Smarter Aadhaar Card For A Smarter And Meticulous India

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ABSTRACT

The Unique Identification Number (UIDAI) – Aadhaar, is a unique number that is derived to identify every citizen of India, including the Non Residential Indians (NRI). This document was introduced to serve as an authentic identity proof for individuals. UIDAI is a secure document which consists of iris scan and fingerprint scan, that is person specific and identity theft is not very easy, making it a robust and versatile document.Exploring the robustness and versatility of this document this paper focuses on venturing out to identify the diverse applicability of the UIDAI to benefit both the government and the Indian citizens.

In order to widen the scope of Aadhaar card, this paper proposes to use the Aadhaar card number to collect and store data such as demographic, health, education, employment, financial, police records of every resident of India so that the government can utilise the information, in order to monitor, analyse and frame policies and schemes in the field of education, employment,pension, scholarship, health schemes, dole, subsidiaries to farmers

and low income people,in order to up-lift the beneficiaries thus helping India to become a developed country.

This paper also proposes a credit score based system to identify cluster, of people based on occupational and financial requirements and to credit their bank accounts directly with government subsidiaries, dole, scholarship, health benefitsand pension. This ensuresaccessibility to schemes across the county.

This paper also proposes to link smart card to the Aadhaar number to curb illegal procedures and to ensure the benefits reaches to the beneficiary and is not squandered by the middle man ensuring traceability. The smart card can also be used to have quick access to health history at times of emergency and so on

1. Introduction

India is considered one among the developing countries and also the second largest populated country in the world. It is time to work towards making India known as a developedcountry.In order to move in the path of development we need to take control of the situation and get the ground reality in terms of precise and accurate censes which, would be the deciding factor for the country in terms of framing rules, regulations, policies and schemes to ensure effective and efficient use of resources, such as man power, educational background, health and finance. India has about one fourth of its population below poverty line. ("Poverty Estimation in India," 2019) It is important for the country to focus on the underprivileged and look for possibilities to up-lift them.

All this will be possible only if the government has a centralised data base with accurate numbers which describes the actuals of the country and this will be possible only if the country has a unique identification number that identifies every individual residing in the country and has a central data base which would consist of demographic, financial, health, educational, employment, Police records,etc

In order to get these accurate numbers it is important that the unique Identification number (UIDAI)is designed to provide security, authenticity and sanctity of the Aadhaar number to prevent duplication, forgery and fraud.

This paper focuses on proposing the concept of smarter Indiaby ensuring appropriate use of benefits and schemes designed by the government. This paper also describes how to go about collecting and banking the centralised data which includes demographic, financial, health, educational, employment, Police records, etc.

In order to widen the scope of Aadhaar card, this paper also proposes on using the UIDAI for generatinga unique identification number for non-

Indians who visit the country for medical aid, education, business, etc. This will help the government to have a tab on their transaction in the country and get a holistic picture.

The government has to make it mandatory to register infants as soon as Date of Birth Certificate is generated to ensure maintaining systematic heath records right from birth.

The government should put in place a security compliant smart card that would carry encrypted data of individuals to prevent forgery, identity theft and duplication of the card or information. In order to have traceability of schemes and to ensure the deserving candidate is actually benefitting from the government schemes, provision, should be made to scan the smart card and to acknowledge the receipt of the benefit.

The government should also securely store details oneducational qualification, employment, Police records, health-records and so on to have a centralised data bank that would be under surveillance and government custody.

The government should enable centralised schemes that are linked to the Aadhaar number to benefit migrant workers and help them avail the benefits of ration, dole, subsidiaries, etc. and not be restricted to state borders.To help monitor the income flow and develop a credit score based algorithm which will determine   and assist the government to make well informed, decisions on schemes and policies to remit subsidiaries, scholarship, pension and medical aid directly to the accounts of the beneficiaries. Thus, making the Aadhaar number a centralised databank of valid information, helping the government to take informed decisions.

2.   Problem description

In India, the unique identification number - Aadhaarhas unique biometric features of iris scan along with finger prints of all 10 fingers which plays a major role to preventidentity theft, making it the best authenticated source for monitoring the Indian population. With few exceptions of injury, blindness or occupational hazards, like welding that may deteriorate finger and iris scan over time (*Sen, 2019*). This document is not utilised to its full potential and remains to be a stand-alone document that only serves as ID proof,*("Aadhar Hand Book for Residents", 2020,*) linked to bank account, income-tax filling and to avail the benefits provided to the beneficiary through government schemes.

