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# Universal Distinctive Bank Account Numbering Scheme

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**ABSTRACT**

*Indian banks have embarked on large scale Core Banking Systems. The way forward would be to base the CBS and build the customer centric systems. It is now recognized that banks follow different patterns for account numbering which is the single dominant mode for customer identification. To arrive at a uniform account numbering structure a survey was conducted among 40 major banks (20 Public sector banks, 18 private sector banks and 2 foreign banks). This paper proposes account numbering methods based on various approaches including Alphanumeric Systems, Masking Features and Unique Identification Number.*

## 1.0 Preview

Banking, since the ages has been characterized by a basic feature – that of an account maintained by a customer at a specified bank. This account is the key pivotal unit for the banker-customer relationship, with varied approaches being followed for the unique identification of bank accounts and thus the customer as well.

The identification of customer accounts has been an important requirement to ensue customer confidence, information confidentiality and customer loyalty. While these were the basic functions taken care of by the account number, the rapid advances in technology and the large scale adoption of Information and Communication Technology (ICT) by banks has paved the way for potential large scale usage of the account number for hitherto uncommon purposes.

With the growth of financial transaction processing in India coupled with availability of new products for customers, the banking system needs to ensure that there is a distinctive identification of transaction processing, which is currently centered around the account number. This main identification feature has been subject to metamorphosis over the last few decades which have witnessed substantial growth in terms of banking transactions concluded at over more than 85,000 branches of banks in the country. The journey has been marked with many a change, the major amongst which are outlined below:

- It was initially a small number which was specific to a particular branch. In the post independence era – and notably till the late sixties of the twentieth century – a three digit numeric structure (for example, the number 647 represented a savings bank account of an individual at a branch of bank in a metropolitan city) was sufficient to identify a customer account.

- The post-nationalization period witnessed the growth of branches of banks and with the advent of mass banking, the number of digits in the account number had to be increased to take care of the increasing number of customers. While different banks resorted to varied lengths of the account number structure, the most common occurrence was a six-digit numeric account number, specific to each branch of a bank.

- The proliferation of banking services to different sectors of the economy resulted in the differentiation of the accounting systems and the consequent rise of varied account number structures even within a bank. Thus, towards the latter part of the century that has gone by, a six digit number represented a savings bank, while a 7 or 10 digit numbers signified a Government account with loan accounts being accorded an alpha-numeric identification which did not reflect uniformity across banks.

- With the advent of computers in banking, the first attempt towards standardization of the account number structure was made by the Reserve Bank with the introduction of Magnetic Ink Character Recognition (MICR) based cheque clearing introduced since the late eighties. A six digit number became the standard for representing the account number while the type of account was identified by means of a two digit Transaction Code and a branch of bank in a city allotted a unique Sort code comprising 9 numbers.

- The wheel of the cycle of change reached its pinnacle with the implementation of Core Banking Systems by banks. Information Technology vendors and service providers hit upon ways to ensure uniqueness of an account in a particular branch with the information being centrally stored for the bank as a whole, and the customer being treated as a customer of the Bank – a sharp migration from the erstwhile branch centric banking. The result – a number based account identification varying between 11 and 17 digits.

- Elsewhere in the world, electronic information transmission was slowly taking roots and organizations such as the Society for World Wide Interbank Financial telecommunications (S.W.I.F.T.) commenced operations with standardized account number structures which ranged from an initial structure of 15 digits before finally stabilizing at 34.

- The role of international standards (including ISO) has resulted in the account number structure also being standardized; the most commonly used standard is the IBAN or the International Bank Account Number, which is a field capable of having up to 34 alpha-numeric characters., with a customer account being ascribed a Basic Bank Account Number, the BBAN.

## 1.1 The Indian Scenario

In order to ascertain the position existing amongst the Indian banks, a survey of the banks was conducted. A random sample based approach, covering all categories of banks (Public sector, new private sector, old private sector and foreign banks) was resorted to and directed questionnaire was used for the survey. In order to have a better picture of the various facets of the account number, especially from a customer perspective, the survey was extended to cover various types of customers selected randomly within a specific target branch spread – such as savings bank account holders, current account customers, loan availing customers and those requiring funds transfers – was also conducted.

