for financial transactions using block chain. In this case, the database maintains a record of transactions. Let the current state of the system be as follows:



Now lets suppose that two transactions are initiated at the same time

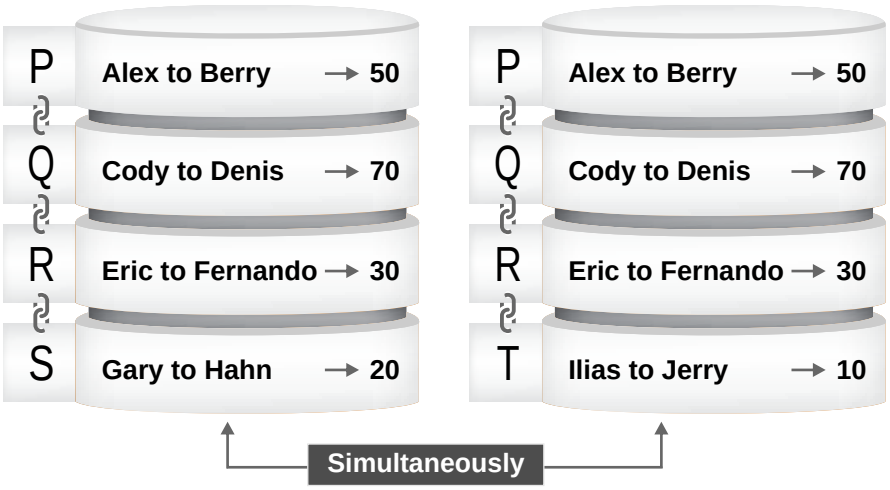
Now let's suppose that two transactions are initiated at the same time

Txn 1: Gary sends 20 to Hahn

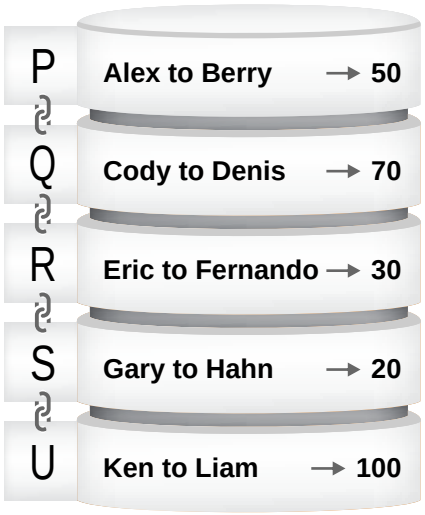
Txn 2: Ilias sends 10 to Jerry

Since both these transactions were initiated simultaneously, they traverse through the network at the same time.

As a result there is discrepancy in the state since the nodes would maintain one of these 2 states



As a next step, let's say node 4 initiates the next txn. Since the block chain according to 4 is P > Q > R > S, his chain would look like this P > Q > R > S > U



As this transaction is transmitted through the network, every database will update their ledger to this since this is the longest chain

P > Q > R > T vs. P > Q > R > S > U

And thus balance is restored to the universe.

The above example can be extended to understand how crypto currencies work. They use distributed databases to maintain records of transactions. Each node maintains its own ledger. When a sender initiates a new transaction, the txn detail is broadcasted to all the nodes. The nodes, also called miners, establish the authenticity of the message and if valid, add it to the ledger.

There are many other things that bitcoin does too like paying a fee to the miners, use of public + private key for authentication but there is enough material available on the World Wide Web that can help you get more insight on bitcoin.

Thus to summarize

- *In block chain, distributed databases maintain records*
- *Any change in any database is broadcasted to all other databases and their state is updated to ensure all nodes are in sync*
- *Every new block of information is linked to the previous block to establish the sequence and maintain a synchronous state across distributed systems*
- *In case of any conflicts, the longest chain is assumed to be the valid one and all other entities must update to the longest chain*

Do go through the YouTube videos mentioned in the reference. I love them for their simplicity and I hope you enjoy them too.

(n.d.). Retrieved from www.letstalkpayments.com: http://letstalkpayments.com/an-overview-of-blockchain-technology/

CuriousInventor. (n.d.). Retrieved from youtube: https://www.youtube.com/watch?v=Lx9zgZCMqXE http://Patreon.com/CuriousInventor.

(n.d.). The Essence of How Bitcoin Works (Non-Technical) . Retrieved from https://www.youtube.com/watch?t=321&v=t5JGQXCTe3c

Swan, M. (n.d.). Retrieved from http://softwareengineeringdaily.com/2015/08/11/blockchains-with-melanie-swan/

www.wikipedia.org. (n.d.).

About the author - Amrita Banerjee has over 10 years of experience in digital banking and payments across product management, product development and business development. She has completed her masters in business management from ISB, Hyderabad with a major in Strategic Marketing. She currently leads product management for mobiquity® Wallet.

DIAL M for GOVERNANCE

While digital governance is topping the agenda of many nations, most governments still have a myopic view of it putting only generic information online. If governments truly want to harness the benefit of digital governance they need to focus on how technology can be used to create citizen-centric experience"

