Analysis of Aadhaar: A Project Management Perspective

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Abstract

Increasing Indian population, migration from neighbouring countries as well as numerous variants of identity cards like ration card, voter ID card forced Government of India to form 'Unique Identification Authority of India (UIDAI)'. The primary responsibility of the UIDAI is to issue Unique Identification Number (UID) or Aadhaar number to Indian residents which can be used for all the government transactions/benefits schemes like gas subsidy, Mahatma Gandhi National Rural Employment Gurantee Act (MGNREGA). This study conducts a systematic review of the materials/articles available through secondary sources such as newspapers, research papers and government reports on Aadhaar project. This has been categorized as a developmental project in the study due to high uncertainty associated with it in various dimensions. An attempt has been made through this study to understand the planning and implementation stage of Aadhaar Project till 2014. The study also attempts to identify potential risks (diamond framework has been used to provide interesting insights) and suggest a contingency plan for this and similar government projects in future, to ensure a better success rate. This study identifies various gaps and recommends a plan of action as well as appropriate process changes to enhance project success of Aadhaar Project in future. Based on the insights from this study a model to enhance the success rate of similar projects has also been proposed.

Keywords

UIDAI, Aadhaar, project risk, diamond framework.

Introduction

As per the statistics of Population Reference Bureau Data Sheet (World Population Data Sheet, 2013), India is the second largest populous country (1277 millions) and is expected to be the largest by 2050 (with the population of 1652 millions). With such a large population, the current system of multiple identity cards used by various central as well as state governments units for all variety of schemes/benefits (such as gas subsidy and MGNREGA) and other purpose becomes difficult to implement and complicated to manage as well as this increases the pain for a citizen.

The respective Government of India (GOI) or state governments department has to maintain multiple records of the same data, or some information which might not have been updated, thus leading to lots of confusion as well as wastage of time during implementation of schemes. This situation has forced GOI to form 'Unique Identification Authority of India (UIDAI)' in 2009 under the leadership of Mr Nandan Nilekani.

The primary responsibility of the UIDAI was to issue 'Unique Identification Number (Aadhaar Card)' to Indian residents (this is not a card for citizenship). The target of Government was to cover 1.2 billion people by 2020 but

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at present it is facing challenges/obstacles and is far from the desired target (Gerdeman, 2012). Shukla (2013) pointed out that this scheme is expected to enhance the expectation to move towards national e-governance and enables an entire 'digital ecosystem' that includes state and market initiatives such as direct transfers of state subsidies, employment guarantee schemes, banking, insurance and financial sectors. UID-enabled bank accounts will act as a catalyst in financial inclusion of poor (Chakrabarty, 2012). The centralized database will help in data surveillance and Government surveillance also to prevent antisocial activities of terrorism and theft (Sun, Hichang, & Sanchez, 2009). It is planned to link Aadhaar Card information with other identity systems like banks and voting cards. Considering these benefits and the need of the country, this study intends to identify various risks, response plans of a highly complex UIDAI project. The success of such projects also depends on the interaction of multiple stakeholders involved in the system.

> The manuscript has been divided into following section: In order to identify the gaps in the literature, next section presents a detailed literature review on planning and implementation of similar projects across the world collated from various sources like newspaper, government documents and research papers. This is followed by a section to understand the current status of the project (as of 2014) of the Aadhaar Card project. Subsequently, detailed project analysis has been done by developing the priority matrix, followed by the planned risk-return tradeoff, conducting risk analysis by using tools like diamond framework, risk matrix, risk response plan etc. Finally, this study provides the recommendation and conclusions from the study which could be incorporated to further enhance the chances of success of similar project in future.

Literature Review and Challenges in Front of UIDAI

A number of countries across the world have implemented or are on the way to implement the personal identity systems for their citizens. The United States is using Social Security Number since 1936. It is a nine digit national identification number and is mainly used for social security and taxation purposes. China is using Second generation ID card system since 2004. It is being successfully implemented but is considered to challenge citizen's legal rights and threaten digital intrusion. South Africa is on way to implement Smart ID Cards. It will include fingerprints as the biometric information. The cards are considered secure. But there are controversial margins of error in

biometrics, which includes false matches (a wrong biometric being recognized as a correct one) and false negatives (biometrics not being recognized). Among all biometrics, fingerprints are said to have the highest rate of error. Hong Kong started using Smart Identity Card System in 1990s.

It is considered as a successful project. The identity cards have minimal data on them that includes name, gender, digital image, date of birth (DoB), residential status and both thumbprints. After data collection, it was integrated with government databases. The system underwent a highly focused and exhaustive one week 'trial-by-fire' testing before full-scale implementation.[1]

Thus, a number of countries have unique identity system, but most of them are facing security and privacy issues. The experience of the United States and Britain in the configuration of Unique Identity proofs bearing biometric information is not encouraging (Kaushik, 2010). There are major issues of sensor noise and poor image quality in large scale deployment of Automatic Fingerprints Identification System (Vatsa, Singh, Bharadwaj, Bhatt, & Mashruwala, 2010). Thus, critical techniques during enrolment should be consistently followed for good quality capturing of fingerprint images. Further, in India, where a large population belongs to rural areas, presence of scars, warts and deteriorating patterns in the fingerprints will lead to change in biometrics over time (Vatsa et al., 2010; Shukla, 2013). A major concern with implementation of biometrics-based Unique Identity System is Information Security. In Australia, there are legal issues as several provisions of the Federal Privacy Act 1988 and the Biometrics Institute Privacy Code are inconsistent, unclear and/or confusing (Liu, 2010).