The survey covered branches of 40 major banks in Hyderabad (20 Public sector banks, 18 private sector banks and 2 foreign banks). The survey revealed that the account number format in 87.5% of the banks comprised branch identity, account type etc., while the remaining bank resort to a simple number which can be identified by the system.

94% of the bankers surveyed felt that it would be better to implement a unique numbering pattern for the banking system as a whole; 87.5% of the bankers indicated that they were not facing any problems with the existing account numbering system.

In addition to banks, 72 customers spread across the same 40 banks formed part of the survey. Amongst these, 69.4% of the customers felt that it was very tough to remember the lengthy account number assigned to their respective accounts. Only 18% of the people are able to remember their own account number. 12.6 % were of the opinion that it was slightly difficult to remember the account number of the account with their branch. The general features expected by customers as far as account numbers were concerned were as follows:
- Uniqueness
- Short in length
- Capable of being easily remembered and ease of recall
- Standard structure across multiple banks

41% of the customers surveyed felt that a small account number was desirable; while 40% of the customers highlighted the need for a unique number structure for the account number; it was also observed that 29% of the customers felt the need for universal access to the account number across multiple points such as mobile, internet, email and the like. As far as satisfaction of the customers with the existing account numbering pattern was concerned, only 18% were satisfied with the existing account numbering system and the remaining 82% voiced their opinion to upgrade to a system, which facilitates more user friendly and convenient features. One of the revelations was that a majority of the customers suggested that a unique customer number – to be the same across different banks could be preferred.

The paragraphs to follow are the result of the findings primarily from the survey; in conjunction with inputs obtained from some of the major banks in the country. India banks have adopted varying account numbering structures with the number pattern varying from 7 digits to 18 digits.

Common examples in this regard include the following:
- ❖ Bank **"A"**

    Specification:

    Length of the A/c Number: 7 digits (Numeric)
- ❖ Bank **"B"**

    Specification:

    Length of the A/c Number: 9 digits (Numeric)
- ❖ Bank **"C"**

    Specification:

    Length of the A/c Number: 10 digits (Numeric)

    Structure Specification:

    2 digits - A/c type

    2 digits- Status of the A/c

    6 digits- A/c Number
- ❖ Bank **"D"**

    Specification:

    Length of the A/c Number: 11 digits (Numeric)
- ❖ Bank **"E"**

    Specification:

    Length of the A/c Number: 15 digits (Numeric)

    Structure Specification:

    1 digit - Bank Code

    2 digits - Year of open

    2 digits - A/c Type

    9 digits - A/c Number

    1 digit – Check digit
- ❖ Bank **"F"**

    Length of the A/c Number: 18 digits (Numeric)

    Structure Specification:

    3 digits - Branch code

    8 digits - A/c Number

    6 digits - A/c Type

    1 digit – Check digit

*(The above are based on actual implementations in banks in India; the names of the banks have been, however, masked in this report).*

From the above, it is clear that there exist variations in the structure of the account numbers across banks in India. Therefore, there is no predefines global format followed as far as the account number structure of banks in India is concerned.

The importance of maintaining a unique account number structure across all banks in India necessitates the examination of several issues. If taken from the bankers end, national/foreign remittances become easy with the existence of a unique global account number structure. From a customer's perspective, the existing confusion arising our of an account number structure which is not similar and the difficulties associated with remembering a long account number, gain significance. There is great disarray for the client when banking with multiple banks, because there is no uniform standard for the account number.

With credit transfers becoming the most preferred mode of funds movements from a customer perspective and banks promoting them from a risk mitigated system approach, it becomes necessary for the payer's bank to identify the originator of the funds transfer instruction, check the payment instruction and then effect the debit to the payer's account. The beneficiary's bank on the other hand, confirms the funds settlement and then effects credit to the beneficiary's account based on a validation of the correctness of the account number. All these functions are centered on the account number which has to be accurate and devoid of any possible errors. With Core Banking Systems having been implemented across almost branches of Indian banks and the advent of real-time processing capabilities, , payments can be processed within seconds in the same way as e-mail and SMS-messages are now processed, and the simple credit transfer/credit-push structure will become the dominant payment method of the future, originating from different delivery channels such as the Internet and mobile telephony based systems In such a scenario, the account number becomes the pivotal aspect for real time processing and ensuring accurate processing for money movement assumes significance. The number has to be simple yet accurate for processing; easy for being recalled by customers yet being unique enough to avoid any duplication or being capable of being manipulated or subject to mollified transaction processing.

