Bringing a revolution to the financial world

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What is “Aadhaar”?

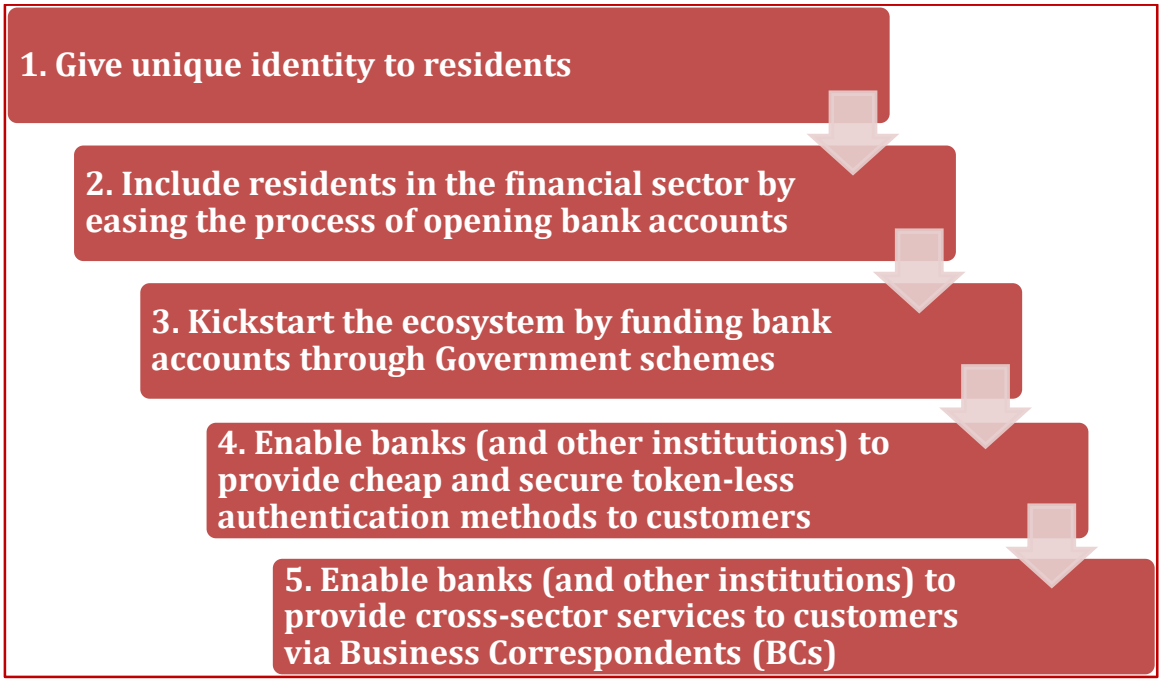
“Aadhaar” number is a unique 12-digit identification number issued to residents of India and is linked to the resident’s biometric data (photograph, fingerprints and iris scans) and limited demographic information.

Aadhaar is a first of its kind formal unique identity and address proof for residents of India. This formal identity and address proof is a gateway for marginalized sections of the society to access various services that were never available to them before. Providing access to financial services is one of the most important implications of the Aadhaar eco-system.

Aadhaar’s role in the financial sector

The Aadhaar eco-system has the ability to completely revolutionize the financial sector of India. Aadhaar platform provides a way for the Government of India to directly reach each resident of the country by using the resident’s Aadhaar number only. It also opens avenues for residents to access various services that were never accessible to them before. The Aadhaar eco-system can provide financial prosperity to each stakeholder in the system including residents, government and service providers.

