National Identification System: Design and Implementation

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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). An attempt has been made through this study to understand the planning and implementation of Aadhaar. 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.

Keywords: National Identity Code, National Identification System, India, Aadhaar, UIDAI, UID.

Introduction

In India, Unique Identification Authority of India (UIDAI) is responsible for provide Unique Identity Code to Indians. More than 95% of our residents already have `Aadhaar'. Aadhaar is the most widely available, secure, and reliable form of personal identification in the country, and many other new uses of the infrastructure will be possible in the future. The present study is an attempt to evaluate performance of this National Identification System and possible aditions and improvements to make it a single identity for all Indian throughout the country.

In the modern era, the development of the country cannot be done without the strength of the information system. The stronger the NID, the more comfortable it is to implement plans and projects in that country. NID gives individuals an opportunity to communicate better with their government and get recognition by their government and gives governments the opportunity to change the lives of their citizens. A sketch has been given in Fig. 1 which shows already incorporated and being integrated services in Aadhaar (UID Portal).
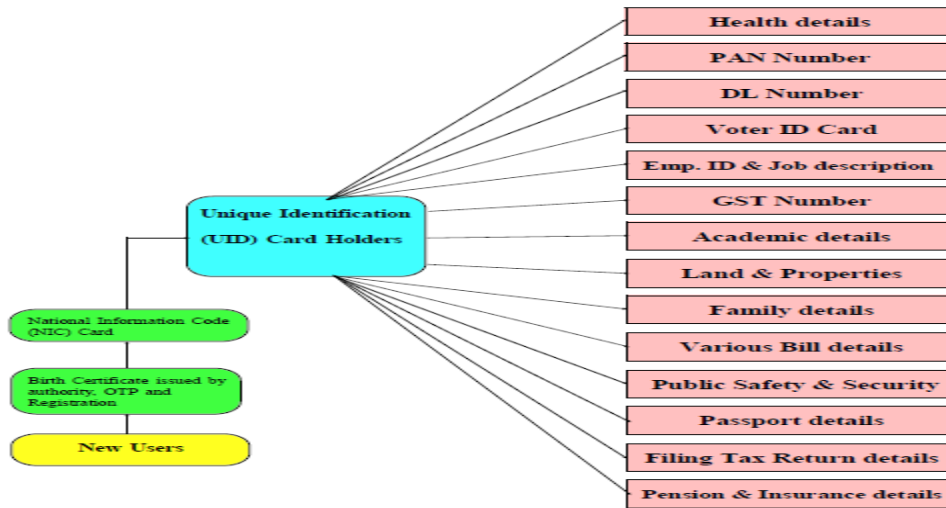
Figure 1

Figure 1 is showing the integration of services existing and to be added into Aadhaar. In this integration, the consumer is divided into two categories - Holder of Unique Identification Card (Aadhaar Card) and new user, where the personal information of the Unique Identity Card holder will get from the Unique Identity Card, the same will have to be added after verification of each record for the new user.
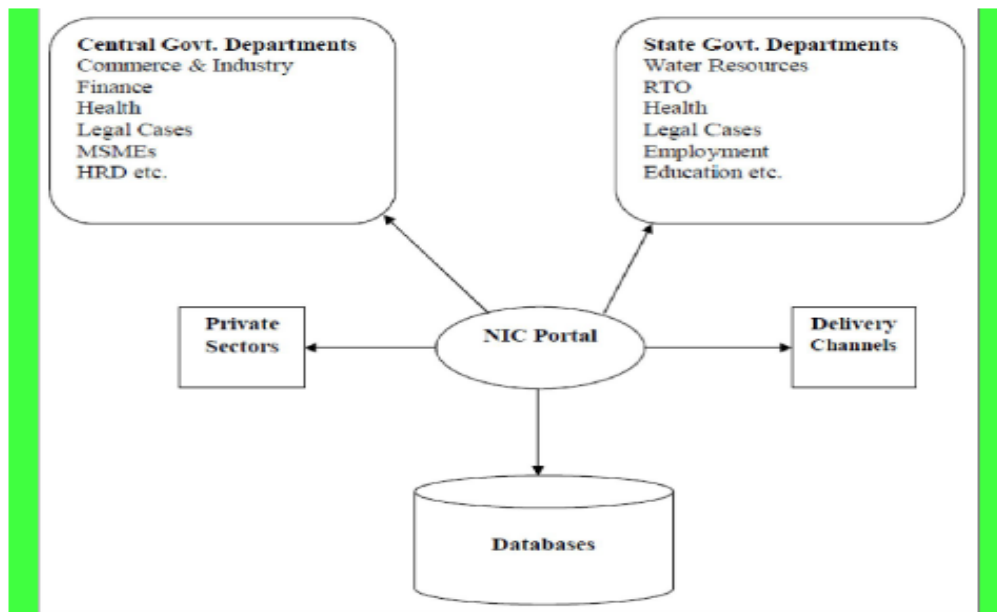