Having about 175 lakh Indian living abroad (Sunramanya.N, 2019, Aug 26)The Non Residential Indians who do not have to pay tax on the income earned overseas, however have the opportunity to invest in India through the Overseas Indian Facilitation Centre which provides hand holding for them to invest into India, help in taxation and facilitate partnership. ("Overseas Indian Centre Abroad,"2018). Identifying and tracking the investments of Non Residential Indianswould be the need of the hour.

India is one of the countries that providea low cost living along with high quality education (Minsky, 2015), medication and staycompared to other countries, encouraging foreign students, patients and employees to immigrate to India.However, the Indian government does not have a system of tracking these individuals, financial transaction and their activities other than a passport number that the non-citizens can be tracked with. It is important to regularise and set standards for them and to monitor their where about in the country. India has about 5.1 million migrants ("Ministry of Home Affairs,"2001)

India with a growing population of about 1.33 billion, and having a population of below poverty line of about 21.9%("India in Figures," 2019) it becomes importantfor the government to monitor the census ofthe growing population, an immigrants in the country, financial transactions, health status, police records,education and employment status of the country in order to ensure the government takes the required steps to design policies and schemes for the up-liftmen of the society. With the current scenario of increased protest and violence with the Citizenship Amendment Act(CAA),National Population Register (NPR)and the National Register of Citizens (NRC), it gets difficult to carry our census which is a primary source of socio economic data. ("The Hindu," Feb21, 2020).However, the country lacks a robust and precise census system.

The PAN card, Ration card and the voter's ID card has repetition of demographic information that is also present in the Aadhaar card resulting in redundancy of paperwork.

The lower income people usually migrate inter-district and inter-state in search of jobs. This sector of people usually depend on ration from the government. As they migrate from their home town they are unable to access this provision from the government. With only 17 states of the country implementing One Nation One Ration system, ("Live Mint," August25th, 2020)making it difficult for the immigrant workers to avail the provision of ration.Making them depend on Fair Price shops.

Stranded immigrant workers may not be able to avail the provision of dole as it is not centralised in some instances and is provided by the state government.

There are about 252government schemes that are formulated for the deserving citizens but ensuring it reaches the right people such as tribes, migrant workers, farmers, transgender, etc. and tracing of the benefits from the source to the deserving recipients is highly questionable. (Sen.S, 2019).

The government does not have a system in place to track the traceability of schemes and to prevent misuse and corruption by the middle man.

Most of the needy sector of people are uneducated and unaware of government schemes that they can avail. The government also lacks the system to identify the deserving cluster to creditmoney into their bank accounts directly.

In order to move in the path of being a developed country it is essential to develop a robust system that ensures the up-liftment of the country.

3.   Proposed policy options

India standssecondwith the highest population in the world, which in turn makes it all the more important for the country to regularise financial transaction and tax filling to have an accurate census of the growing population to identify areas of development in terms of setting up government policies for population control, health benefit schemes, regularise black money transactions, police records, scholarships, subsidiaries and schemes for beneficiaries such as farmers, senior citizens, people below the poverty line and so on.

For the above mentioned reasons Unique Identification number should be made mandatory for all residents of the country. Be it citizens, foreign students or residents on work permit. The Aadhaar number should be issued for every new-born while applying for the birth-certificate. Every Aadhaar card should consist of demographic details, biometric information, photograph and address. Each and everyAadhaar number should be linked to a smart cardensuring every individual in the country is accounted for.

 The smart card will have an identification number, photograph of the person, scan codewith the emergency number displayed on it. Every time this smart card is scanned, it should be able to feed in data into the central data base to consolidate medical history, financial transaction, education and employment details, police records, receipt of benefits etc.

This card would have a magnetic strip that will consist of encrypted folder numbers of the individual on certain categories like health, finance, education, police records, travel history etc. For example, every time the smart card is scanned at the health centre,the Aadhaar number would be linked to every vaccination taken or a major ailment treated and the data would be consolidated at the central data bank in the person specific health folder. In times of emergency orduring an accident or for a study in clinical trials. The medical history should be made available for quick turn- around time. Similarly, every financial transaction done in terms of asset purchase, income tax filling etc. the data should be consolidated at the central data bank in the person specific financial folder. The income tax department should be able to access to the financial folder of the individual to verify tax filled and identify the discrepancy.

Based on the income and the financial transactions done by an individual, there should be a credit score system set up, to group individuals into different financial sectors which will help the government identify and setup schemes for the underprivileged and directly credit the subsidiaries, scholarship and schemes into the benefactors account. Most of the low income people would be unaware of schemes and would be unable to apply

for them. So crediting the amount directly into their accounts would be beneficial.