Step-by-step process to financial prosperity



Step-by-step process to financial prosperity

The Aadhaar platform ensures that each of the above steps is straightforward, convenient and makes economic sense for all stakeholders in the system. A description of each of these steps is given below:

Give unique identity to residents

Aadhaar provides a unique non duplicable 12 digit identification number to all residents of India. At the time of registration, biometrics (fingerprints and iris scan) of residents are captured along with other details to ensure no duplication and to use this biometric data for secure authentication in the future. The process of enrolment is funded by the government and **residents can enrol for free**. The Government pays its authorised agencies (Registrars) a certain fee per enrolment thus making this process **economically viable for the Registrars** who in turn hire enrolment agencies to do the field level enrolment. Enrolment centres are widespread all over India making it convenient for residents to enrol at a centre near them. Overall, the process has been designed to give relevant incentives to various stakeholders involved to ensure smooth, efficient and convenient enrolment.

Include residents in the financial sector by easing the process of opening bank accounts

The next step is to include residents in the financial sector by making it easy for them to open bank accounts using Aadhaar number. Before issuance of Aadhaar, it was a hassle for the marginalized section of the society to open a bank account.

As per the "Prevention of Money Laundering Act, 2002"[1] and its amendments before September 2010, the only acceptable valid identity and address documents for institutions were Passport, Driver's License, Voter ID card and PAN Card. None of these documents are available to all residents of India. Hence, without Aadhaar, it is impossible for a large number of residents to open bank accounts and become a part of the financial sector.

Even if a resident has one of the above identities, he/she would have to make multiple trips to a branch to open an account. Traditionally, new customers bring physical documents for identity and address proofs that need to verified, copied, transported, scanned, and stored on expensive electronic database servers. This process takes a long time, is prone to errors due to manual intervention, causes loss of daily wages for applicants from marginalized sections of the society, and is also expensive for the service provider. The entire hassle of this process is a deterrent for marginalized sections of the society to open accounts. The expenses associated with opening low value accounts make it an economically unviable activity for service providers.

Using Aadhaar for KYC

The Government of India issued a notification[2] on December 16, 2010 adding Aadhaar as an officially acceptable identity and address proof document. Thus, Aadhaar is now a formal

[1] Prevention of Money Laundering Act, 2002
[2] Notification from Ministry of Finance, December 16, 2010

identity and address proof for all residents of India and is a valid KYC document to open an account with institutions in the financial sector.

Today, a person can walk into a branch of a bank or another financial institution with his/her Aadhaar card, and open an account (bank account, prepaid wallet, insurance account, pension account or securities market account) immediately. There is no hassle of creating photocopies of various identification and address proof documents or of making multiple trips to a branch. This makes the **KYC process quick and easy for the customer** and saves the service provider from manually verifying multiple documents thus **reducing the cost of customer acquisition**.

Using Aadhaar for e-KYC

Aadhaar also provides a service called e-KYC that is an electronic form of KYC. This service makes KYC process paperless, instantaneous, secure, economical and non-repudiable. The Ministry of Finance, Government of India, has already recognised e-KYC as a valid form of KYC service for all financial services under the Prevention of Money Laundering (PML) Rules[3].

e-KYC service will extend the power and convenience of Aadhaar to paperless transactions. Using this service, residents can authorise the UIDAI to release their KYC data to a service provider. This authorisation can either be done in person (through biometric authentication), or it can be done online (through One-Time-Password or OTP authentication). Upon successful authentication and consent of the resident, the UIDAI will provide the resident's name, address, date of birth, gender, photograph, mobile number (if available), and email address (if available) to the service provider electronically.

The resident's data can be verified by the relevant branch or Business Correspondent (BC) electronically in a matter of seconds and relevant information can also be auto-uploaded to the service provider's database with appropriate consent from the resident.

This is a first of its kind service of making the KYC process paperless, instantaneous and secure that significantly reduces the cost of customer acquisition and **makes low value or no frills accounts economically viable for service providers**.