Aadhaar Card is an ambitious project declared by GoI in 2009. Other countries, including Australia and Indonesia are studying UIDAI to implement similar system in their countries (Gerdeman, 2012). UID project in India put liberty of residents at stake and imposes no control on use of their demographic and biometric information (Greenleaf, 2010). Aadhaar card enrollment is an entitlement without any right/guarantee. It is made voluntary but its enrollment is essential to avail its benefits and service (Ramanathan, 2010; Dreze, 2010). Usha Ramanathan, Legal Expert, says that all emphasis has been on enrolment, not on how it will be used (Mukherjee & Nayar, 2011). UID is expected to act as a bridge between silos of information and might takes away privacy of individuals,

as undesirable person/group/agency might also hold the personal information (Greenleaf, 2010; Ramanathan, 2010). There is also a fear among experts that comprehensive information data of an individual might be misused by its possessor (Kaushik, 2010). Furthermore, GoI lacks to some extent public trust and confidence, where the residents have a fear of coming into radar of government with UID (UIDAI Report, 2010). Besides this, there are also some conflicts being reported to be existing within government mechanism. The Registrar General of India is against data collection mechanism through private organizations, and at the same time Ministry of Home Affairs is not ready to accept the data if proper processes are not followed (Mukherjee & Nayar, 2011). Scaling needs of UID project are unprecedented. Largest biometric identity system currently caters to about 120 million (Varma, 2010). Absence of birth records and address proof with a large number of people add to the problem. There is also a high likelihood for data recording errors. As per directions of UIDAI, it can alert the authority for erroneous information in database but has no right to correct it (Dreze, 2010). Even if the data is collected on a large scale, there is a huge gap to get right payment infrastructure for financial inclusion of poor in villages (Chakrabarty, 2012). This attempt will be the first attempt of Indian government for de-duplication of data at a magnitude required by the UIDAI, which is a big challenge in itself.

Based on the information gathered from the secondary medium, it seems that the project planning of UID has not been done with due diligence. Complexity of project implementation is not fully realized, as the document on UIDAI website does not seem to include either any documented use cases or any design documents. There is limited social inclusion, as the needs and concerns of the enrollees (who are its actual beneficiaries) have not been considered in deciding requirements and design of the project. This is in contrast to established software engineering practices. Further, the cost of technology and infrastructure (e.g., fingerprint readers in PDS outlets and cost of person and hours of effort) is not included in the project cost of implementation (Shukla, 2013). It is clear from the study of past research and the different identity systems across the world that there is a lot of research potential on project implementation challenges on such kind of high technology as well as complex project in this domain of application, especially in a diverse nation as India. Further, the past studies concentrates mainly on highlighting the challenges. They do not discuss how to address these issues. Hence, this study attempts to fill the gap by identifying the major risks, prioritizing them and suggesting the ways to address them.

Current Status of the Project

After UIDAI came into existence from 2009, the respective government in every financial year has allocated budget for the Aadhaar Project. Up to August 2014, government has spent ₹ 49.06 billion in Aadhaar project (*The Economic Times*, 2014, September 10). In the financial year 2014–15, the project has been allocated ₹ 20.00 billion to enroll the remaining population (NDTV Profit, 11th July 2014). In the year 2012–2013, UIDAI issued 0.291 billion Aadhaar numbers with an average of 24 million per month. With proposed increased capacity, UIDAI can generate 1.3–1.4 million Aadhaar numbers per day, taking the figure to generating 0.40 billion Aadhaar numbers. Government has set the new target to enroll 1.00 billion individuals by March 2015 (The Economic Times, 2014, September 10) with increased budget allocation. Central government has also decided to incorporate the biometric-based attendance which will be linked to Aadhaar number. Government has also proposed Pradhan Mantri Jan Dhan Yojana to provide government benefit to the beneficiaries with Aadhaar-linked bank accounts. It is also planning for digital India program in which all the government documents and records of all citizens will be available online on real time basis to avail government services. UIDAI is also considering hiring an advertising agency to look after media campaign to increase awareness for Aadhaar. Inspite of all such attempts, although the project is on time as well as schedule but the intended scope (i.e., to integrate with other government schemes) has not yet been met. Hence through this study, an attempt has been made to understand in detail its 'Project Life Cycle' as well as carry out project analysis so that risk could be identified and corrective actions could be proposed.