The Government should maintain a centralised data base for the residents of India. It is important to put in regulations to ensure that the resident's data is kept secure and encrypted making it unavailable for tampering or duplication of information from frauds. The data of the individual should be made available only if the law demands for it from authorised and authenticated government setups.

The centralised data bank should store the data in an encrypted format that can be read only by authorised Government official department. For example, to treat an accident victim when a request is placed to obtain medical history, only the medical history should be readable and not financial or educational or police records.The data that is requested will be issued in a digital format that cannot be circulated and will be readable only for a fixed period of days or hours, after which the document will no longer be readable. Thus prevents storing and circulation of confidential information

In order to prevent identity theft and to track the efficiency of government schemes, policies, pension and health benefits, etc. it is important that the Aadhaar number be linked to a smart card that can be carried at all times and scanned to input data orconfirm receipt of beneficiaries or validate identity to ensure traceability of the government schemes that the benefits reach only the deserving and not the middle men. This ensures to keep the Aadhaar card secure at home and prevent a fake and fraudulent fabrication of duplicate cards. Currently, there is no privacy of demographic details of individuals as the photocopy of the Aadhaar card is attached with every official document.

For Indians the date of validity of the Aadhaar number/smart cardcould be the day a request is raised for the Death Certificate. For non-Indians the visa expiry date could be the expiry date of their Aadhaar number. The next time the same individual raises the request for a visa, other than a tourist visa, the Aadhaar number can be reactivated. Hence, ensuring an individual be linked to a single Aadhaar number.

4. Current application of aadhaar card in india

Aadhaar card was introduced in India with the intention to have 12 digit unique identification with biometrics of the iris and 10 finger prints to prevent identity theft which would be unique to each citizen. ("National Identification Number," 2020) It was further improvised to link the Aadhaar number to bank accounts so that beneficiaries would benefit from government schemes. In order to get maximum enrolment from the lower income, the concept of introducer was included to benefit the poor who do not have address or the ID proof.

Aadhaar card, enables E-KYC ieknow your customer. Since the data and biometric of an individual is already updated. Banks, passport service and other agencies use this information to verify details reducing paper work and a streamlined process.

The proposed benefits of having aadhaar card number linked to a bank account.

- To transfer subsidy for LPG gas.
- To receive monthly pension
- To help the deserving students, receive government scholarship
- To transfer EPFO money to the bank account directly.
- Direct credit wages to the low income people under Mahatma Gandhi National Rural Employment Guarantee (MNREGA)
- To verify income with tax filling.

Other current benefits of having an aadhaar card

- To purchase materials
- To obtain licence
- To obtain new SIM
- To open a new instant bank account
- To obtain digital locker facility
- To obtain a passport within 10 days
- To obtain ration card benefits
- To obtain Voter ID card
- To avail Jan DhanYojana benefits
- To be used as an ID proof ("All on Money,"2017

5.   Unique identification number practised in other countries

1.   <u>United States of America</u>:In the US social security number (SSN) was mainlydevised to track the individual's social security status. SSN number was required for every employed individual for tax filling. Overtime the SNN number was also required for minors for filing tax deduction as dependents. As of now it has become a practice for obtaining SSN number while applying for Birth certificate.

There are 3 categories available.

- For US citizens and people who are lawfully admitted to the United States as permanent residents - this card permits citizens to work in the country without any restrictions.
- It is valid for work only with Department of Homeland Security authorisation – this is issued to individuals who are lawfully permitted to the United States,on a temporary basis and have work permit obtained fromDepartment of Homeland Security.
- Not valid for employment – is issued to individuals who are lawfully permitted to enter the country and have a valid non work conditions to avail

benefits, services, or have a requirement for Police law. ("Social Security Number,"2020.)

SSN in the 9 digit number. This numbering system allows them to allot about 1 billion numbers.

NNN -   NN -   NNNN
Area number   Group number   Serial number

The area number indicate the state of residence mentioned in the application by the applicant.

The Group numberis provided to have different blocks of numbers for convenience of processing, operations and for controlling assignments in the state.

Serial numbers are sequential numbers allotted from 1 to 9999.