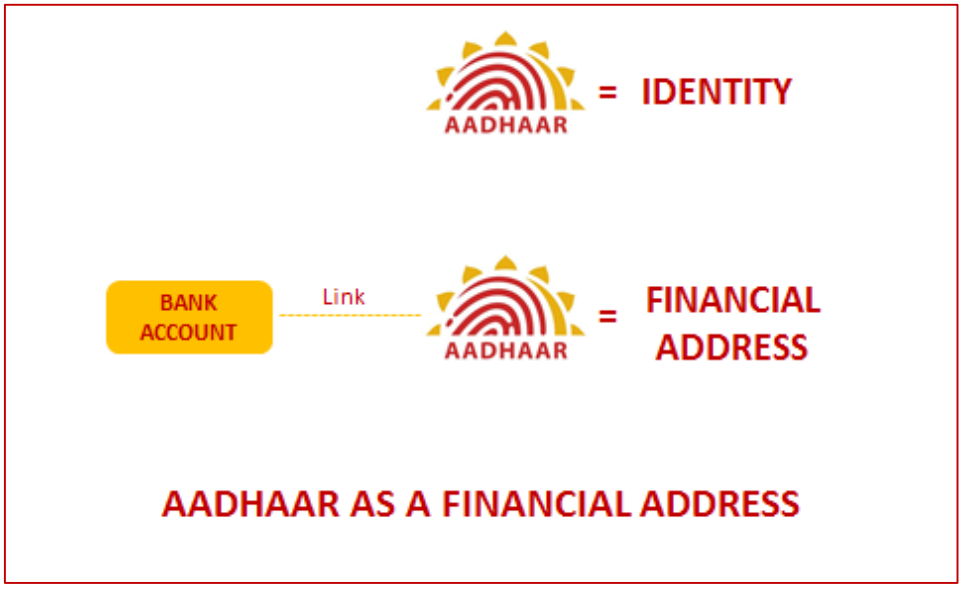
Kick start the ecosystem by funding bank accounts through Government schemes

Currently the Government of India spends $70bn annually on welfare expenditures. It is estimated that approximately 30% of these payments are lost due to leakages, inefficiencies and corruption[4]. Aadhaar provides a way to plug such leakages by making welfare payments secure, transparent and by enabling direct transfer to beneficiary bank accounts by cutting middlemen. This is possible because Aadhaar number is not only a resident's identity address but it can also become a resident's financial address.

[3] Notification from the Reserve Bank of India, September 2, 2013
[4] CLSA Report, Welfare Plumbing, April 2013

Aadhaar as a Financial Address

Once a resident links his/her Aadhaar number to a bank account, the Aadhaar number becomes a financial address of that resident. In order to identify a person in the financial system for any purpose (e.g. transfer of Government benefits, person to person payments, credit-card companies trying to track transactions), one needs to know that person's Aadhaar number only.



Aadhaar as a financial address has the following benefits various stakeholders in its eco-system:

1. **Government:** Seeding Aadhaar numbers in a Government benefit scheme's database helps remove ghost, duplicate, and fake identities, making it possible for Government's development funds to be transferred efficiently. The Government can make payments securely by just using Aadhaar numbers as identifiers and focus on its primary objective of service delivery only.

2. **Private Corporations (e.g. Banks):** Private companies such as telecom operators, credit card companies and others will be able to uniquely identify their customers through Aadhaar numbers. This will prevent opening of fake accounts and will also allow easy tracing of transactions to individual customers thus preventing money laundering and terrorist activities. Cross-linking transactions across service providers will allow companies to offer services to their customers based on a deeper understanding of customer behaviour.

3. **Customers:** A customer's Aadhaar-enabled bank account can be used for receiving multiple welfare payments as opposed to one-scheme, one-bank approach followed by a number of State Governments. Aadhaar authentication can ensure that the funds