Aadhaar evolution has been through a very rigorous process since its inception to its current state of enrolment, as well as adding new benefit schemes under one umbrella. Varma (2010) as well as UIDAI (2010) elaborates these stages as: Project Design (project definition, application modules, process work flows) and Project Implementation (includes communication strategy, development of IT infrastructure, training personnel, registration and back-end processing, logistics services). The schematic diagram of the registration/enrolment process (currently a large segment of the project's target customer as still to be enrolled) is captured in Figure 1.
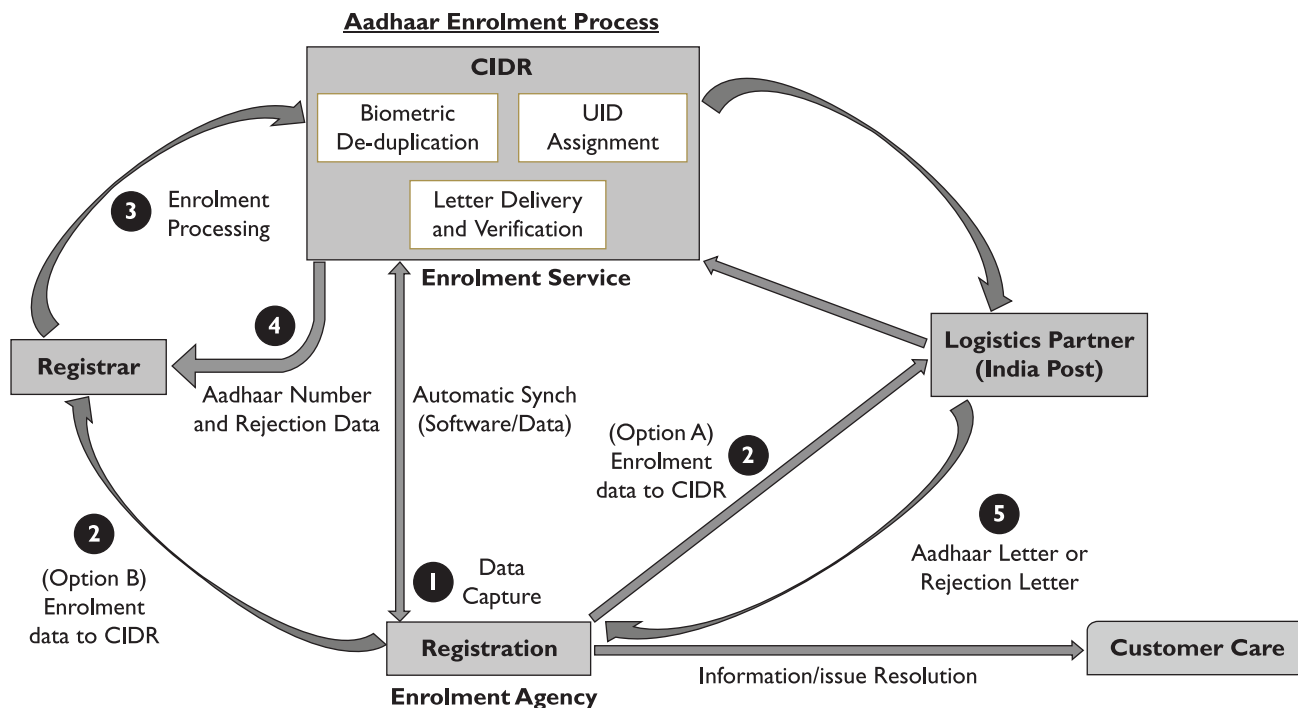
Aadhaar Enrolment Process

Figure 1. Aadhaar Enrolment Process
Source: http://www.cse.iitb.ac.in/~comad/2010/pdf/Industry%20Session/UID_Pramod_Varma.pdf

Project Analysis

Aadhaar being a unique attempt made by GoI for all the residents of the country to come under a common series of identification and therefore this project is expected to have its own set of challenges and success factors as we know that 'one size does not fit all'.

Aadhaar Project: Initial Strategic Perspective of Risk

Based on the extensive study of the reports/documents by the authors, it is perceived that for the Aadhaar project the GoI might have followed the risk-return graph as depicted in Figure 2. Backed by the expertise of Mr Nandan Nilekani perhaps initially the GoI might have hypothesized a low risk and high return scenario. The low risk might also be due to prior exposure of GoI's various individual departments' experience already in central data processing for various identification cards such as PAN card and Passport. Whereas, the expected benefits of having a single identification (previously discussed) might have been the reason for considering it as a high return scenario.

Based on the study of various information available from secondary research and subsequest discussion among the authors, it is felt that the Aadhaar project being strategic in nature is expected to have the scope of the project (cover all residents of India and link the government initiated
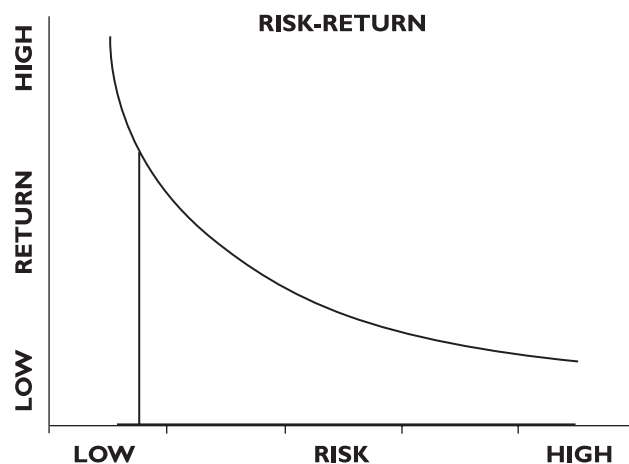

Figure 2. Hypothesized Risk Return Graph

benefits/schemes for societal cause) as a 'constrain' in the priority matrix (Figure 3), whereas the cost may be 'accept'. Where the priority matrix elements are defined as:

- Constrain—parameter is fixed, it would not change no matter what the situation is
- Enhance—parameter can be optimized by other
- Accept—parameter can be compromised or devalued against others.