Features of the card include –

- It is a plastic card
- The card consists of the number holder's picture
- The card has a secure barcode data storage stripe
- The card has an optical memory storage stripe
- The card also includes a magnetic stripe
- The card includes a microprocessor card with a magnetic stripe and a Picture.
- It has a latent image that can be viewed at an angle.
- It has colour shifting ink which is similar to the one used on a $20 bills, that changes colours when the card is viewed from different angles.
- A new production method that blends different colour inks on the background of the card that helps colours flow from blue to aqua.
- The card also includes the issuance date on the front of the card.
- There are other feature that are not made visible to the naked eye and are not disclosed for security reasons.(Puckett,2009, p.71)

Benefits of having ssn-

- It is a unique identity for USEmployees.
- Helps obtain old age benefits
- Helps track police records
- Helps maintain hospital andpatient record
- Assist in availing disability benefits
- Ensures Medicare enrolment for individuals aged 65years and above.
- Provides traceability for Income tax filing and returns
- It helps link financial transactions.
- Assist students to enrol for school lunch programme.
- It helps identify eligibility to avail benefits for housing and urban development programmes.

The taxes paid during the employment phase will be reserved for medical, retirement, disability, survivor insurance programmes etc. The SSN number is meant to be kept secure, in case of loss a reissue of a maximum of 3

issues per year and maximum of 10 issues per lifetime is permitted. The citizen's data is not shared unless a written application is given by the citizen or if the law demands for it. ("Securing Today and Tomorrow," 2020)

2. CANADA: In order to work and avail the government benefits and programmes of Canada the 9 digit Social Insurance number (SIN) is put in place. SIN is currently issued as paper format. SIN can be applied for a Canadian citizen when applying through new-born registration services for new-born kids and employees can apply for SIN based on employment permit.

SIN is required for filling of tax, availing of government benefits. SIN number has to be protected by the individual and provided only when required by law. The SIN number can be validated by Luhn Algorithm to ensure its authentication.

Categories available
- Permanent SIN – Issued to citizens of Canada.
- Temporary SIN – Issued to foreign students and individuals on work visa. The SIN number starts with 9 and has an expiry that coincides with the expiry of the work permit.

Benefits of having sin-
- Provides health care benefits
- Provides child benefits
- Provides universal child care benefits
- Provides Canada Child tax benefits
- Provides Disability benefit
- Provides employment benefits
- Provides old age security Pension
- Provides Canada Pension Plan
- Provides unemployment benefits

Canada also has a unique health card number that is specific to every patient and permits them to avail all the publically funded healthcare encounters.("Government of Canada."2020)

3. Singapore: Has analphanumerical unique identification number called The National Registration Identity card (NRIC). The NRIC number is mandatory to work in Singapore. The card consists of basic information such as name, date of birth, nationality, sex, country of birth, barcode and fingerprint.

Following are the categories available -

NRIC – is allotted to citizens and permanent residents of Singapore.

FIN card – is allotted to foreigners holding employment or student passes in Singapore.

NRIC/FIN are alphanumeric identification numbers that consists of the following format #*0000000*@

- Depending on the status of the holder "#"is a letter that can be "S", "T", "F" or "G".
- "0000000" is a 7 digit serial number assigned to the card holder.
- With respect to "#" and "0000000" the checksum letter calculated and "@" is allotted.

"S" –stands for Singapore citizens and permanent residents born before the year 2000.

"T" –stands for Singapore citizens and permanent residents born in and after 2000.

"F" –stands for foreigners holding employment or student passes issued before 2000.

"G" –stands for foreigners holding employment or student passes issued in and after 2000 ("National Registration Number," Wikipedia, 2020)

Benefits of having a

4. CHINA: The National Identity Card consists of the following information on the card.ID Number, Photo, Name, Sex, Birth Date, Nationality, Address, Date of Issue, and validity. This card is mandatory for all citizens above the age of 16 and for foreigners seeking citizenship.

National Identity Card is an 18 digit Identity code

Eg NNNNNNYYYYMMDDOOOX

- Address code (NNNNNN)- refers to the resident's location,
- Date of Birth –Is written in the form of YYYY-MM-DD.
- Order code (OOO) - is the code used to differentiate people with the same date of birth and address code. Men are assigned with odd numbers and women assigned with even numbers.
- The Checksum number (X) – is the validity of the first 17 digits utilizing ISO 7064:1983, MOD 11-2.

The Card Consists Of Informationsuch As

- Work history
- Educational background
- Religion
- Ethnicity
- Police record
- Status of Medical insurance
- Contact number of landlords
- Reproductive history("Resident Identity Card,"2020)

5. UNITED ARABS EMIRATES – Emirates ID or Residents ID card of UAEis required for every individual residing in the United Arabs. It is a mandate to avail benefits from the government, non-government and private entity services.

The card is a 15 digit unique number with the prescribed format 784-YYYY-XXXXXXX-C, where

- 784 depicts the ISO 3166-1 numeric code for UAE
- YYYY is the birth year

- XXXXXXX is a 7 digit random number and
- C is a check digit.