Figure 2

In terms of the system of NIC portal, the diagram in Figure 2 shows various Central Government

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departments, State Government departments, regional departments. NIC provides information on the portal, and the concerned department will be responsible for the information provided. The data of the UID card holders is to be verified by the server of the concerned department, and the verification of the new register user will get the data connected by the server on receipt of the message of the concerned officer.

System Interface

NIC portal collects information after contacting other external systems, State Government portals and applications developed for service groups through web services. National Service Delivery Gateway (NSDG), State Service Delivery Gateway (SSDG) and Mobile Service Delivery Gateway (MSDG) used as repository of web services and their access. Common web services available with NSDG, SSDG and MSDG will also be used for interaction between systems.

User Interface

The NIC portal is provided with a web based graphical user interface (GUI). The NIC portal is fully menu driven and graphical user interface (GUI) based. The NIC portal is designed to provide the desired information on the minimum number of clickers, which can be accessed through the portal and in this system any mobile through the QR Code. The necessary information of the citizen becomes available immediately and the data can be viewed through the smart chip only after verification and permission of the information of various services as required.

In 2008, the Unique Identification (UID) letter (Aadhaar Card) was adopted and implemented by the Government of India.

Statistical Analysis

The present study evaluates performance of existing National Identification System through responses of questionnaire based survey. The study used mainly primary data which have been obtained through a structured and extensive questionnaire. Questions related to design and implementation of national identification system e.g. suitability, accuracy, security, reliability, compliance, fault tolerance, adaptability etc related questions have been asked.

Statistical tests have been applied to the questionnaire for testing of following hypothesis:

H0: The design and implementation of National Identification System is not adequate.

H1: The design and implementation of National Identification System is adequate.

To test the null hypothesis H0, t-test has been applied to a number of measures about design and implementation of National Identification System which have been shown in Table 1.

Results show that suitability, accuracy, interoperability, security, compliance, reliability, maturity, fault tolerance, recoverability, usability, learnability, operability, attractiveness, time behaviour, resource utilization, maintainability, analysability, changeability, stability, testability, portability, adaptability, install ability, co-existence and replaceability all having significance value for t-test = .000 i.e. $p < 0.05$ (5% of significance).

Hence, null hypothesis H02 is rejected or alternate hypothesis is supported by all these characteristics and it is concluded that the design and implementation of National Identification System is adequate.

The null hypothesis is only accepted for understandability partially as p=.084 in this case i.e., $p > 0.05$

for the question- "UID portal translates content in your preferred language" is not supported by majority respondents. It is quite understandable that India having a large number of languages and it is not possible easily to get translation in a preferred language.

Table 1: One Sample Test

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Particular		N	Mean	Std. Dev.	t	df	Sig. (2-tailed)	Result
Suitability	You are able to find easy access to all options while using UID software	405	4.17	1.198	19.576	404	.000	H_0 rejected
	You can easily access resolution to your queries through UID software	405	4.08	1.271	17.128	404	.000	H_0 rejected
Accuracy	Your inputs are correctly captured through the portal	405	2.25	1.358	-11.158	404	.000	H_0 rejected
	There are no errors you have come across while accessing UI portal	405	4.22	1.150	21.394	404	.000	H_0 rejected
Interoperability	You can access all linked documents through single input of UID number on portal	405	4.09	1.205	18.183	404	.000	H_0 rejected
	You can cross switch while updating/retrieving data through UID portal	405	4.14	1.224	18.670	404	.000	H_0 rejected
Security	You feel secure while accessing UID portal	405	4.00	1.152	17.558	404	.000	H_0 rejected
	You can access someone else's UID details without registered details	405	4.05	1.110	18.974	404	.000	H_0 rejected
Compliance	Terms and conditions of using UID and access are easy to understand.	405	4.09	1.240	17.706	404	.000	H_0 rejected
	Process and procedures are standard for all UID users	405	4.08	1.226	17.794	404	.000	H_0 rejected
Reliability	Service requests are effectively catered by the UID portal	405	4.34	1.068	25.222	404	.000	H_0 rejected
	Customer support is able to understand access query through complaint number.	405	4.37	1.046	26.313	404	.000	H_0 rejected