UIDAI was supposed to enroll 0.60 billion individuals by March 2014 (*Business Line*, 2014, February 26) and 0.6738 billion individuals have been registered by August 2014

	TIME	COST	SCOPE
CONSTRAIN			🟠
ENHANCE	🟠		
ACCEPT		🟠	

Figure 3. Risk Priority Matrix

and one billion are expected by 2015 (*The Economic Times*, 2014, September 10). It has incurred a cost of ₹ 49.06 billion till 31 August 2014 as per the allocated budget of ₹ 89.61 billion till March 2014 (Brindaalakshmi, 2013). Hence, it can be observed that around ₹ 40.00 billion of money has not been spent. Although the scope of the targeted residents is almost achieved but the objective of integrating various services (like Public Distribution System, Jan Dhan Yojana, public health, MNREGA and education) has not been accomplished and is facing resistance from various stakeholders. Thus, there is a situation of reduced scope with respect to the original project plan.

There have been various concerns regarding the performance of the project since its inception. Initially, the project was supposed to revolutionize the identification mechanism with potential tangible and intangible returns in terms of target coverage (Aadhaar number generation) and efficient service delivery by government. But as the project progressed, it faced challenges from various stakeholders such as government (central/state/municipal levels), technical partners, citizens and equipment suppliers. These might also have been the cause of the depletion in scope of the project resulting in reduced perceived return benefits from the project (in contrary to the hypothesis as per Figure 2) like stay/delay in implementation of lots of government policies such as direct cash transfer as on 2014.

Risk Identification

Based on the literature review conducted on UIDAI project from secondary sources, four major categories of risks has been identified to influence the project results:

Technical risks

The project involves capturing biometric data. There is a risk that biometrics might change with age. As per records,

a large proportion of population in India is involved in manual labour, which might lead to change in fingerprints. Also, there might be errors in data recording and data compilation. If a person's information is wrongly recorded, there must be some mechanism to correct it. But, seeing the scalability of this project as well as time limitations (enhance in priority matrix), it becomes difficult to take all the complaints for data correction. Biometric measures might have de-duplication mechanism but they were not tested properly. There were some questions raised on various media platforms over the verification of all the Aadhaar card holders (*Biometric Technology Today*, 2010). It is also a challenging task to store, monitor and control data of more than a billion people.

External risks

The external risk has been classified into two subcategories, that is, privacy risk and political risk. Many citizens have concerns regarding the information security and object sharing of biometrics across different platforms and a similar observation was also made by our Honorable Supreme Court (*Forbes India*, 2013, October 5). National Informatics Centre claimed that there might be issues regarding privacy and security of UID data (*The Economic Times*, 2011, December 10). Although Aadhaar Card is an initiative by central government, it requires extensive support from all the three levels of Indian governance (central/state/municipality) along with various independent government departments, which might be difficult in the Indian political scenario. According to the Department of Expenditure, there was no coordination among all the concerned agencies (National Population Registry, MNREGS, BPL census, UIDAI, RSBY) responsible for data collection (*The Economic Times*, 2011, December 10). There has been a conflict between judiciary and legislative. Supreme Court has directed that UIDAI can not share information with any third party or agency (whether government or private) and Aadhaar can not be made mandatory for availing any government services (*CNN–IBN*, 2014, March 24).

Project management risk

The large scale deployment of UIDAI project involves a major risk of constant scope changes with respect to residents list, which might be an error in the existing database. There are multiple stakeholders involved in the implementation phase increasing the risk of working together to complete the desired objective of the project. The geographical spread of India makes it challenging to capture information of all the residents from urban to tribal population. This project requires collaborative effort by the government and

residents. But the availability of residents can not be ensured within the given time frame. So delays are expected at each level of the project.

Organizational risk

There is a shortage of competent manpower to take care and operate large number of kiosks established across the country. Due to the political risk identified above, there is a chance that the state government might/might not depute sufficient manpower to carry out the desired activities. More than 3000 Aadhaar cards issued by UIDAI have photos of trees, animals or buildings in place of the photos of individuals (Brindaalakshmi, 2013). Duplicate and fake identities lead to fraudulent practices. Fingerprints and Iris spoofing also pose a big challenge. These incidences clearly highlight the need to train manpower and a cultural shift, so as to make them aware of the implications on the project.

Risk Assessment

The risks identified pose different challenges according to the likelihood and severity impact of occurrence. Table 1 assesses these risks on the parameters to identify their severity. Likert scale has been used in the present study. These scores on the table have been arrived after discussion within the authors, based on the extensive literature review (from reports/news articles) conducted during the course of the study. Figure 4 plots the severity of these risks on the graph where the cells in green, yellow and red signify low, moderate and high level of risks, respectively. The details of the scales used are mentioned in Appendices I and II. It can be seen from the matrix that duplicate and fake identities, access to remote areas and presence of
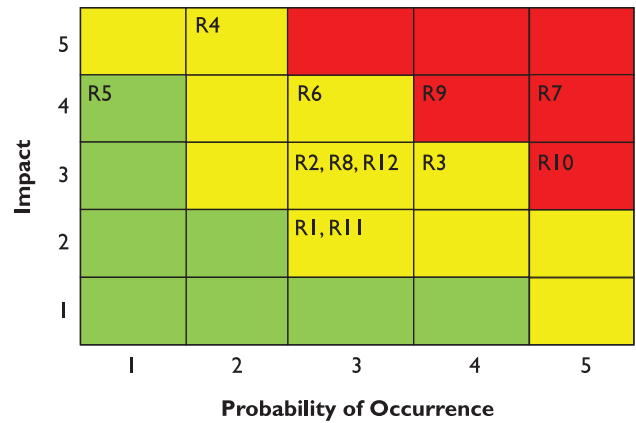
Figure 4. Risk Severity Matrix

multiple stakeholders with varied interests are the red risk and are expected to have maximum impact on the project, that is, deviating either scope/time/cost of plan, and thus should be mitigated at highest priority.