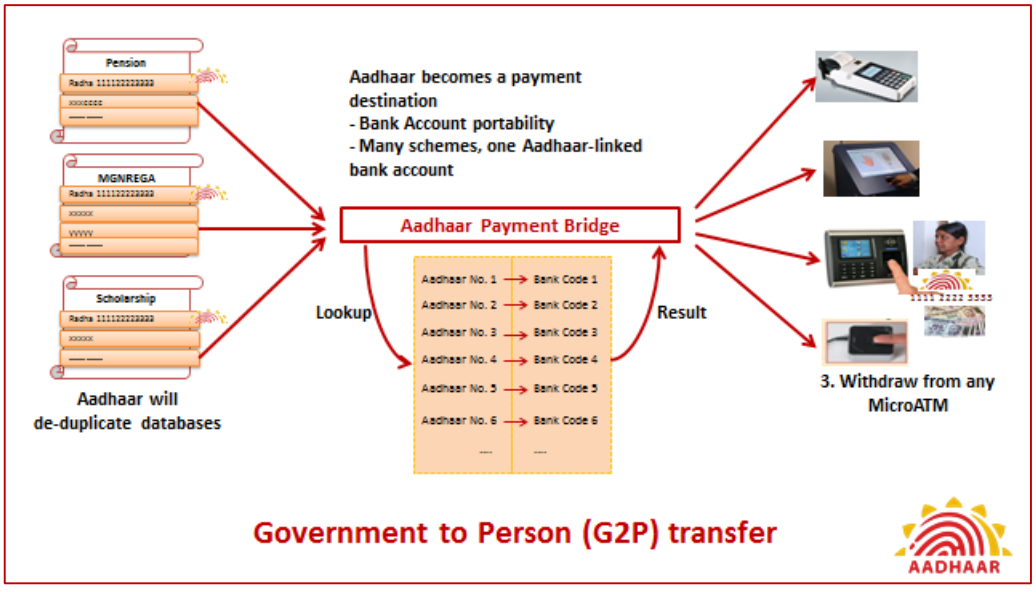
are available for use to intended beneficiaries by reducing money leakage through middlemen.

4. **Policy Makers:** A policy maker has the objectives of ensuring that entities involved in transactions are easily identified, the transactions are seamless, transparent and easily traceable. Aadhaar as a financial address achieves all of the above objectives. Linking transactions to beneficiary's Aadhaar numbers ensures proper identification and record maintenance. Since Aadhaar number is a unique, it has the ability to seamlessly link various entities involved in money transactions using one identity only.

Use case of funding bank accounts

By using Aadhaar as a financial address, an institution can fund multiple bank accounts easily by creating a list of beneficiary Aadhaar numbers and payment amounts and sending this information to the institution's bank. These institutions include government, businesses and corporations of any kind. This process is especially useful for banks as it reduces redundant data in transfer instructions, allows easy traceability of transactions, reduces fraud and decreases overall operational costs.

Consider the use case of government funding bank accounts of beneficiaries as a part of government welfare programs. The use of Aadhaar streamlines the entire process by seamless transfer of government benefits to beneficiary bank accounts.



The steps involved are as follows:

1. Government department generates a list of beneficiary identification numbers as per the relevant government scheme, respective Aadhaar numbers and the amount of benefit to be transferred.
2. Government department sends this list in the form of a payment instruction to its bank.

3. The bank sends this instruction to Aadhaar Payment Bridge (APB).
4. APB matches each Aadhaar number on the list to a bank code, sends relevant credit instruction to the respective beneficiary bank and a debit instruction to the Government department's bank.
5. APB sends a status update with successes and failure to Government department's bank
6. Government department's bank sends these updates to the department and takes corrective action (if any).
7. Government department receives confirmation from its bank.

This process provides the following **benefits to the Government or to any institution (e.g. bank)** using Aadhaar as a financial address to transfer funds to beneficiaries[5]:

1. Single window platform with adequate security, access controls, and a standard platform for Government payments resulting in the saving of substantial effort, time, and cost involved in a decentralized environment.
2. A standard file based, centralized and bulk upload based method will help to improve spread and reach of Government payments. All intermediary layers are removed from the system making it simple, fast and cost effective.
3. Reduce the time of credit of entitlement from Government to accredited bank to the beneficiary's account to one day.
4. The concerned Government Department will get status report for the payments initiated by them at the end of day, including returns, if any. The returned transactions will get captured through appropriate error codes.
5. The concerned Government Department can obtain comprehensive MIS reports and percentage of declines with reasons thereof from their accredited banks.