Based on the findings of the survey and based on studies of different account number patterns clubbed with international practices, the following Basic Bank Account Numbering (BBAN) formats are suggested for the Indian banking scenario:

An international account number (IBAN) has multiple benefits. If all banks implement IBANs, the customer will only need to state the correct IBAN and the payment will be routed to the right account. The International Bank Account Number (IBAN) is an international standard for identifying bank accounts across national borders. It was originally adopted by the European Committee for Banking Standards, and was later adopted as an international standard ISO 13616:2007.

The IBAN consists of country code, followed by two check digits and up to thirty alphanumeric characters for the domestic bank account number, called the BBAN (Basic Bank Account Number). It is up to each country's national banking community to decide on

the length of the BBAN for accounts in that country, but its length must be fixed for any given country.

The first two letters is a two character country code (upper case letters alphabetic characters A-Z only) as defined in ISO 3166 –1, of the country in which the financial institution servicing the account resides; the code for India is IN. The third and fourth characters are designed to be the check digits, as calculated from the scheme defined in the standard ISO 13616. The remaining part of the IBAN (up to 30 characters), the BBAN, shall only contain upper and lower case letters (A to Z and a to z) and numeric characters (0 to 9), without special characters such as separators and punctuation that may be used in national account number schemes.

The BBAN shall in addition:
$\Rightarrow$ Have one fixed length per country, and
$\Rightarrow$ Include within it a bank identifier with a fixed position and length per country

IBAN shall be printed in groups of four characters and each group should be separated by a blank space. The reason for this is to increase the readability of the IBAN when presented on paper in printed format.

**EXAMPLE:**
Belgium Electronic IBAN: BE68539007547034
Belgium Printed IBAN: BE68 5390 0754 7034

Implementation of IBAN needs unique BBAN (Basic Bank Account Number). It means the length of the Basic Bank Account Number must be fixed for any given country. Unfortunately, there is no unique pattern for BBAN in INDIA.

## 2.0 Way Forward and Recommendations

There is an imperative need for a uniform account numbering structure in the Indian context. Based on customer expectations juxtaposed with the facilitator role of Information and Communications Technology based systems and to provide conformity to internationally accepted standards, the following alternatives are suggested. Each approach has its own advantages and limitations which are also discussed below. It may be optimal to select the system which would best suit the Indian ethos and banking environment of the country of the day.
The suggestions pertaining to the account numbering structure can be broadly classified into two main groups viz: Numeric and Alpha-numeric systems.

**2.1 Suggestions incorporating alphanumeric systems**

*2.1.1 Proposal-1*

In this proposal, a customer account number can be identified by means of a unique set of ten characters, which is divided into two parts, viz

   a. A first part consisting of 5 alphabets which may be taken from the customer's name. It may be the first 5 or any 5 alpha characters of customer's name. Alphabets could be represented using the Upper Case only.
   b. The second part of the identification contains 5 numbers.

With this identification structure we can get $26^5 * 10^5 = 1188137600000$ combinations.

*Example:*
Customer's Name: S Srinivasa Rao, banking with X Bank, Masab Tank, Hyderabad
Identification: SSRIN12345.
Customer's Name: S Srinivasa Rao, banking with Y Bank, Anna Salai, Chennai
Identification: SSRIN12346.

❖ **Advantages:**
   • It is a simple form of account numbering scheme.
   • Uniqueness in the account numbering system can be achieved using this scheme.
   • Customer can easily remember first part of the number which is derived from his/her name, remembering the last 5 digits of the account number is relatively easier.

❖ **Disadvantages:**
   • Alphanumeric identification of a customer may difficult to implement in the banking system
   • Banks have to revise the existing account numbering system.
   • Language related issues (in the Indian Context) may arise apart from illiterates experiencing problem with alphanumeric identification.
   • Since the account numbering is planned to be unique across banks in the country, the need for a central repository assumes significance and dependence on this for all aspects – right from issue to termination – have to be addressed by banks. Issues relating to confidentiality of the information at this registry may have to be addressed separately.
   • There would be no pattern relating to continuity of the numerical portion of the account structure, within a given bank.
   • Since there is no identification of the bank in this structure, the registry may have to also provide for mapping the account number with the relevant bank in the country.