Diamond Framework for Risk Assessment

Shenhar and Dvir (2007) proposed the 'Diamond Framework' to help decision maker map projects into four dimensions, that is 'Novelty, Technology, Complexity and Pace', thus creating a diamond structure. This framework is expected to identify and manage risk in the stated dimension. The framework allows manager to see the gaps between where the project is (Actual Project Management Style) and where it needs to be (Desired Project Management Style). The risk associated with the project is least when the diamond framework is closer to origin. The detailed explanation of the NTCP framework's dimension is presented in Table 2. Figure 5 has been developed

Table 1. Risk Assessment

Risk Type	S. No.	Risk	Impact/ Severity (2)	Likelihood (3)	Risk Rating (2*3)
Technical Risks	R1	Unstable biometrics	2	3	6
	R2	Inability to handle huge no. of transactions per second	3	3	9
	R3	Errors in data recording and data compilation	3	4	12
External Risk	R4	Sharing of personal data with a non-trustworthy party (privacy risk)	5	2	10
	R5	Intrusion into encryption algorithms for data security (privacy risk)	4	1	4
	R6	Political risk	4	3	12
Organizational Risk	R7	Duplicate and fake identities (human behavior risk)	4	5	20
	R8	Fingerprints and iris spoofing (training risk)	3	3	9
Project Management Risk	R9	Presence of multiple stakeholders (technical partners, suppliers, GOI, Society representatives)	4	4	16
	R10	Accessibility to residents of remote/rural villages	3	5	15
	R11	Cost overrun	2	3	6
	R12	Time over-run	3	3	9

Table 2. NTCP Framework Scale

Dimension	Level	Description
Novelty	Derivative	Extending or improving existing products or services
	Platform	Developing and producing new generations of existing product lines or new types of services to existing or new markets and customers
	Breakthrough	Introducing a new product or concept, a new idea, or a new use of a product that customers have never seen before
Technology	Low-Tech	Uses only existing, well established, and mature technologies
	Medium-Tech	Mostly existing technologies; limited new technology or a new feature
	High-Tech	Uses many new, recently developed, existing technologies
	Super High-Tech	Key project technologies do not exist at the time of project initiation
Complexity	Assembly	Material, component, subsystem, assembly
	System	System, platform of systems
	Array	Array, system of systems
Pace	Regular	Time not critical to organizational success
	Fast/Competitive	Project completion on time is important for company's competitive advantage and/or the organization's leadership position
	Time-Critical	Meeting time goal is critical for project success; and delay means project failure
	Blitz	Crisis projects; utmost urgency; project should be completed as soon as possible
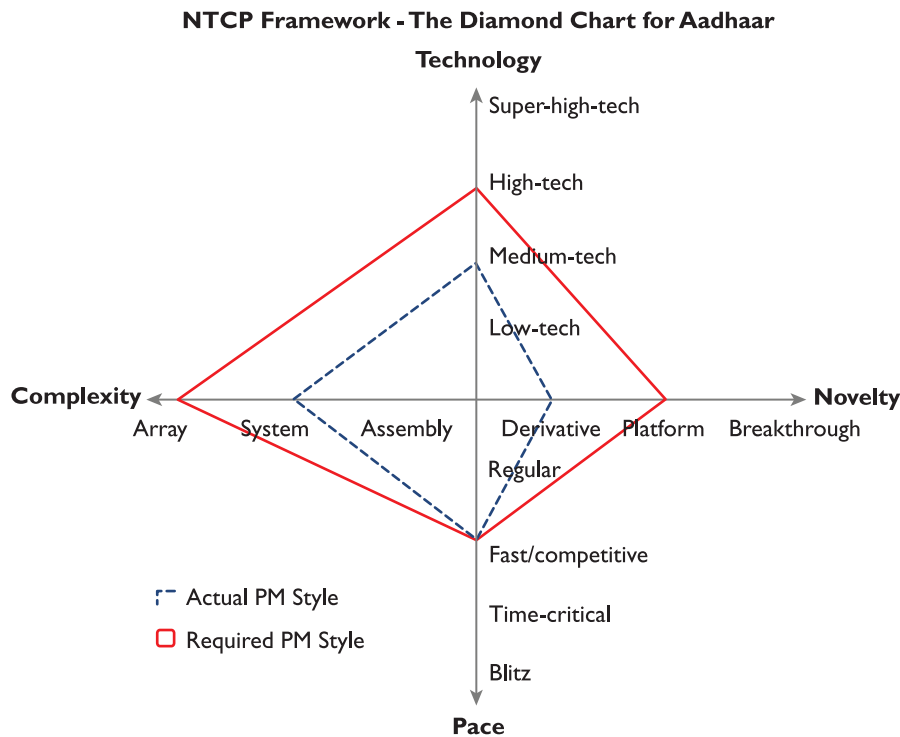
Figure 5. NTCP Framework - The Diamond Chart for Aadhaar Project

by incorporating the inputs received from previous observation and identifying the position of each dimension for a given framework (actual or desired). A clear deviation in both the diamond forms can clearly be observed.