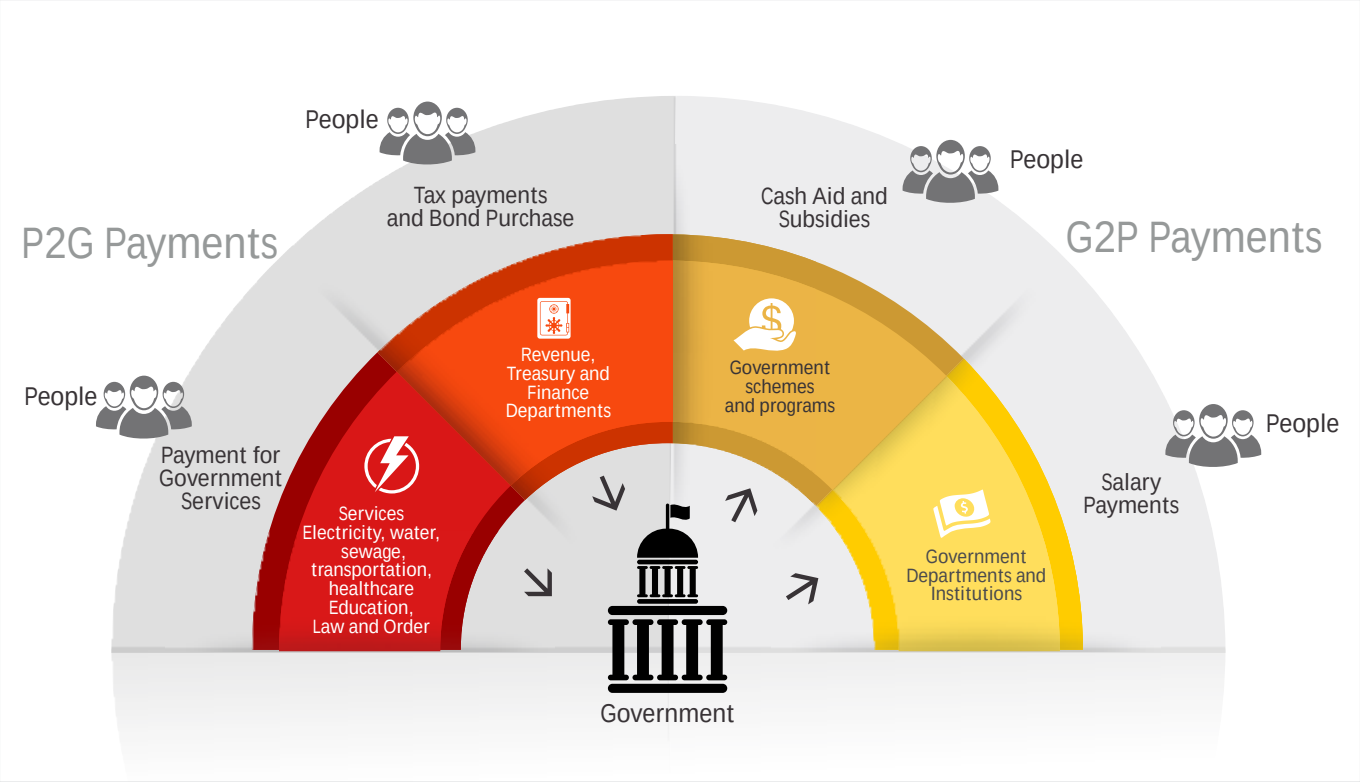
by Mohit Bhargava

Good governance is about people: of the people, by the people, for the people. With more people armed with mobile and internet, governance also needs to go digital. While digital governance is topping the agenda of many nations, most governments still have a myopic view of it putting only generic information online. If governments truly want to harness the benefit of digital governance they need to focus on how technology can be used to create citizen-centric experience.

A citizen-centric experience is about simplifying people to government interactions by making it digital. Consider applying for a passport. A truly digital process would've used digital tools such as the internet and the mobile for the entire process – right from filling required details, providing verification documents, paying service charges to tracking application status. With mobile and internet making deep in-roads into emerging economies, delivering such seamless digital experience is now imminently possible. However, there are few weak links, such as payments. With majority in emerging markets being unbanked and un-carded, digital payments remains a challenge.

Mobile money, which has rapidly risen as a preferred alternative payments medium in emerging economies is the answer. Governments across the world are leveraging the power of mobile money to digitize Person to Government (P2G) and Government to Person (G2P) payments, advancing digital governance agenda, as well as achieving sustainable development goals.

Figure 1 — Mobile Money enabling mGovernance



Person to Government payments (P2G)

Governments are using information communication technologies to improve the quality and efficiency of public sector service delivery. This includes usage of mobile money for P2G payments. According to the GSMA, in 2014, the ability to make payments to the government via mobile money was live in at least 13 markets across Africa, Asia and Latin America[1].

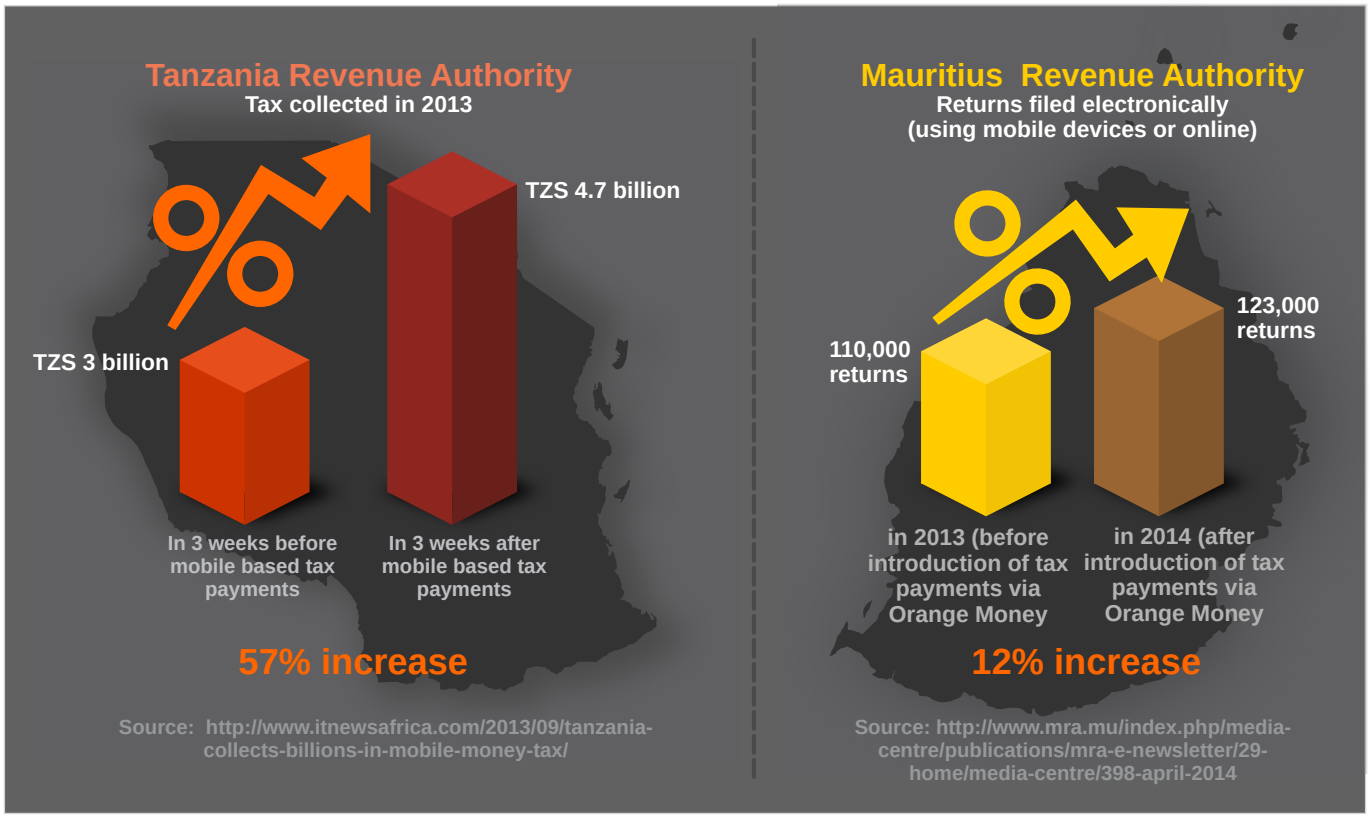
Tax payments

Tax payments can be very taxing! Citizens have to fill up long forms, visit their local revenue authority or bank, and stand in long queues for hours on end to pay their taxes. But not anymore! Governments are now moving toward e-filling and mobile payments. Revenue authorities in countries like Kenya, Tanzania, Mauritius, Guyana, Rwanda, Cameroon, Uganda and Philippines enable

individuals and businesses to use mobile money to pay income tax, corporate tax, property tax and VAT. With an end to end digital process in place tax payments get sorted in minutes.