This process also provides multiple **benefits to the beneficiaries[5]:**

1. Beneficiaries receive the funds on time and in full without any intermediation.
2. Beneficiaries receive intimation from their bank when funds are credited to their account.
3. Beneficiaries can access their funds through any regular banking channel, or utilize the funds electronically immediately upon receipt.

Enable banks (and other institutions) to provide cheap and secure token-less authentication methods to customers

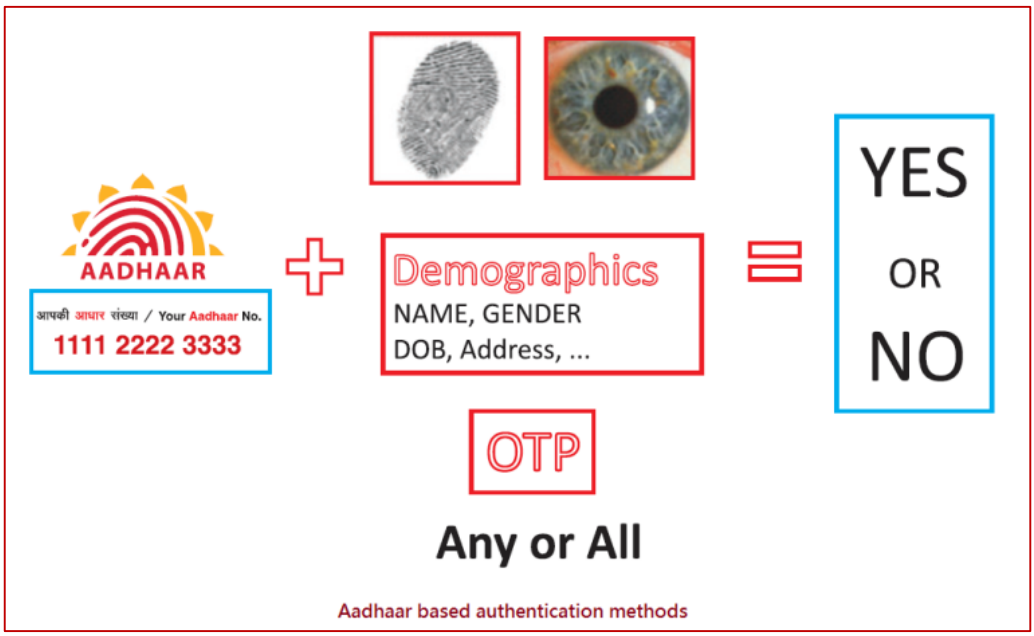
Traditionally authentication has been composed of two parts: "What you have" and "What you know". "What you have" refers to a token that you carry (e.g. debit card) and "What you know" refers to some information that you remember (e.g. PIN code). To perform transactions, you present or use "what you have" and you input some information or "what

[5] Report of the Task Force on an Aadhaar-Enabled Unified Payment Infrastructure

you know" to verify your identity. Aadhaar brings an additional secure aspect to authentication – "Who you are" through a person's biometrics (fingerprints and iris scans). Aadhaar enables its holders to prove their identity digitally and online, without the need of a debit card or a similar token. Customers often lose tokens (such as Debit cards, PINs, etc.) and it is inefficient and expensive for institutions to re-issue such tokens. The "Who you are" aspect of authentication (biometrics) is always with a customer and solves the problem of using expensive tokens.

Aadhaar makes the authentication process seamless, quick, secure and token-less. There is **no need for a service provider to send a debit card or PIN code to its customers**; a process that is error prone and expensive. A customer can just walk into any BC branch with his/her Aadhaar number and prove his/her ID using the Aadhaar number and biometrics. On successful authentication, this person can perform transactions such as balance enquiry, cash deposit/withdrawal and money transfers in a hassle free manner. This type of token-less authentication method is especially useful for marginalized sections of the society since they are prone to losing tokens such as debit cards and also to forgetting PIN codes.