From the 'Novelty' dimension in Aadhaar project, GoI already has few systems and processes in place like PAN, Passport services which are almost designed to meet the needs which Aadhaar is expected to, As per initial project it could have been a 'Derivative' project with some changes in work flow processes in the 'Novelty' dimension. In 'Technology' dimension it has been placed in the analysis as 'Medium Tech' as it incorporates lots of modern technological equipments (like biometric devices, data centers etc.) and their final integration to achieve the objective. In the 'Complexity' dimension, it has been considered to be system of systems and hence

placed as a 'Systems'. This project needs to cover, at the end approximately 1.2 billion residents (by 2020) across India (geographically with different culture/demography/behavior patterns) and has to interact with multiple stakeholders with varied interests in the project. Aadhaar is also a very ambitious project in terms of unique identification and financial inclusion of poor sections of society hence, timely completion of Aadhaar project is of essence here (enhance in priority matrix Figure 3). Hence, the project can be indicated 'Fast' in the 'Pace' dimension.

Based on the current status of the project, and the challenges discussed in the previous section, it is clear that the project is not doing well in many dimensions. It can be observed that there is a high risk on the complexity as well as technology dimension from the risk assessment matrix. This could be due to the magnitude of such massive population being covered by the project from various integrating schemes. Hence, in the actual implementation stage, the project has turned to be 'Array' and 'High Tech' in the complexity and technology dimensions respectively (in Figure 4, technology risk is yellow risk, where as the complexity risk is red risk [R9 and R10]). It is also difficult to convince the end customer of the need of such project, thus from the 'novelty' dimension the project turned out to be platform rather than derivative. Reflecting on all these developments, it is felt that the diamond size has increased in three dimensions and thus, the project is more risky than the perceived benefit (Figure 6) compared
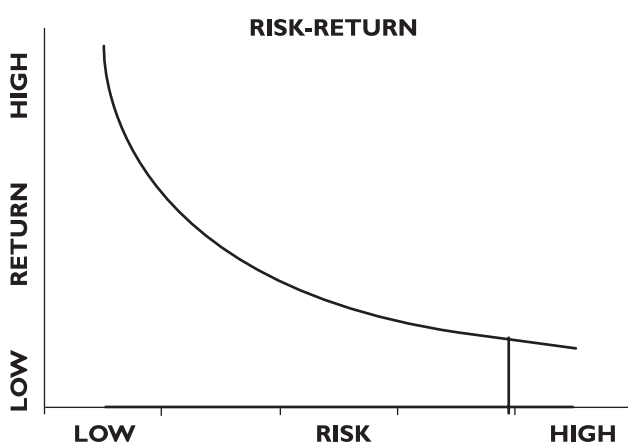
to the risk-return planned scenario (Figure 2). In addition, the developmental nature of the project (high technology) makes it more risky than perceived initially. So, in reality, the presence of so many risks has proved that the initial hypothesis of the project might be incorrect. This is one of the reasons why the project scope of although enrolling residents is on track but connecting to the other government services is way behind the planned scope.

Risk Response Planning/Contingency Planning

UIDAI has taken a lot of precautions to minimize the risks to the extent possible. But these measures are not adequate. The document by UIDAI titled 'UIDAI Strategy Overview' gives scenario analysis for avoiding fraudulent practices by the applicants. The solutions provided by it rely on the verification process which takes proper action on detection of fraud. But it does not tell how the fraud will be detected. For example, if a person presents wrong information, his application can be returned only if it is detected that the information provided is wrong. So, the primary goal is to detect the fraudulent practices. Thus, it is important to address each of the risks separately. Table 3 lists all the risks and suggests the methods to address them.

Recommendations to Improve Aadhaar Card Implementation Project

Based on the entire study, several gaps at every stage of UID enrollment process were identified, and it is suggested that these can be filled by making small improvements in the system. Figure 7 lists a few important gaps along with the potential recommendations to reduce this gap. Apart from making these improvements, there are three more measures that should be taken. Firstly, the Aadhaar card should have validity period (taking care of biometric data changes). Secondly, the state government and municipalities should be involved more intensively in this programme. They should be involved not only at the UID enrollment stage but also in benefits transfer through UID–based

Figure 6. Actual Risk Return Graph

Table 3. Risk Response Proposed Plan

S. No.	Risk Event	Action	Root Cause	Contingency Plan	Risk Owner
R1	Unstable biometrics	Mitigate	Age, Accidents and Manual Labor	Defined validity of Aadhaar card (25 years), after which it needs to be updated	UIDAI
R2	Inability to handle huge no. of transactions per second	Mitigate	Low system capacity	Design the system as per peak load requirements	Software Designer