In addition to delivering convenience to citizens, mobile based tax payment is helping governments to curb tax avoidance and boost the amount of tax collected. Tanzania and Mauritius revenue authorities have experienced increased in tax collection due to introduction of mobile based tax payments. Digital tax collection **eliminates the need for maintaining and storing physical documents** and allows government officials to keep and track records electronically.

Figure 2 — Mobile payment's impact on tax collection



Government of Kenya is planning to sell government bonds via mobile. The platform known as M-Akiba will be delivered through all the major mobile money services, offering bonds worth Ksh 5 billion (nearly US$47 million) to over 32 million citizens. Today, 98% of government bonds are purchased by institutional investors and only 2% by individual investors[2]. By using mobile retail channels, the government hopes to reach more individual investors increasing their participation in government bond issuance. Citizens will not only be able to purchase bond via mobile money, but also receive the principle amount and interest in their mobile money account on maturity of bonds.

Payments for government services

In emerging economies, the private sector is either too weak or there's a monopoly in the market leading to citizen exploitation. To accelerate economic growth and benefit the entire population, governments have set up public sector entities and institutions to provide basic amenities like electricity, water and sanitation amongst others. Citizens pay a charge to access these services, which in most cases is through cash or cheques. However, paper-based payments come with considerable costs. Besides financial costs related to printing, security, postage and clearing & handling of cash, there's non-financial costs to consider such as growth of shadow economy as well as various environmental and security risks. The burden of cash usage on society is as significant as 1.5% of the GDP[3]. Moreover, due to limited collection points, usually there are long queues for payments inconveniencing citizens and creating chaos.

These challenges can be overcome by using digital payments. In many emerging economies, mobile money is finding new use cases everyday: paying bills for utilities; buying tickets for public transportation; paying fees for schools and universities; paying for medical treatments and premiums for insurance. Mobile money brings cost benefits and savings for both citizens and government entities. **Citizens save time and cost of travelling to payments points whereas public sector entities are able to reduce costs of paper invoicing besides curbing the menace of shadow transactions as well as reducing carbon footprint by eliminating paper receipts.** Some successful examples of G2P payments are:

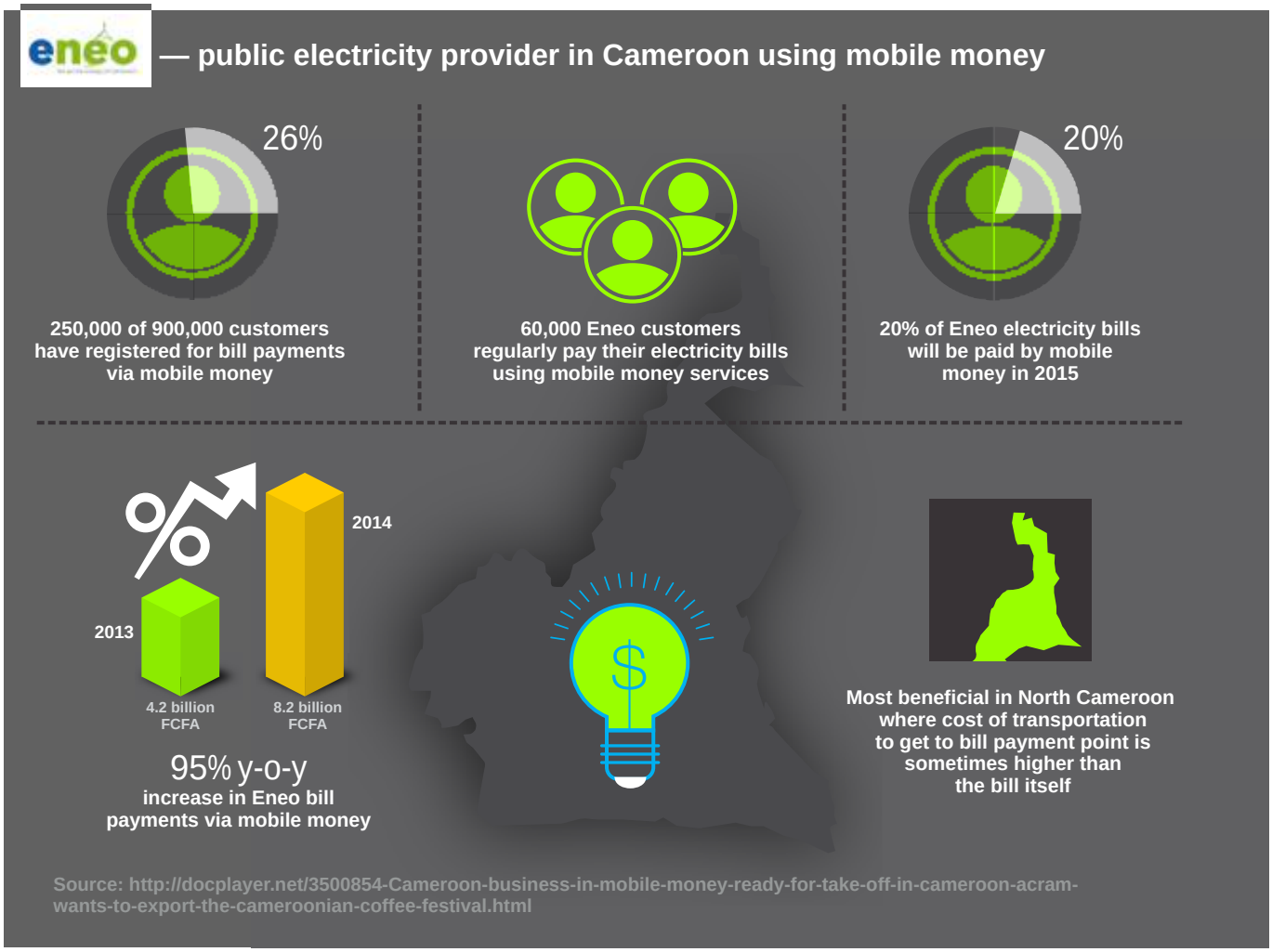
School fee payments in Côte d'Ivoire: The Ministry of National and Technical Education (MENET), in Côte d'Ivoire, made it mandatory for secondary school students to pay their school registration fees digitally via of one of four accredited mobile money providers. In 2014, 99% of the students paid school fees digitally – 94% of which were mobile money transactions and 6% of which were online payments – proving the success of the MENET's P2G payment strategy. The digitization of school fee payments provided two major benefits. Firstly, it **reduced leakage of funds caused by theft, bribery and security issues**. Secondly, digital registration of secondary school students allowed MENET to **consolidate its student database** and significantly increasing the quality of its information. The database is now more up-to-date, includes a comprehensive list of 1.5 million secondary school students, and has eliminated duplicate entries[4].