UIDAI ensures that the authentication is secure and easy. It provides multiple methods of authentication that may be used for delivery of any service. A service provider can choose either single-factor or multi-factor authentication method. The Aadhaar number alone is not a factor for authentication. Aadhaar number along with demographic attributes such as name/address, OTP, or single/multiple biometrics (fingerprint, iris etc.) may be used to provide single factor authentication or these attributes may be used in combination to provide multi-factor authentication.



What Aadhaar Authentication Will Do	What Aadhaar Authentication Will Not Do
✓ Authenticate against resident's data in UIDAI's CIDR	✗ Authenticate against data stored on a smart card
✓ Return response to requesting agencies as Yes/No	✗ Return personal identity information of residents
✓ Initiate request over mobile network, landline network and broadband network	✗ Remain restricted to broadband network
✓ Require Aadhaar for every authentication request reducing transaction to 1:1 match	✗ Search for Aadhaar based on details provided requiring 1:N match

Enable banks (and other institutions) to provide cross-sector services to customers via Business Correspondents (BCs)

As per a report of the National Commission for Enterprises[6] in the Unorganized Sector, 86% of the total workers in India (456 million) work in the unorganized sector or the informal economy. A large part of legal informal economy can be moved to the formal economy if the involved residents are able to open and operate accounts in the financial sector. As described earlier, Aadhaar platform provides an easy way of opening accounts for any resident with an Aadhaar number. This will enable residents in the informal economy to start saving money with banks and perform various transactions via Business Correspondents (BCs).

BCs provide an additional channel to provide banking and other services to the marginalized section of the society that does not have easy access to traditional brick and mortar branches of service providers. BCs typically appoint sub-agents for carrying out transactions. Transaction costs at agents are lower than the cost of branches and ATMs and most agents are profitable at significantly lower transaction volumes. As an additional channel, evidence shows that agents can have a positive impact on the bottom line of banks by providing additional value and convenience to existing customers. As a growth channel, banks can expect favourable unit economics to enter new geographies and reach unbanked customers as agents can facilitate rapid deployment of a high-volume, low-margin payments-led banking business[7].

[6] The Challenge of Employment in India – An Informal Economy Perspective (National Commission for Enterprises in the Unorganized Sector)

[7] Report of the Task Force on an Aadhaar-Enabled Unified Payment Infrastructure

BCs will have revenue streams from providing multiple services. They will be able to provide services across multiple sectors such as banking, insurance, telecom, pensions etc. with appropriate authentication.

1. **Banking:** BCs via microATMs can support the following transactions for the banking sector: deposit, withdrawal, funds transfer and balance enquiry. Such transactions will be possible even if the customer uses a microATM of a bank different from his/her own bank that holds the account.

2. **Insurance:** BCs can provide services for the insurance sector such as opening a new insurance policy, paying insurance premiums, making changes to existing policy among many others.

3. **Telecom:** BCs can provide services for the telecom sector such as selling a new SIM card, making a bill payment, mobile recharge among many others.

4. **Pension:** BCs can provide services for the pension industry such as getting a new pension (micro or otherwise) account, getting pension payments, making changes to existing schemes etc.

The cost of providing above services is low due to Aadhaar's cheap, secure and token-less authentication system. New customers will be able to perform transactions that they could not perform before the advent of Aadhaar. BCs will become a one-stop solution for most services needed by marginalized sections of the society. Once accounts are opened, the number of transactions done at BC centres will grow exponentially. Such a one-stop shop will also allow cross selling of services to customers. BCs will charge fees on a per-transaction basis for providing such services. This is different from the traditional float and savings interest model followed by banks for high value accounts and this will make the business model of BCs financially profitable.

Benefits of Aadhaar in the financial sector

Easy access to bank accounts

Aadhaar provides a formal identity and address proof to all residents of India and is a valid KYC document to open an account in the financial sector. Today, a person can walk into a branch of a bank with his/her Aadhaar card, and open a bank account immediately. Aadhaar as a KYC document makes the whole account opening process quick and easy for the customer. It also enables the service provider to surpass manual verification of documents thus significantly reducing the cost of customer acquisition.