S. No.	Risk Event	Action	Root Cause	Contingency Plan	Risk Owner
R3	Errors in data recording and data compilation	Avoid	Human error or system error	Multiple data checks	UIDAI
R4	Sharing of personal data with a non-trustworthy party	Mitigate	Poor information security	Check credibility of a party before sharing information	Software experts
R5	Intrusion into encryption algorithms	Monitor	Poor information security	Continuous Data monitoring and control	Software experts
R6	Political risk	Mitigate	Poor information sharing with residents	Educate the stakeholder/residents about benefit of UID	GOI
R7	Duplicate and fake identities	Mitigate	Poor verification mechanism	Strict legal actions and people must be aware of it	Govt./UIDAI
R8	Fingerprints and iris spoofing	Monitor	Poor verification mechanism	Strict legal actions and people must be aware of it	Govt./UIDAI
R9	Presence of multiple stake holders (technical partners, suppliers, GOI, Society representatives)	Sharing	Noninvolvement of stakeholders in initial phase	Involving stakeholders from the conceptualization phase onwards	GoI
R10	Accessibility to residents of remote/rural villages	Mitigate	Low awareness and low visible incentives	Spread awareness and link UID with actual service delivery	UIDAI/State and central Govt.
R11	Cost overrun	Accept		Monitor the costs	UIDAI
R12	Time over-run	Monitor	A large no. of stakeholders	Set feasible milestones and track progress	UIDAI

Enrollment Centre

Gap: Long waiting times for registering at Enrollment Centre (EC)
Recommendation: Operate on Sunday; Option for online/mobile appointment for enrollment

Registrar

Gap: Delay in transmitting information from EC to CIDR
Recommendation: Establish feedback channel for EC related concerns' resolution to identify and solve specific delay-causing issues

CIDR

Gap 1: The identity proofs used for authentication are themselves fake
Recommendation: Background Check by linking with State Government online portal for document verification

Gap 2: Information Security while linking with different schemes
Recommendation: Share data after filtering and abstraction

Gap 3: Mistakes like printing of non-human photos
Recommendation: Use Face detection Algorithms

Gap 4: Inability to handle bulk transaction for an unprecedented system like UID
Recommendation: Load testing of system before implementation on full scale

Post Office

Residents

Gap: Slow communication to residents in case their Application is rejected or the recorded address is wrong
Recommendation: Direct Communication to the concerned person in such cases through Call/SMS/Mail

Customer Care

Gap: Updation of data
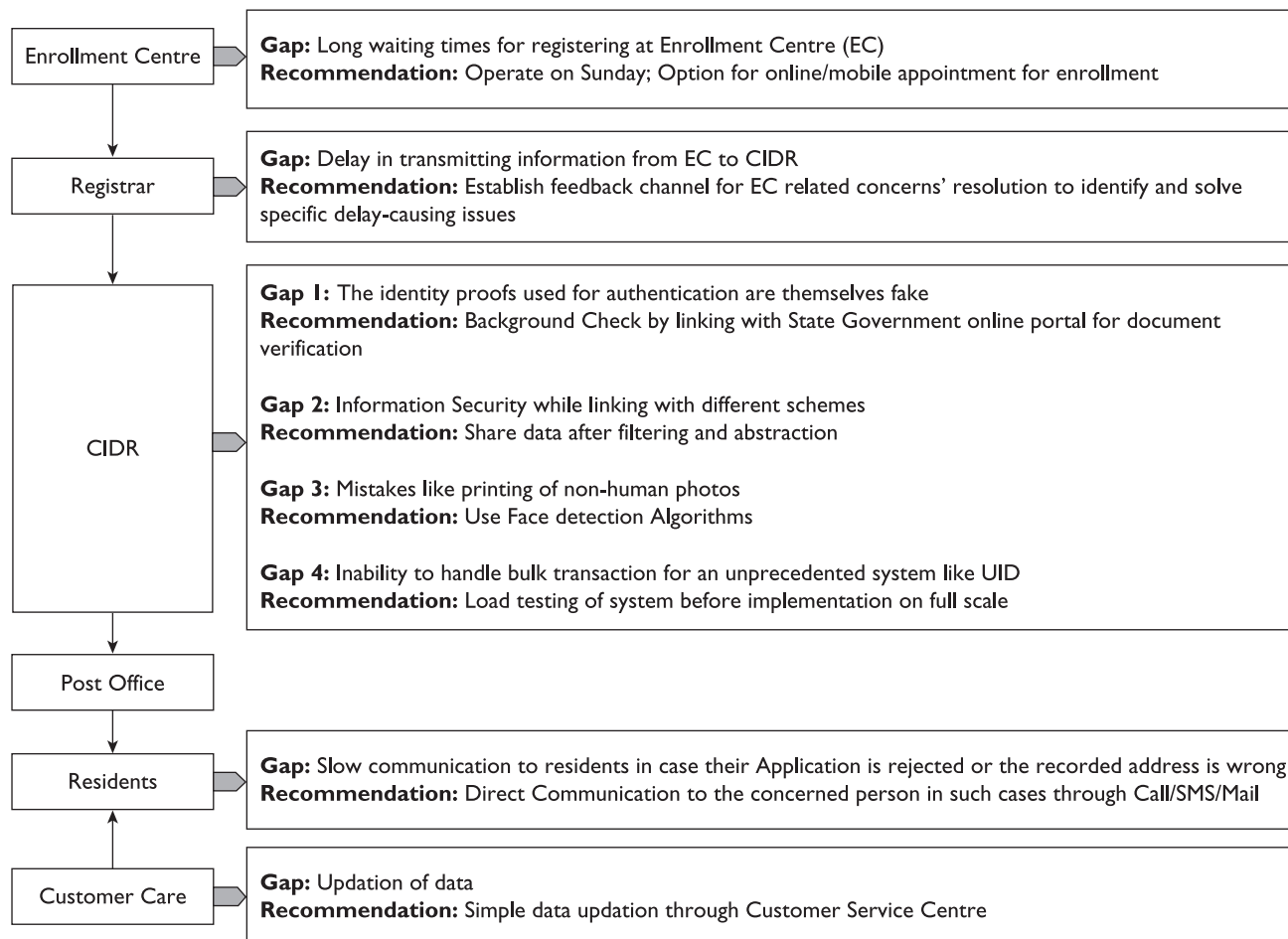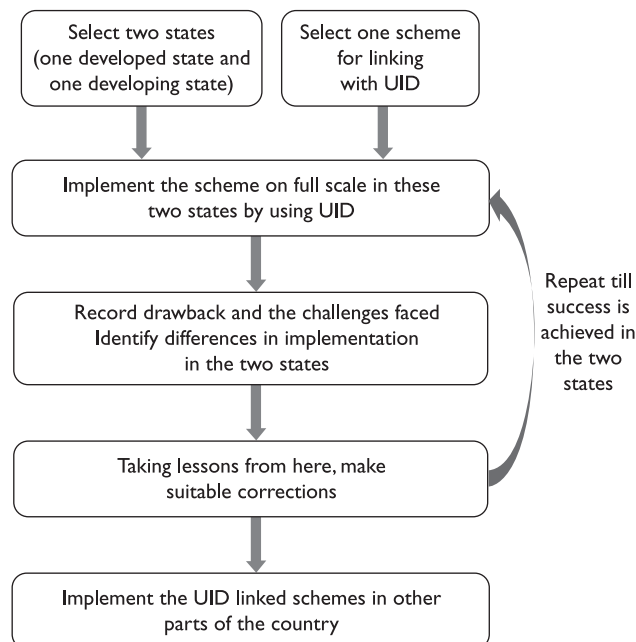**Recommendation:** Simple data updation through Customer Service Centre