eServices portal in Ghana: The Government of Ghana, in December 2014, launched Ghana Electronic Payment Platform (GEPP) facilitating digital payments for government services on its eServices portal. Citizens could pay online or through their banks or mobile money services like Airtel Money for various government services like passports, business registration, tax administration and police search reports. In order to process the mobile money payment the user must choose the mobile money provider on the eservice portal and fill in the relevant details. The payment is deducted from citizens' mobile money account and confirmation is sent via SMS.

Figure 3 — Customer journey of school fees payment via mobile money

Source: http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2015/10/2015_GSMA_Paying-school-fees-with-mobile-money-in-Cote-dIvoire.pdf

Figure 4 — Electricity bill payments via mobile money in Cameroon

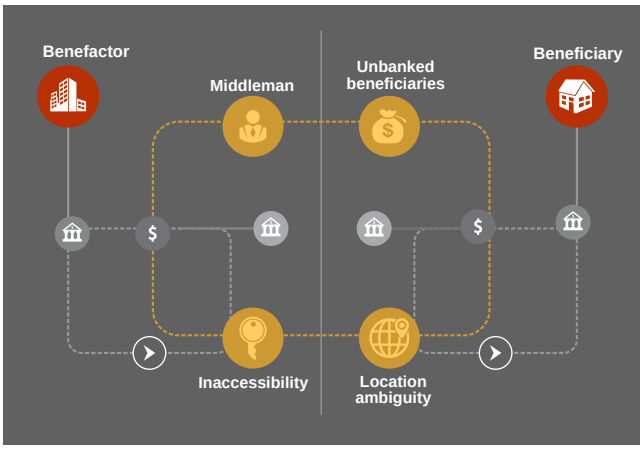


Government to Person payments (G2P)

Now, let us look at the other side of the story – government cash disbursements. Government gives financial aid to citizens in the form of cash, subsidies, distress payments and salaries. Governments globally are adopting mobile money to make cash disbursements frictionless.

Cash aid and subsidies

The government provides financial aid to the poor directly in the form of cash as well as indirectly through various cash subsidies on items like fuel, cooking gas, water and electricity. **Most cash assistance schemes are hindered by long cash disbursement cycles, presence of middle men, large**



number of unbanked beneficiaries and inability to directly reach the beneficiary. With widespread mobile reach, mobile money is the quickest and the most cost-effective option to disburse cash to beneficiaries.

In India, the Government of Madhya Pradesh, with partner Vodafone M-Pesa, disburses financial aid to mothers, who receive the payment directly on their mobile phone. The

beneficiary is informed with an SMS mentioning the amount of the subsidy, the withdrawal code & procedure, facilitating cash-out at any Vodafone M-Pesa agent. Direct disbursement to the mothers has resulted in reduction of the money being collected by the fathers and therefore never reaching the intended beneficiary in some cases.

Mobile money based cash disbursement is most useful in emergencies such as earthquake and floods. For example in Pakistan in 2014, the government partnered with mobile operator Mobilink to disburse funds to flood victims. The use of Mobilink's mobile money service Mobicash ensured that fund disbursement is swift and transparent. Beneficiaries were able to cash-out flood relief funds from designated campsites located across the flood hit areas. The team deployed at the locations used Bio-metric Verification System (BVS) to maintain transparency and ensure that the funds reached the intended person.

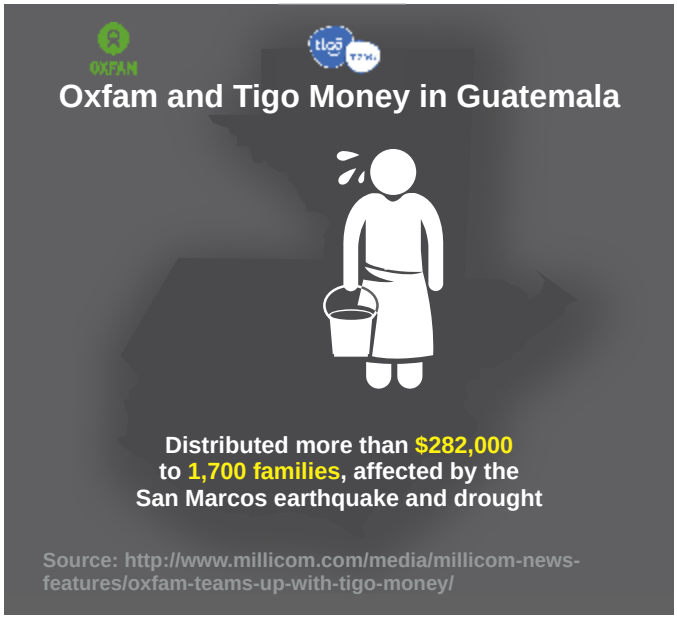
Not only government, but NGOs are also partnering with mobile operators for financial aid disbursement. Monetary aid is a better option compared to in-kind aid (such as food bags) as the affected families can use the money as per their choice and individual needs.

Salary payments

In many developing countries, the government and public sector are the largest employers. Paying salary and pension to serving as well as retired personnel in far flung areas can be very challenging. Irrespective of whether a person is banked or unbanked, permanent or contractual, mobile money provide a robust channel to transfer salaries directly. The solution offers convenience specifically to the old age pensioners, as they can cash-out their salary at nearest mobile money agent and do not need to travel to bank or government offices to fetch salary.