Aadhaar also provides a service called e-KYC that is an electronic form of KYC. This service makes KYC process paperless, instantaneous, secure, economical and non-repudiable. e-KYC service will extend the power and convenience of Aadhaar to paperless transactions. This is a

first of its kind service that significantly reduces the cost of customer acquisition and makes low value or no frills accounts economically viable for service providers.

Mobile Person to Person (P2P) payments

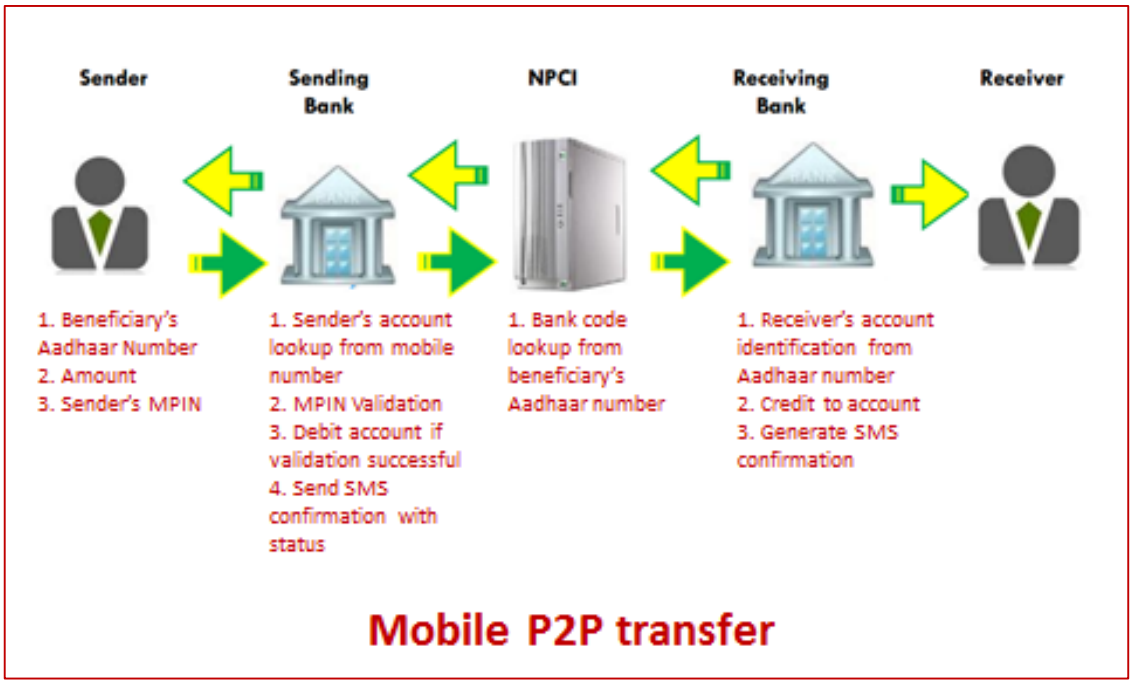
In November 2010, National Payments Corporation of India (NPCI) launched a service called Immediate Payment Service (IMPS). This service facilitates customers of banks to use mobile instruments as a channel for interbank fund transfers in a secure manner. At the time this was a revolutionary service that enabled bank customers to use mobile instruments as a channel for accessing their banks accounts and remit funds instantly 24x7.

Before any remittance transactions are done, the remitter would have to register for mobile banking with his/her bank and get MMID & MPIN from the respective bank. The beneficiary would have to link a mobile number with his/her bank account and get MMID from the respective bank. Once this is done, to initiate a transaction the remitter would only need the mobile number and MMID of the beneficiary apart from his/her own information (MPIN).