Theuniquefeatures of the smart card include fingerprint biometric, digital signature, an inbuilt electronic chip that can store up to 32,000 letters, the data is encrypted, it uses ultraviolet ink and about 9 more security features. The validity period is linked to the residency.The card contains demographic details such as Emirates Identity Number, Name, Photo, Nationality, Passport data, finger print, digital certificates and other fields which are compliant to ISO standards. ("Emirates ID,"2020)

6. A proposal to maximise the scope of the aadhaar number

Toobtain precise, accurate, meticulous and error proof traceable data it is important for every individual residing in India such asIndians, Non Residential Indians(NRI) and temporary residents such as foreigners residing for education, treatment or job have to be identified.

7. Features required for unique identification number
1. Every resident and citizen of india should have an indian unique identification number

- For New-born – During the registration of a birth certificate the citizen shouldalso apply for Aadhaar number. (Aadhaar issued with demographic information and photograph. Biometric will be registered at the age of 5).
- For Indian citizens – The government should educate and set dead-linesfor every resident to apply for Aadhaar number.
- For non-Residential Indians (NRI) – The Government should make it a mandate for NRIs to have a valid Aadhaar number.
- For foreign students/patients/ residents on work visa – Should be provided with a Non-Indian Aadhaar Number that could be of a different colour of the Aadhaar card an alpha numerical identification where the alphabet could be derived from the name of the country of origin.

2. Information on the aadhaarcard

The card should consist of the following demographic information or more
- Name of the card holder
- Photograph
- Contact number
- Residential address

3. Information to be linked to an aadhaar number

In order to have a robust and traceable system in place, the citizens should be informed of schemes and updated when monetary benefits are remitted to their accounts or non-monetary benefits such as ration, books etc. are made available for the recipient.
- Valid Email ID
- A valid mobile number
- An emergency contact number

- A Bank Account number
- Smart card number

4. Information of the smart card

Every Aadhaar number should be linked to a Smart Card (similar to an ATM bank card)

The smart card should include information such as

- A card number
- Expiry date for Non-Indians
- Emergency Contact number
- Photograph
- A magnetic strip that recognises the linked Aadhaar number and demographic details.

5. Benefits of linking smart cardto aadhaar number.

To ensure traceability, transparency of transaction and to ensure confidentiality of the Aadhaar number

- Just as every bank account is linked to a smart card. Every Aadhaar number should be linked to a smart card.

- Every time a beneficiary receives a non-monetary benefit, such as ration, books, uniform etc. the smart card can be scanned, which will ensure that the assigned person has acknowledged the receipt and the benefits are not misused.

- To have a tab on criminals and to track their dealings, criminal records and the major felony should be linked to Aadhar number.

- The smart card should be scanned for every purchase of assets and avoid attaching the photocopy of Aadhaar card to ensure identity theft is avoided.

- The smart card has to be scanned to link medical history such as vaccinations, ailments and procedures with the Aadhaar number.

- On completion of every milestone in education, the result of the convocation certificate could be linked to the Aadhaar number.

6. Data that could be linked to aadhaar number via the smart card

- Health – vaccination, major surgeries and ailments

- Income tax filling – the UIDAI will be linked to every bank account that the individual holds. Thus, ensuring that every transaction and interest gained is recorder and income tax returns are remitted.

- Bank account details– to ensure eligible beneficiaries avail government subsidiaries, scholarships, pension, EPF etc.

- Police records –identifiable and proven crimes and its status to be linked to UIDAI.

- Educational information – include educational qualification of the individual.

- Employment details – such as work experiences, years of services and records.

- Investments – Details of investment in property, vehicle purchase and other assets.
- Acknowledgement of receipts of benefits such as ration, books, dole etc.
- Expiry date –should be included only for the foreign residents in India such as students, patients or people on work permit. The expiry date on the card should tally with the visa expiry date.

7. How to link the above information to the aadhaar number and ensure systematic update of the centralised data bank

Every time an Aadhaar number is generated the system should be able to generate sub numbers/folders that are linked to theAadhaar number and encrypted in the magnetic strip of the smart card. Every time there is an update in terms of vaccination or education, etc. the smart card can be scanned and linked to the Aadhaar number and the obtained data can be consolidated into the centralised data bank under the following categories.

- Health Number – to record data on vaccination, ailments, blood tests, functionality test, surgeries, etc.
- The police record number – to record data on felony, crime, etc.
- Education and Employment number – to record data on educational qualification, employment details etc.
- Financial number – to record data on income tax filling, investments on property and assets.
- Receipt Acknowledgement - to record the receipt of monetary and non-monetary government schemes.