Mobile money salary payments eliminate the role of the middlemen reducing corruption. A good example is the Afghan National Police which uses Roshan's M-Paisa to pay staff located in remote areas ensuring full and timely payment of salaries. The previous cash

Figure 6 — NGOs disbursing cash aid via mobile money



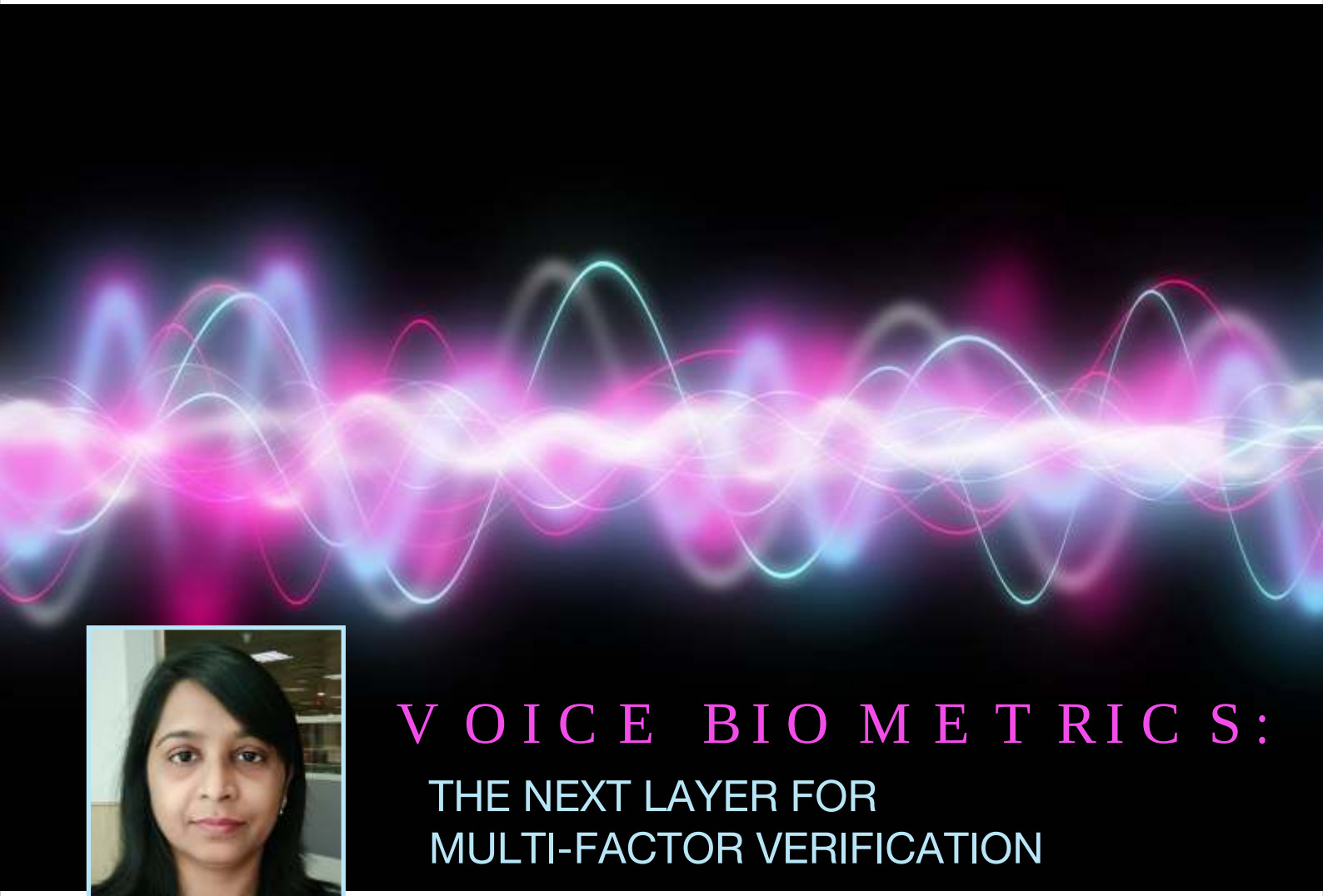
based salary system was marred by corruption with senior officials pocketing salary disbursements with such impunity that many junior policemen were not even aware of their real salary. With M-Paisa these policemen received their salary in full and on time leading to surprises all around. In fact, in some cases, the hike was as much as 30%, preventing defections of policemen to the Taliban who were paying higher salaries[5]. The use of M-Paisa helped to uncover ghost police officers, constituting 10% of the workforce, whose salaries were pocketed by others. In Democratic republic of Congo more than 66,000 civil servants, including the military, the police force, and pensioners receive paymentsvia Airtel Money[6].

The Road Ahead

There are several successful examples of G2P or P2G digital payment transactions, some of which I have mentioned above. However, another truth is that most governments have just focused on digitizing only one or two initiative. The true vision of digital governancecan only be realized if there is a comprehensive strategy to digitize every use case scenario where the people and the government transact - whether it is a G2P or a P2G payment. The importance of user experience cannot be understated. Instead of providing a different user interface for every service, there should be a single portal/app for handling all government transactions. Whether it is paying electricity bill, purchasing train ticket, paying tax or receiving subsidy – every payment should be on a single portal, providing a seamless user experience, leading to higher adoption of digital transactions. Governments should also collaborate with all the digital payment players in the market without any bias to ensure that the digital payment initiative has a wider reach.

1 http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2015/10/2015_GSMA_Paying-school-fees-with-mobile-money-in-Cote-dIvoire.pdf
2 http://www.busiweek.com/index1.php?Ctp=2&pI=4248&pLv=3&srI=69&spI=221
3 http://www.mastercardadvisors.com/cashlessjourney/MasterCard_Advisors_Global_Journey_From_Cash_To_Cashless.pdf
4 http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2015/10/2015_GSMA_Paying-school-fees-with-mobile-money-in-Cote-dIvoire.pdf
5 http://foreignpolicy.com/2015/08/12/afghanistan-calling/
6 http://africa.airtel.com/wps/wcm/connect/africarevamp/africa/home/media/press-releases/airtelmoney

About the author - Mohit Bhargava has over seven years of work experience in product marketing and research in the telecom domain. At Mahindra Comviva, he is serving as deputy manager in product marketing for the mobile financial solutions portfolio. His areas of function primarily include evangelizing Mahindra Comviva's mobile financial products and their impact on transforming the financial landscape globally.



VOICE BIOMETRICS:

THE NEXT LAYER FOR MULTI-FACTOR VERIFICATION

Beyond communication, mobile devices are also spurring new kinds of commerce trends: It has become fairly common to see the use of mobile devices for banking, transferring money, paying bills, shopping, and purchasing digital content such as music and games.

by Nimisha Singh

Shift toward Smart Mobile

The adoption of smart mobile devices like mobile phones, tablets, and wearables are increasing all over the globe. According to GSMA intelligence, almost 90% of the world owns a mobile device today. There are over 2.6 billion mobile data users globally.

This rise of the smart mobile device is fuelling digital consumption. More and more people are using mobile devices for chat and video conferencing with their family, friends and colleagues. Beyond communication, mobile devices are also spurring new kinds of commerce trends: shop & pay for merchandise and redeeming gift coupons on mobile. It has become fairly common to see the use of mobile devices for banking, transferring money, paying bills, shopping, and purchasing digital content such as music and games.