The benefits of mobile based IMPS are as follows:

1. Cheap transfer service for banks
2. Instant fund transfers available 24x7
3. No sharing of bank account details
4. Immediate SMS confirmations to both remitter and beneficiary
5. Safe and secure

Aadhaar will be an integral part of IMPS by becoming the sole address of the beneficiary. Instead of sending a message with the beneficiary MMID and phone number, the remitter will need the beneficiary's Aadhaar number only. The process flow is given below:



The steps involved are as follows:

1. A person initiates payment on his/her mobile phone by sending an SMS. The SMS contains the Aadhaar number of the beneficiary, amount to be transferred and a unique PIN (MPIN) known to the remitter only.
2. The SMS goes to the remitter's bank, which looks up the bank account numbers linked to the remitter's phone number and verifies the PIN associated with it.
3. If the PIN number is incorrect, an error message is sent back to the remitter and the beneficiary does not get any notification.
4. If the PIN number is correct, remitter's bank routes the payment through Aadhaar Payment Bridge (APB) to beneficiary's bank.
5. APB sends a status update with successes and failure to remitter's bank.
6. The remitter's bank sends an SMS back to the remitter.
7. If the entire transaction is successful, the beneficiary bank sends a confirmation message to the recipient in a pre-agreed method of communication.

Fraud prevention

Typically frauds in the financial sector occur due to various reasons - people owning multiple ghost accounts, lack of proper identification documents attached to such accounts, untraceable transactions, and stealing of credit/debit card data. Once accounts are linked to unique Aadhaar numbers and electronically verified, there will be no ghost accounts as each account will be linked to a "real" person (via an Aadhaar number). Each transaction will be associated with a unique Aadhaar number and transaction flows through multiple entities will be easily identified at each level using the Aadhaar number. Thus Aadhaar number will become a universal identification number for tracking transactions independent of the number of entities involved in a transaction.

Aadhaar can also prevent fraud from theft of credit and debit card details. Once an Aadhaar number is linked to each debit/credit card, each payment can be verified electronically using Aadhaar's authentication system using biometrics or OTP. RBI has issued a mandate that all debit/credit card acquiring infrastructure should include functionality to handle Aadhaar based authentication. Thus **Aadhaar has become a second factor of authentication for such card transactions**. If the card user is present at the payment location, he/she can authorize the transaction by verifying his/her biometrics using a device attached to the payment system. If the card user is not present at the payment location (e.g. online payments), he/she will receive a PIN (OTP) on his/her Aadhaar registered mobile number that will have to be entered online to complete the payment. These measures will add an extra layer of security to the existing system and prevent unauthorized use of credit/debit cards.

Aadhaar will make the entire financial sector more secure and **significantly reduce spending on fraud prevention measures** by service providers in the financial sector.

Extend credit to new demographics

Aadhaar provides an exceptional ability to banks to extend credit to a new demographic of people. For a large section (financially marginalized section) of the Indian society, reliable credit history is non-existent. This is because this section of the society was not a part of the formal financial system due to lack of proper identification documents. Aadhaar solves this problem by providing every resident with an identity that allows easy access to the financial sector.

For this newly formalized section of the society, all transactions in the financial sector will be linked to Aadhaar and can be easily documented. There will also be reliable data on receipt of Government benefits for each beneficiary. Beneficiaries will withdraw money, make payments, and execute transactions through Business Correspondents (BCs) and such transactions will be documented. This will enable creation of risk profiles for such customers. Service providers will not only be able to offer their services to new customers but they will also be able to offer better services to existing customers based on their risk profiles. In some cases service providers will not provide certain services to high risk customers who have bad credit and thus **reduce overall default risk** for themselves.

Summary

Aadhaar is creating a revolution in the financial world. By end of 2014, over 600 million Indian residents will have an Aadhaar number. This means that one out of every two Indians will have access to the formal financial sector. Not only will this be a blessing for marginalized sections of the society, but it will also open doors for service providers to increase rate of penetration efficiently, offer new services and thus create new attractive revenue streams for their businesses.