Particular		N	Mean	Std. Dev.	t	df	Sig. (2-tailed)	Result
Maturity	Initial phases technical problems are resolved in the UID portal	405	4.25	1.140	22.006	404	.000	H_0 rejected
	There are no bugs and errors in the UID software when you access it	405	4.19	1.199	20.014	404	.000	H_0 rejected
Fault tolerance	You can easily retrieve your forgotten password through UID portal	405	1.89	1.367	-16.318	404	.000	H_0 rejected
	The process of retrieval is simple and safe	405	4.21	1.114	21.861	404	.000	H_0 rejected
Recoverability	Registered mobile number in UID can easily provide access on the UID portal	405	4.20	1.090	22.105	404	.000	H_0 rejected
	You can quickly recover document details through UID portal	405	4.22	1.116	21.957	404	.000	H_0 rejected
Usability	Options of quick access on UID portal are user friendly	405	4.34	1.127	23.945	404	.000	H_0 rejected
	You can find easily what you need to access on UID portal	405	4.27	1.171	21.817	404	.000	H_0 rejected
Understand-ability	UID portal translates content in your preferred language	405	3.13	1.463	1.732	404	.084	H_0 accepted
	All access options are easily understandable in UID portal	405	4.00	1.265	15.915	404	.000	H_0 rejected
Learnability	Options on UID portal don't shift and you can easily remember clicking desired times to reach your point	405	2.40	1.547	-7.870	404	.000	H_0 rejected
	UID portal remembers your preferred choices and provides pre feeds	405	3.87	1.326	13.149	404	.000	H_0 rejected
Operability	UID portal works well even in slow internet connection	405	4.04	1.142	18.400	404	.000	H_0 rejected
	Servers of UID portal do not get down frequently.	405	4.17	1.133	20.745	404	.000	H_0 rejected
Attractiveness	UID portal is colorful and attractive	405	4.19	1.199	19.983	404	.000	H_0 rejected
	Frequent access points are easily highlighted	405	4.36	.969	28.213	404	.000	H_0 rejected

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Particular		N	Mean	Std. Dev.	t	df	Sig. (2-tailed)	Result
Time Behaviour	Selected pages on UID portal are accessible quickly	405	2.23	1.399	-11.115	404	.000	H₀ rejected
	All options on UID portal do not take time to load	405	3.88	1.167	15.199	404	.000	H₀ rejected
Resource Utilization	The system of UID utilize all resources efficiently	405	4.05	1.109	19.040	404	.000	H₀ rejected
	The system of UID process of linking ADHAR with other documents and verification of identify is very efficient	405	3.98	1.173	16.735	404	.000	H₀ rejected
Maintainability	You can easily track your requests and activities on UID portal	405	3.90	1.273	14.207	404	.000	H₀ rejected
	You are informed on resolution time and progress on UID portal	405	3.93	1.186	15.798	404	.000	H₀ rejected
Analysability	Number of access is showcased by UID portal	405	3.84	1.252	13.455	404	.000	H₀ rejected
	You can analyse your frequency of access on UID portal	405	3.94	1.187	15.904	404	.000	H₀ rejected
Changeability	Your suggestions for making changes in UID portal are heard	405	4.00	1.118	17.956	404	.000	H₀ rejected
	You can change your prefences on UID portal	405	3.95	1.209	15.738	404	.000	H₀ rejected
Stability	The UID portal page do not expire after short period	405	4.00	1.217	16.460	404	.000	H₀ rejected
	Accessing page gives you enough time to cross check your details before expiring	405	3.94	1.184	15.987	404	.000	H₀ rejected
Testability	Your desired inputs on UID portal are preconfirmed before actual processing.	405	4.01	1.120	18.187	404	.000	H₀ rejected
	You receive a conformation of your action after action is taken	405	4.01	1.184	17.171	404	.000	H₀ rejected
Portability	You can easily access your UID account through laptop and mobile phone	405	3.46	1.061	8.759	404	.000	H₀ rejected
	All access platforms are convenient to use and uer friendly	405	3.41	1.110	7.473	404	.000	H₀ rejected

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.

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