8. Set up credit score system

In order to identify citizens in need of monetary help, to boost their livelihood. It is important to cluster the population based onstandardised credit score system to ensure the right population is identified. This system will help devise policies for monetary and non-monitory schemes in terms of medical policies, educational policies and betterment policies for the poor such as.

- Relief benefits for Farmers, daily labourers, etc.
- Loan waver schemes
- Pension plan
- Health benefits
- Provision of ration
- Scholarships
- Dole
- Relief fund for natural disaster

9. Benefits of having a centralised data bank.

Every time a data entry is made at the source in terms of vaccination/health/financial transaction/purchases/ education, etc. the information will be linked to the Aadhaar number database via the scan of the smart card and will be stored in an encrypted format in a centralised data

banking system. The data will be under surveillance and bound by strict law enforcement to ensure the data is not leaked out or used for commercial purpose.

• This data can be reviewed mainly to derive at census numbers for the government to take an informed decision on policies and schemes.

• To cluster citizens into different financial slabs so that the government can creditboth monetary and non-monetary schemes to benefit the citizens.

• To validate income tax fillings.

• Get quicker access to information in terms of investigating criminal cases

• To identify candidates for clinical trials and get health profiles.

• Get quick access to health records at the time of accidents and health emergencies.

• Save on manpower and reduce redundancy of paperwork.

10. Safety and security of the data

The central data bank consists of confidential personal data. To prevent the misuse of data,it should be kept secure and safe by following standardised procedures. Such as,

• The data should be stored in an encrypted format.

• The data can be retrieved only if valid authorisation is provided.

• The requested data can be issued in a digital format which is specific to a device and is readable only for a fixed period of time. After the validity of the data expires the data should no longer be readable.

8. Advantages of proposed holistic approach of aadhaar number

1. It is portable
2. It is a Smart card
3. Security authentication to avoid forgery or duplicate cards.
4. Data stored in centralised data bank
5. Data stored in encrypted format, preventing hacking.
6. Income tax filling and returns streamlined.
7. Financial transactions made transparent.
8. Illegal and black money will be accounted for, thus strengthen the country's economy.
9. Government policies and subsidiaries made available to the deserving based on analysing the centralised data and remitting it directly to their bank accounts.
10. The credit score system provides a standardised and robust system to identify the deserving cluster of population.
11. We can get away with the PAN card. As the financial transactions are monitored and linked toAadhaar number.
12. Maintain a precise and accurate census.
13. Enables us to evaluate effectiveness of government plans and policies.

14. Ensures the needy avails the benefit of obtaining medicines from Jan Aushadhi and other medical schemes at affordable cost

15. Get away with the voters card and the Ration card to save manpower and redundancy of paper work, as the demographic details are available and linked to the Aadhaar Card.

16. Emergency medical aid can be provided during accidents by scanning the smart card.

17. Medical insurance details.

18. Ration and the dole can be accessed by immigrants irrespective of their native state of origin.

19. Acknowledgement of Receipt on receiving dole/ration/medication etc. to ensure traceability and to benefit the deserving by reducing corruption.

20. Avoids misuse of funds by the middle man or dealers.

21. Avoids illegal immigrants from staying in the country.

22. Track criminals on the run and get a quicker access to data.

23. Prevents misuse of funds and corruption.

9. Disadvantages of having digital national identity scheme

Having a digital Identity scheme not only helps connect, centralise data and avail citizen welfare schemes but on the flip side it also poses a threat to the fundamental rights and privacy of a citizen. ("National Digital Identity Programmes: What's Next?,"May 2018) There has been reports of Aadhaar data being leaked and lack of robust surveillance system (Ananthakrishnan G, May 4, 2017)

Processes required for a smarter india

Every individual residing in India, such as an Indian citizen that include infant or temporary residents such as foreign student, people on work visa or for medical reasons should be provided with an Aadhaar number. The temporary residents can be differentiated from the citizens by colour coding the card and also by differentiating the Aadhaar Number format.

The 12 digit Aadhaar number can be reserved for the Indian citizens and for non-Indians (students/patients/employee) an alpha numerical Aadhaar number can be issued. The Alphabet sequence could be the first three letters from the country of origin of the individual and the number would be system generated random number. Example for a person coming from Australia the Aadhaar number would be AUSXXXXXXXXX.