Many of these tasks which were done on fixed deskbound access systems are now much more mobile and agile. However, with increasing adoption of mobile devices, there's also an increase of mobile malware, financial fraud and identity thefts. A combination of platform vulnerabilities and increasing intensity of sophisticated cyberattacks has led to a situation where mobile devices are under serious threat.

The need for Mobile MFV/MFA solutions

Looking at this rapidly emerging digital environment there's a need for an authentication and identity verification mechanisms that will ensure appropriate security controls meeting both the flexibility of our personal lives and the restrictions of our work lives. A mobile centric **Multi-factor Verification and Authentication (MFV/MFA)** is the need of the hour. MFV/MFA requires a user to provide more than one form of identification for identity verification and authentication purposes.

The authentication and identity verification methods that existed earlier (such as PIN & OTP) for non-mobile cases were ported to mobile devices. Such as –

PIN based identification and verification where PIN is usually 4 characters in length

One-time-passwords (OTP) being generated on the phone instead of on a hardware token

OTPs generated on an authentication server and then sent to mobile devices using SMS text message

Since the weakness of user id and password based authentications are well known, these mobile based MFV solutions provided a welcome change. It is a big step forward in protecting online digital assets and for preventing identity theft and fraud.

So is Mobile MFV mobile friendly?

Mobile MFV is used by Dropbox, facebook, Google and several online gaming networks who provide mobile based solutions to millions of users. However, these solutions are not particularly user friendly.

According to latest study on UX (user experience) - 'text entry' is the biggest pain point reported by users even above usability and readability. All said and done, it is much easier to enter passwords using a QWERTY keyboard than using a virtual keyboard for entering a password on a smart mobile based device. In fact, it is fairly common for a user to get locked out of his/her account after failing to enter their password correctly on a virtual keyboard due to the above mentioned "text entry" issue.

Also, one has to consider emerging trends like the consumerization of IT and the rising Bring Your Device to Work (BYOD) culture with employees bringing their personal devices (laptops, smart phones, tablets) to their place of work leading to the blurring of differences between corporate and personal technology and raising complex security related issues at work like data security and privacy issues related to personal device management.

Probable Solutions

Mobile suffers from mobility. Hence the mobile security and authentication should also be moving not fixed

The good news is that there exist a number of identity verification solutions in the market that make use of mobile device, its in-built features, and the user at the centre of its design. For example -

- Location based services - The use of GPS sensors in collaboration with location identified by cellular provider'' network provides location based information that is used in MFV solutions.
- Microphone - Smart devices with an inbuilt microphone can be used for capturing voice data and comparing the result with a stored template of voice data located on the device or on the cloud.
- Personality traits and patterns - People have personality quirks giving them a unique identity which can be used for biometric authentication. Touch screens and accelerometers can capture figure print IDs, touch and swipe patters, and behavioural patterns helping in biometric authentication. The phone camera can be used to identify facial and eye pattern for identification.

The user of biometric technology for identity verification purposes is increasingly becoming popular on the back of government support all over the world. Security agencies like FBI are using facial biometrics for policing international borders. Private companies have also come forward in a big way adopting biometric authentication for various use case scenarios like employee attendance, payroll processing etc. It is easy to deploy across a wide range of platforms including mobile devices like smartphone, laptops, tablet, and personal computers.

Many financial companies have also launched biometric based identification and authentication solution within their products such as the Bank of America mobile banking app that supports fingerprint scanning and a touch-id based sign in[1]. Recently Visa has published new biometric specification for chip card transaction that allows palm, voice, iris, or facial verification[2].

Resources:

1 http://www.paymenteye.com/2015/09/16/bank-of-america-adds-biometric-technology-to-its-mobile-banking-app/?utm_source=PaymentEye+Daily+Newsletter&utm_campaign=26b84cb4cc-16_09_2015_NL&utm_medium=email&utm_term=0_3bd2a3a3c5-26b84cb4cc-16000213

2 http://www.paymenteye.com/2015/09/18/visa-launches-biometric-security-for-chip-card-transactions/?utm_source=PaymentEye+Daily+Newsletter&utm_campaign=087f3bea02-18_09_2015_NL&utm_medium=email&utm_term=0_3bd2a3a3c5-087f3bea02-16000213

Mobile Voice Biometrics - meeting the needs for convenient user authentication

Of all biometric technologies that are in use today only voice and facial biometrics are supported on a mobile without requiring any major modifications. Surveys also show that acceptance of voice biometrics is high because of its nonintrusive nature (unlike facial or fingerprint biometrics where sampling is possible only when the user is in close proximity of the scanning device). High user acceptance, combined with easy mobile deployment and acceptable error rates are only some of the factors weighing in favour of voice as at tool for user authentication.

So what makes voice biometrics stand out from the rest as a process of authentication? The answer lies in the three layers of information embedded in voice sample: “what you are saying”; “how you speak”; and “how you say it”. The science behind biometrics is concerned with the “how you say it” part of the sample carrying information about the physical aspect of voice: the shape of your larynx, mouth and nose. This information is embedded in a wave form and cannot be spoofed or disguised which provides a secure platform for voice based biometric access systems. Information is stored on the device itself (locally) or in the cloud (for wider deployment). A good example of on-device deployment would be smart-phone which provides access only after the user provides a sample of a speech which matches with enrolled data.

Mobile biometric voice authentication process follows a three step protocol: enrolment, live sampling and matching. In the first step, the user provides a voice sample, which is then stored in the form of an electronic template for future reference. Unlike popular perception, the voice sample is not stored in its entirety; only some critical aspects of the voice recording required for verifying and individual’s identity are extracted and saved for matching purposes. During sampling procedure the user is prompted to provide a sample of their voice which is recorded by the microphone embedded in the mobile or any other recording device. The third step matches the data provided by the user with the one stored in the database providing access if there is a match and rejecting access if the data does not match with the one recorded in the system.

Why Voice biometrics for User authentication

Voice biometrics has several advantages giving it an edge over other methods of biometric authentication.

High user acceptance

It easily deployable on a wide range of platforms: mobile, wearable, IoT. According to surveys, voice biometrics has a higher acceptance rate compared to other biometric modalities because it is non evasive and nonintrusive (compared to say fingerprint biometrics where one has to be in close proximity with the scanner/reader for sampling purposes).

Reduces false positives when combined with MFV

Combing voice biometrics with multifactor verification returns better results. In a test conducted by Scientists at IBM Watson Research Center Multifactor authentication (MFV) using HTML form and a telephony server using random directed speech and voice biometrics reduced “false positives” to a low of .00001% and a corresponding “false negative” of .8%. Moreover it supports remote authentication which is a big plus in its favour.