### 2.1.2 Proposal-2

A second option pertains to the identification of a customer account by a ten character representation, with the ten digits of identification number of the customer divided into 2 parts as follows:

a. The first part of the account number containing 5 digits, which is derived from the name of the customer by using the following conversion techniques. All the upper case alphabets will be replaced with numbers as follows,

A-K-U-0
B-L-V-1
C-M-W-2
D-N-X-3
E-O-Y-4
F-P-Z-5
G-Q-6
H-R-7
I-S-8
J-T-9

b. The second part of the account number containing a 5 digit structure containing numbers.

*Example:*
Customer's Name: S Srinivasa Rao, banking with X Bank, Masab Tank, Hyderabad
Identification: 8878312345
Customer's Name: S Srinivasa Rao, banking with Y Bank, Anna Salai, Chennai
Identification: 8878312346.

In the example above, the first part i.e. 88783 is derived from the first 5 characters of the customer's name - SSRIN which is replaced by the corresponding values according to matching indicators detailed above.

❖ **Advantages:**
- It may easy to remember an account number comprising ten numbers, in a manner similar to the mobile telephone number currently in vogue.
- Uniqueness in the account numbering system can be achieved
- Language related issues may not crop up since only numbers are used

❖ **Disadvantages:**
- Derivation method of the first part of the number from the name of the customer might not be easy at the time of number allotment for a new account.
- Banks have to revise the existing account numbering system
- Since the account numbering is planned to be unique across banks in the country, the need for a central repository assumes significance and dependence on this for all aspects – right from issue to termination – have to be addressed by banks. Issues

relating to confidentiality of the information at this registry may have to be addressed separately.

- There would be no pattern relating to continuity of the numerical portion of the account structure, within a given bank.
- Since there is no identification of the bank in this structure, the registry may have to also provide for mapping the account number with the relevant bank in the country.
- Remembering a 10 digit account number may prove to be difficult for some customers.

## 2.2 Suggestions incorporating Masking Features

### 2.2.1 Proposal-3
Another option pertains to the use of a ten digit number masked using the Number Variance technique. That masked number will be given to the customer.

➢ **Number Variance technique**

The Number Variance technique is useful on numeric data. Simply put, the algorithm involves modifying the number by some random percentage of its real value. This technique provides a reasonable degree of disguise for the numeric data. There are other methods of masking, such as substitution, stuffing etc., all following the same principle of masking.

*Example using Variance:*
Customer's Actual Account number: 1234567890
Number Variance Technique: 123456789 (After reducing the 10% of its real value)
Issued Customer Account Number: 123456789

❖ **Advantages:**
- The customer's actual account number is not known outside the banking system. This would reduce any possible mollified actions using a commonly known account number.
- Further optimization could be attempted to reduce the length of the number which is made available to the customer for ease of remembrance

❖ **Disadvantages:**
- Banks have to revise the existing account numbering system
- Since the account numbering is planned to be unique across banks in the country, the need for a central repository assumes significance and dependence on this for all aspects – right from issue to termination – have to be addressed by banks. Issues relating to confidentiality of the information at this registry may have to be addressed separately.

- There would be no pattern relating to continuity of the numerical portion of the account structure, within a given bank.
- Since there is no identification of the bank in this structure, the registry may have to also provide for mapping the account number with the relevant bank in the country.
- Though this may be more optimal from the technology and security standpoints, there may be operational aspects which may have to be provided for – such as those pertaining to uniqueness within a bank, addressing matters relating to mistakes in quoting the number and the error rectification.

## 2.3 Proposals based on other features

### 2.3.1 Proposal 4: Based on the Unique Identification of the Government

With work going on at a rapid pace in respect of the Unique Identification Code to be allotted to all individuals of the company, the possibility of use of this as the identifier for a customer – at least for non-corporate accounts – could be a workable proposal.