Figure 7. Recommendations at Different Stages of UID Number Generation

schemes. Further, state governments can play a major role in the background by checking the identity and address proofs, as submitted by the residents. This may be done through online portal for verification of submitted documents (this portal already exists in some states of India). Thirdly, the people from economically backward classes who are the target beneficiaries must be involved in this project, and thus, there is a need to spread awareness and build a stronger communication strategy.

For the long term, it is important to have a robust model for linking Aadhaar card with various schemes. It is not recommended to implement the schemes based on UID usage across the country at the same time. This will amplify the magnitude of losses in case of failure. Moreover, it will take a long time to show results. In a democratic nation like India, it becomes important for government in a time period of 5 years, else the next government might change the implementation plan. Thus, it is necessary to first implement UID–based schemes at a smaller scale to understand the challenges, make suitable changes and show success in small time. A model for small-scale implementation of the UID–based scheme has been proposed in Figure 8. Once the success is achieved on smaller scale, it is easier and cheaper to implement on large scale.

For the similar projects undertaken by the government, the proposed model can be used where the first stage involves successful implementation of a project on a small scale, and second stage involves it's replication in other areas after getting success in first stage.

Conclusion

UID implementation is a very ambitious development project undertaken by the GOI. The major goal is to provide unique identification card to all residents of the country. So far the entire scope as on date of the project is partially achieved (although the number of residents registered is as per plan, still the benefits of various services have not been linked). It has failed to have public support due to concerns over privacy and reliability of biometric. Also, it has failed in employing competent resources, ensuring proper monitoring, reaching to large mass of population and resulted in elapsed time frame. But the benefits of the projects clearly outweigh the concerns. There should be a collective effort from all the stake holders to ensure the success of the project which is a need of the hour. Scope is the most important parameter for this time-constrained project. Three major concerns have been identified to affect the project which include duplicate and fake identities, access to remote areas and presence of multiple stakeholders. It is recommended to implement the UID–based schemes and similar government projects on a small scale before nation-wide implementation. UID project needs to be made more robust in both enrollment and scheme linking phase.

The findings of this study are expected to have significant implications on streamlining the existing processes in Indian context involving variability across different geographies/culture/different political environment. It also suggests ways to improve the success rate of similar government projects. A major limitation of this study is its dependence on data collected through the secondary research method. Further, the data used in the risk assessment matrix is as per the discussion within authors, based on the extensive literature and hence in future, survey may be conducted to get more significant data.

Figure 8. Proposed Model for UID-based Scheme Implementation

Appendix I. Likelihood Scale

Likelihood	Rating	Criteria	Probability
Almost certain	5	It is expected to happen. Will certainly happen this fiscal year or during the three year period of the Service Plan.	80% to 100% or once a year or more frequently
Likely	4	We expect it to happen. It would be surprising if this did not happen.	61% to 79% or once every 3 yrs
Possible	3	Just as likely to happen as not. We don't expect it to happen, but there is a chance.	40% to 60% or once every 5 yrs
Unlikely	2	Not anticipated. We won't worry about it happening.	11% to 39% or once every 15 years
Almost certain not to happen	1	It would be surprising if this happened. There would have to be a combination of unlikely events for it to happen.	0 to 10% or once every 25 yrs

Appendix II. Detection Difficulty Scale

Detection Difficulty	Rating	Criteria/Examples
Very Difficult	5	Can't be detected till completion of the project
Difficult	4	Can't be detected immediately and can be known only in the next stage
Moderate	3	May or may not be seen at the time of occurrence; Requires due diligence to detect it
Not difficult	2	Can be detected at the time of occurrence
Easy	1	Can be seen easily without any effort

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