The proposed Aadhaar card consisting of personal data can be kept in a secure place by individuals to avoid identity theft. The Aadhaar card will be linked to a smart cardthat will carry personal data, financial data, criminal records if any, health data and educational data. The portable smart card can be carried around. The card will display only thephotograph,the smart card number, scan code and emergency contact number. The card will not display the Aadhaar card number. This is to ensure that there is no identity theft and misuse of data..

For non-Indians to ensure a single Aadhaar number is linked to an individual.It is important that every time the temporary resident visits India(other than tourist visa) the Aadhaar smart card can be reactivated at the Indian embassy based on the updated visa validity. This is to ensure and avoid multiple Aadhaar numbers against the same person

The government should ensure that every Aadhaar number is linked to a verified address, email ID,a mobile number and bank account.

The smart card for Aadhaar will be manufactured by an authorised government set up, to put in security systems in place like colour combinations, a water mark, authentication symbols and emblems, similar to what RBI does for Indian currency. Thus preventing forgery and duplication of Aadhaar smart cards. The smart card will be colour coded to differentiate citizens from temporary residents.

When an update has to be done for personal data in terms of change of address the individual should be able to use the registered login and provide the required proof or visit registered government agencies and update the required information.

The government should set up a system to verify and update the demographic details and photographs every 5/10 years.

Loss of the smart card should be treated similar to other legal documents and an FIR should be filed and the due diligence be done. The previous card can be blocked and a new card can be generated that is linked to the Aadhaar number.

To input data at the source for example, to update health information in terms of vaccination, every time the individual is vaccinated the Aadhaar smart card can be scanned to link the information to the UIDAI central data bank. Similarly every time a bank account is opened or a property purchased the data gets encrypted in the central data base for the respective Aadhaar card.

When organisations like hospitals/ banks/ educational institutes/ law and order/sellers/ acknowledgement of receipt, etc. gets to scan the card the operator only gets to verify if the smart card belongs to the particular individual and can input data, but in no case will they be able to retrieve or read data from the centralised data bank.

In case there is a need to retrieve data for health emergency or an accident or to verify criminal records of a person or an employment history or educational history,The process should be set up to raise request and have authorised persons provide it upon verification in a digital format that cannot be circulated or printed and has a validity set on readability of the information.

The credit score system will ensure a standardised protocol is followed and the identification system is robust. To make government subsidiaries and policies available to the beneficiaries based on the credit score the government will be able to identify the deserving population. In terms of monetary funds the government can transfer funds directly to the

beneficiary's bank account.Most of the below poverty level people, like farmers and rural people are uneducated and unaware of the government benefits and will not be able to apply for the benefits.

Every time the government devises schemes to distribute non-monetary goodies such as food/ health aid/books, etc. the beneficiaries can be informed by sending an SMS in their local language on their authorised mobile number informing them of the time and venue.On receiving the benefits the beneficiary can scans the card at the receiving centre, this will ensures traceability and confirmation that the benefits have been accepted by the beneficiary.

To benefit migrant workers in terms of availing, ration/ dole etc.the benefits should be directed through the Aadhaar card and not through ration card which is currently specific to the state. If the individual is entitled for the benefit irrespective of the district or state of origin the individual should be able to avail the benefits at the current place of residence from authorised government dealers.

To ensure the best candidate gets a job. The government can post job opportunities to eligible candidates based on the educational data base that is available. If the candidate gets a job the employment portal can be deactivated by the individual and reactivated when the candidate looks for a job again.

Linking the Aadhaar card to the health history of a person will ensure quick response in treating accident patient or during any health emergencies. A data base consisting of vaccination history of people will help the country to take well informed decisions and analyse data quickly during an epidemic/pandemic situation or to screen patients for clinical trials.

Linking the Aadhar card to financial transactions and asset purchase will ensure the data is verified for tax filling and illegal money circulation can be stopped.

Centralised data bank will also help the law and order department to nab criminals quicker by tracking their transactions and activities in the country.

This process will help India to collectively move on the path of development. Ensuring the up-liftment of India.