Anti-Spoofing

If biometric technology has to reach the level of mass acceptance it has to provide strong measures against spoofing. In spoofing, a user masquerades the identity of another to get access. For example, a user may spoof

voiceprints by replaying a recorded sample overriding an application running on voice biometrics. Another example of spoofing is when an imposter creates a spoofed voice sample by cutting and pasting words from a recorded voice sample that is available in the public domain. Biometric voice authentication could use text independent direct speech (generate random sentences) to thwart such attempts to spoof the legitimate user's voice.

The usage of biometric and MFV for Mobile Finance

With the ubiquity of smart phones and banks promoting mobile banking in a big way, there is a strong case for mobile multi factor verification (MFV). However, barriers do exist to higher adoption: According to the Consumers and Mobile Financial Services 2015 report from the US Federal Reserve, 62% of users claimed that security concerns prevented them from using mobile banking. And 59 percent of users claimed that security concerns prevented them from engaging in mobile payments.

With this in view banks and financial institutions must take the lead to introduce new and better mobile friendly methods of authentication using individual's personal identity. Mobile biometrics is the answer. A combination of mobile centric MFV and mobile based biometrics can be used to develop strong and secure solution like device fingerprint and the use of geo location combined with biometrics. Many companies are considering voice biometric identity verification as a way to enforce tighter security during customer logins. Voice biometrics can also be fortified with multifactor authentication solutions like swipe patterns and security questions for added protection.

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About the author - Nimisha Singh is passionate about mobile finance and payments. She is Technical Manager at Mahindra Comviva and manages delivery of mobiquity® suite of products like mobiquity® money, mobiquity® Wallet and connectMoney. She draws immense joy to see the way mobiquity® is transforming lives of millions of people across the globe and making their lives easier and happier.

PAYMENTS BANKS

A definite step towards inclusive banking

What these Payments Banks are, what they can do, their business model and the key challenges awaiting them.

by Anand Prakash

Introduction

India has already a rich, diverse and efficient payments infrastructure in place. Over the past 8 years Reserve Bank of India has introduced a number of measures to make the financial services more inclusive with an aim to build a **'less-cash'** ecosystem leveraging technology and mobility. **These include primarily NEFT/RTGS, IMPS, White-label ATMs, Semi-closed PPIs, mobile banking, and business correspondents.** Announcing 'in-principle' approval to 11 entities (see graphic) to set up payments banks is the next step in the same direction. Let us understand what these Payments Banks are, what they can do, their business model and of course the key challenges awaiting them. We will also see how they juxtapose with existing legacy Banks and affect each other.

What is a Payments Bank

A payments bank is a non-full service niche bank, which is 'expected' to reach customers mainly through mobile phones rather than traditional bank branches and provide low cost technology processing high volume of transactions.

How are Payments Banks different from regular banks?

Unlike regular banks, payment banks will be unable to offer customers loans or credit cards. Let me quickly underscore the **scope** of these Payment Banks:

- Acceptance of saving bank deposits, current deposits
- Issuance of ATM / Debit Cards
- Payments and remittance services through various channels including branches, ATMs, Business Correspondents (BCs) and mobile banking
- Issuance of PPI (Prepaid Payment instrument)
- Internet Banking
- Functioning as BC of another bank
- Handle cross-border remittance transactions in the nature of personal payments / remittances on the current account

Reasons for introducing Payments Bank

Payments banks are being touted as revolutionary step for financial inclusion. By any estimate, at least 50-55% of the adult population in India does not have a formal bank account. The objective of Payments Banks is to bring unbanked/under-banked populace into the financial domain using low cost technology. Taking about low-cost, let us delve a little deeper to understand how it will achieved.

Many of the Payments Bank licensees were already in the business of providing remittance services, banking services (as a Bank's BC) serving the same set of customers. Advantages for these Payments Bank are:

- No more revenue sharing with Banks on transactions. This is a huge cost saving as banks earlier were taking away a lion's share of the revenue (30-40%) for transaction routing and co-branding (lending credibility

and trust). Payment Banks can now enable the money transfers using NEFT/IMPS and issue ATM/Debit cards without being dependent on the banks. Consequently, they will not have to share the transaction revenue with the banks and pass the benefits to the end consumer in terms of competitive offering and lower fees (hopefully) on the transactions.

- Cash-out is allowed resulting in cost savings as earlier it was allowed through a bank partner only)
- Not depending on Banks for KYC process will lead to quick customer acquisition and activation
- Low-cost deposits access. It will also provide some cushion though not much (explained further in this article)

What will be the effect on full service banks?

For many years, financial inclusion was a major challenge, due to the high costs involved. Traditional banks were concentrated on high value consumers that yielded larger revenues and largely excluded the majority of the population. Lower income population's financial activity is characterized by low value transactions which are a bank's nightmare given insignificant contribution to the float.

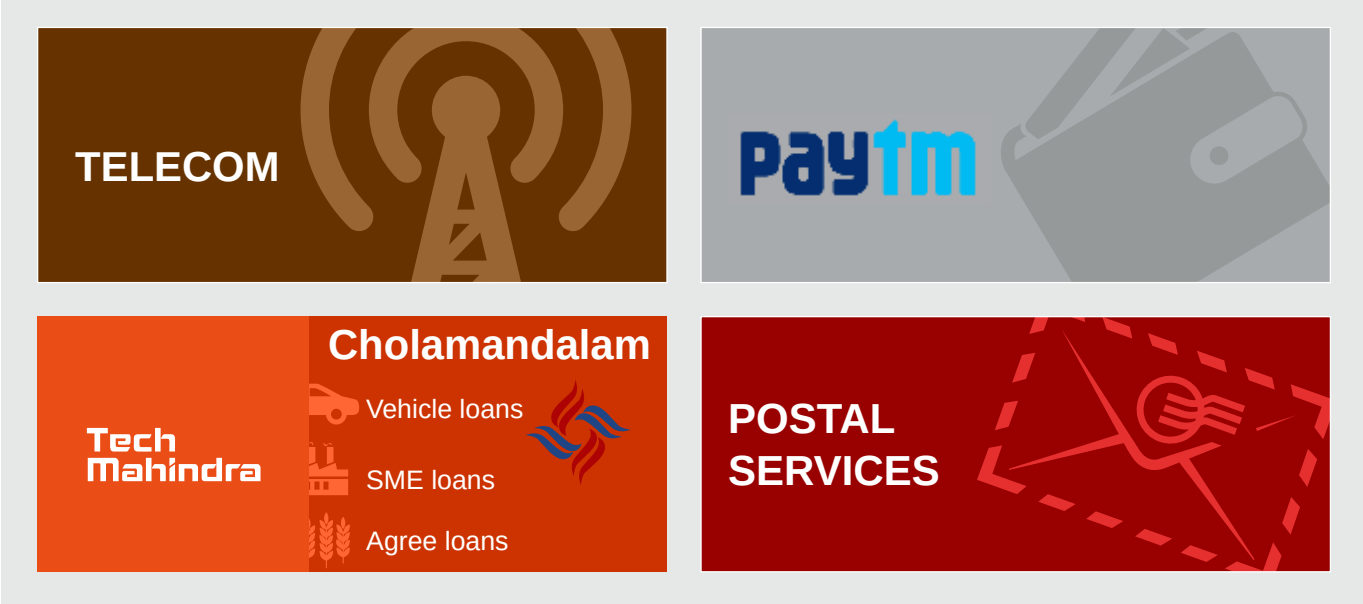
The economics of traditional banks lie in the interest spread between savings deposits and the credit they offer. It is expected that with the advent of payments bank there will be some diversion of low-cost deposits from banks. To realize the scale, sample this; 40% of the money that the SBI lends comes from small depositors many of which may be lured away by these payments banks offering more deposit interest rates, innovative offerings and easy access to low cost transactions. But of the other hand, banks already saw this coming and have hedged their positions. So we have SBI, Kotak and IDFC taking up significant share (up to 30%) in Reliance, Airtel and Mr. Dilip Singhvi's payments banks respectively.