The Unique Identifier (UID) which is allotted to the citizen by the Government can by itself function as the Customer-Id, instead of being treated as equivalent to the account number. Data on the UID is planned to be maintained at a central repository such as the National Payments Corporation of India Ltd (NPCI) or any such other entity. The data base housing this data can also have a mapping to the account (or many accounts) of any individual in a bank (or many banks) and this mapping information could be made available to banks for their use for their processing requirements. The customer needs to remember only his Unique Id for all account related operations. One account in a bank (the choice of which will be left to the customer) will be linked to this UID as the primary account, from where inter-account transfers can be authorized / performed by the customer himself.

❖ **Advantages:**
- Only one UID – allotted by the Government – needs to be used for all bank related transactions
- Ease of recall is ensured
- Complete tractability of all financial transactions even by the Government if so warranted, provided there is legal sanctity for the same
- Banks need not necessarily change their existing account number structures
- Uniqueness ensured for each account
- The centre of focus would be on the customer id and not on the account number
- KYC is also taken care of at the time of allotment of the UID by the Government

❖ **Disadvantages:**
- Large scale dependency on  the UID of the Government
- While this can be easily implemented for an individual customer of a bank, there may be aspects relating to Joint accounts, Partnerships, firms, companies and other

quasi-legal entities which may not have UIDs in their own rights; processes and rules pertaining to these can, however, be made.

- Since the UID is planned to be unique and operating from a central repository, issues relating to this entity assumes significance and dependence on this for all aspects – right from issue to termination – have to be addressed by banks. Issues relating to confidentiality of the information at this registry may have to be addressed separately.
- The entire concept of account number would now migrate to being centered around a Customer-id. This would be beneficial in the long run, but would warrant customer education and training and initial periods of customer reluctance and resistance which have to be tackled.
- Mapping of multiple accounts of different types of the same customer has to be taken care of by the customer and inter-account transfers (which may require inter-bank transfers as well) will all be customer-centered.

### 2.3.2 Proposal 5: Based on a unique customer identifier

It is generally accepted that customers are reluctant to divulge details of their account number. Given the sensitivity and privacy issues relating to the account number, a different approach could be to identify a customer based on a customer identification number, or customer identifier. This number does not identify an account at a bank, but identifies a customer of a bank. This number can then be mapped to a primary account of the customer (based on his selection) which can be used for funds movements from other accounts. The account-holder-customer can thereafter move funds from this account to any account of his choice. The customer identifiers can also function as a masked identifier which only identifies a customer uniquely and does little else, thus assuring customers of a high level of confidentiality.

Varied approaches for the customer identifier can be followed. The simplest would be a unique number, based on a running number pattern, within a bank (for which a 7 or 8 digit structure would be more than adequate to cover up to 9 crore customers). In case a centralized identifier structure is required across banks, this may be of a longer structure (maybe comprising 10 digits). In the former, along with the customer identifier, the bank name needs to be provided, while this may not be required in the latter option.

❖ **Advantages:**
- Only one Customer id per customer per bank
- Ease of remembrance and usage
- Provides for confidentiality for the customer and for the bank
- Varied approaches can be incorporated

❖ **Disadvantages:**
- Possibility of initial confusion in respect of account number vs. customer id
- In case of a centralized numbering pattern, then the need for a central unit may be required
- The need to know the bank – either by its name or by a code, in addition to the customer identifier

### *2.3.3 Proposal 6: Based on a unique easy-to-remember customer identifier*

This proposal is similar to the approach outlined vide the fifth proposal, except that the customer identifier can be the name of the customer. The name of a customer is the easiest identifier from a recall perspective. Aspects such as duplicate name can be tackled by having a combination of date of birth, expansion of initials, and/or other addenda. While the customer identifier in the form of the name would be used at the front end by the customer, at the bank end, there would a mapping of the name to the actual account number which can be either the existing one or a new scheme could be developed by the banks concerned.

❖ **Advantages:**
- Easiest recall by customers
- Most attractive from a usage perspective
- Acceptance by customers would be spontaneous
- Provides for confidentiality for the customer and for the bank
- Varied approaches can be incorporated

❖ **Disadvantages:**
- Need to ensure uniqueness for duplicate names by means of additional features
- Need to work out methods of identification for quasi legal entities, corporate, joint accounts etc., - all of which is possible
- The need for a complete validation process at the initial allotment/acceptance level at the bank, for which a central system is required at the bank end.