The summarised proposal is explained in Figure 1
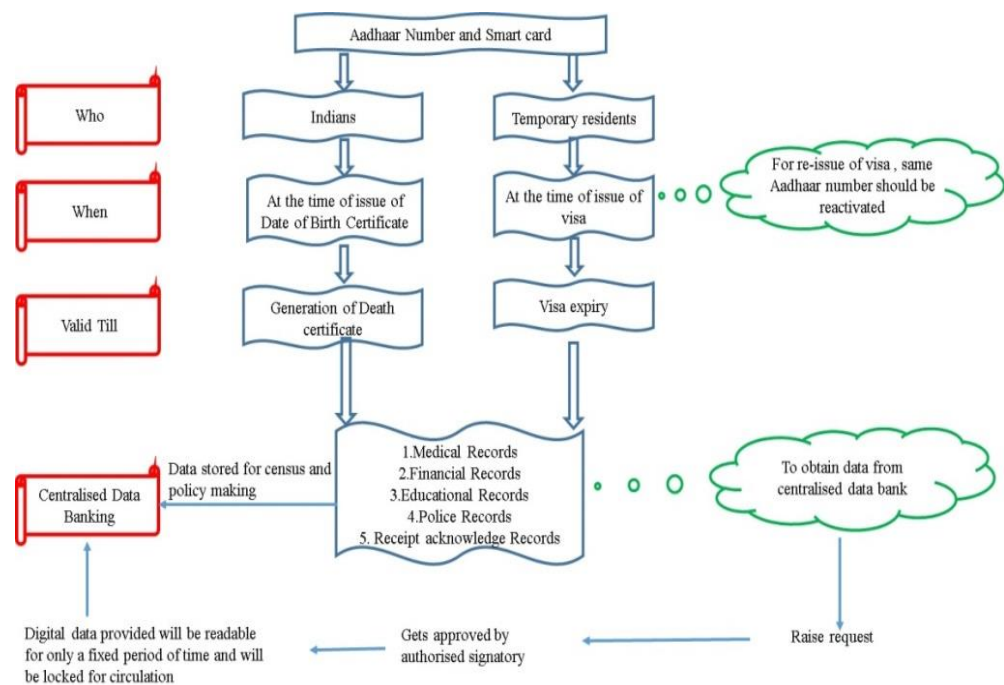
Figure 1: *Summarised Flowchart of the proposed Smarter Aadhaar Number*

Phase 1

• Brain storm and identify a robust and full proof security system for maintaining and retaining the authentication of the Aadhaar smart card. To make no room for fake or duplicate ID cards.

• Set up secure programming and IT system to develop and store data in an encrypted format in a centralised data banking system.

• Identify the frequency and location for storing backed up files.

• Set up data updating units with smart card reading facilities at hospitals, educational institution banks and so on

Phase 2

Designa sampling size to run trials on enrolling for Aadhaar number for new born kids, existing permanent residents and temporary residents such as foreign students, patients and employees. To run a trial from end to end.During this process the following has to be monitored to ensure an error proof system.

• Processingof Aadhaarnumber

• Processing of smart card.

• Postal and communication of Aadhaar number to the citizens.

• Encryption of data and biometric

• Validate the data banking system that is generated from data updating units such as hospitals schools, banks etc. to the central data banking system.

- Set up requisition process for data n retrieval process of data.
- Look for gaps in the process and make the required modifications to strengthen the processes.

Phase 3

Set up a pilot run from end to end in a particular districts and then ramp it up to a full-fledged India project.

10. Conclusion

Comparing the role of Aadhaar card that we have in India to the UIDs that are available in other countries we understand that the efficiency of the Indian system can be made more effective and robust in order to ensure that the country has accurate and precise census. Based on the census multiple government policies and subsidiaries can be designed, monitored, controlled and the effectiveness measured

The government gets to track and monitor financial transactions, to ensure illegal money and investments are put to an end and income tax filling and returns are streamlined which would compile people to use authorised system of transaction andwhich in turn will enable the government to channelize the economy to be used for the up-liftment of the society and build a stronger economy for the country.

With the granularity of data available the government will be in a position to take informed decisions to develop health plans, pension plan, relief funds and facilities that will be beneficial to the under privileged, elderly and the deserving of the country.

By having a centralised data bank and linking the Aadhar number to financial transaction, ration, health, education, employment etc. paperwork and manpower redundancy can be eliminated by nullifying PAN card, Ration card and Voters ID. Census duties can be terminated as the government now has live and updated census available at all times.

Maintaining a centralised data bank of the citizens private information is a risk, if the government does not have a robust surveillance and security system in place however the benefits weigh much higher that the disadvantages.

In order for the country to have a smooth transition from a developing country to a developed India, it is time for the government to meticulously monitor and recognise areas of interest and build policies to benefit the beneficiaries and uplift the country's economy.

11. Recommendation

Recommendation is to embrace the holistic Aadhaar number approach and to develop state of the art facility to put together a central data banking system that is secure and robust, that will help the country to have a centralised control, helping the government to constantly monitor and make

policies for the upliftment of the downtrodden andin turn be in par with other developed countries. Making India future ready to fight any kind of emergencies such as pandemic or Economy breakdown.

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