In the long run, full-service banks and payments banks will represent a two-tiered banking system with the former focusing on large-value transactions while the latter concentrating on banking service penetration providing low cost transactions. There will be some turf overlaps and competition which is good as competition ultimately shapes up the incumbents. Again, some payment banks will emerge as key savings mobilizer and upgrades to full service banks (e.g. Department of Posts). But the overall system will become more efficient and inclusive.

Business Model

Business model is likely to be unique for each entity with maximum reliance on high volumes to generate profitability. Revenue from interest spreads is likely to be very limited due to regulation to invest float into government security (75% of net deposit) and bank deposits. Interest on deposits offered is expected to be 4% (could also be more owing to the initial competition among aggressive peers). The more the interest rate, less will be its contribution in profitability because of the thin interest spread. Depending on the banks' aggressiveness, spreads are likely to be in the neighborhood of 2% (difference between G-sec and interest paid to depositors). Profitability will depend on a) ability to generate transactions (fees), b) minimizing cost of operations (best use of technology) and c) selling 3rd party products.

Largely, we have four different types of competitors with four different strategies of niche developing.



Fee income is main revenue enabler

Rather than rely on a conventional credit spread-based business model, Payments Banks will focus on 'fee per transaction' business model—something that BCs, mobile companies and retailers understand well; business model will emerge from the volume of payments they make. For every payment made, the bank will levy a convenience charge on the consumer/bank (for acting as BCs). Other permissible activities to augment revenues are:

- Cash-out points for payments, international remittances and ATM interchange fees
- G2P payments (Subsidies, Pension, payment under various schemes)
- Cash collection and disbursement for corporate (e.g. utilities)
- Lead generation for 3rd party products (insurance, loans etc.)
- Others such as MFI loan repayments

Key Challenges for Payments Banks

While the licensees are gearing up to launch Payments banks within the stipulated 18 months adhering to all the guidelines, it would be worthwhile to quickly point out the key challenges that they have to overcome in order to be sustainable and gain competitive edge over others:

1. As discussed, the expected approach of these payments banks to leverage mobile phones (thus low cost) to operate will be a 'steady state' phenomenon. For first time account openers primarily in rural areas it will be difficult to operate solely on mobile phones as they will look for a ***physical manifestation*** (passbook/ cheque book). The banks will gradually of course convince these customers to switch completely to mobile phones but not all will convert at once. The key is to keep these overheads to a minimum and keep customer trust through transparency and real time updates. The extra expense in the initial period would go a long way in building customer trust which is all the more critical because, a) there is a good amount of competition and b) most of them do not have an existing bank brand to latch onto.
2. The other significant challenge for the Payments Bank comes from managing the operations costs and work out a profitable

business model. Prior to this most of the licensees were providing the similar set of services (no deposit though) but through shared agents. Now the agent/branch of Payment Bank would have to be exclusive. Agents with single affiliation would earn commissions in the range of 1-2% as compared to the aggregated 3-3.5% that they earn today.

3. As deliberated above, payments bank can't rely on the healthy interest spread that the full fledged banks enjoy. In fact, owing to the fierce competition they may have to offer attractive deposit rates (>4%) to attract customers. Consequently, this income stream becomes very thin and banks have to heavily rely on fee income on transactions and generating revenue from selling 3rd party products.
4. Human resource and training needs: As these Banks primarily operate in the areas largely un-banked/under-banked so far, they have to be diligent in recruiting the manpower with right qualifications. For the agents and business correspondents, skill requirements will be higher as compared to the existing ones. Apart from conducting money transfers now they would be securing deposits, selling-redeeming mutual funds and insurance. Payments Banks have to invest in training (product skills as well as soft skills) for these agents as they are going to be the face of the banks.
5. Finally as technology is going to play a critical role, banks will have be very careful in choosing the right platform. They need to think away from legacy systems and look for a highly scalable, agile and flexible system which can quickly react to requirement changes in minimum time.
6. More specifically, for full digital players like Paytm who have so far been a virtual world operator, biggest acid test will be to physically create touch points for cash in/cash out. Also it is fair to assess that most of the existing customers of Paytm are urban banked customers and it will be interesting to see Paytm coming up with equally innovative ecosystem creation for unbanked/under-banked population as it has done for urban populace so far.

Wrapping up

This is the first time RBI have experimented with ingenuous Banking model and as these banks venture out, will bump into multitudes of challenges. It promises to be an exciting journey overcoming these challenges and quickly adapt to changing requirements. RBI with its assurance of 'on-Tap' licenses going forward will certainly keep these banks on their toes. All in all, happy days ahead for the consumer, be it the rural, urban, the semi-urban or the one who is always mobile. More the competition more shall be the diversification in services, increased self-regulation, and indeed the massive improvements in quality & reliability of the services made available to the end-user.

About the author - Anand Prakash is a part of Business Consulting Team at Mahindra Comviva. Business Consulting team focuses on advising clients on best market practices and enhancing overall growth. Anand has diverse and rich cross-functional experience of over 7 years in Strategy and Consulting, Business Development, Product Management & Innovation in the domain of Mobile wallets, Semi-closed prepaid instruments, Alternate Banking Channels, Financial Inclusion, remittances etc.

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