

# Information Security Practices of Aadhaar (or lack thereof): A documentation of public availability of Aadhaar Numbers with sensitive personal financial information

**UPDATED** 

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# **Clarification on the Information Security Practices of Aadhaar Report**

We are releasing an updated version of the report, *Information Security Practices of Aadhaar* (or lack thereof): A documentation of public availability of Aadhaar Numbers with sensitive personal financial information.¹ In our report, we pointed the public disclosures by four government portals of Aadhaar Numbers and other demographic and financial data of beneficiaries of these projects. Our intent was to highlight the extent of public disclosures made by these portals and the ripe opportunity they presented for perpetrating identity as well as financial fraud. We clarify the reasons for changes made to report and also use this post to respond to some of the questions raised by key stakeholders and on social media.

## Q1: Does the report claim or suggest that there has been a security breach in UIDAI's CIDR?

Since the publication of the report, we have noticed that media report have misunderstood or misrepresented our findings to suggest that the UIDAI's central repository, or the biometric database has been breached. Nowhere in our report has this been suggested and neither should this be inferred from the data in the report. For instance, the UIDAI CEO, Dr. Ajay Bhushan Pandey² and TRAI Chairperson Dr. R.S. Sharma³ have written or been quoted in articles clarifying that there has been no breach of the CIDR. We completely agree with both Dr. Pandey and Dr. Sharma that the CIDR has not been breached, nor is this suggested anywhere in the report.

# Q2: Should the publication of Aadhaar numbers and other data be termed as 'leaks' or 'public disclosure'?

The term 'leaks' was originally used 22 times in the report, this has led to reports that security measures on these portals were compromised. However, the intention behind the publication of this sensitive data was greater transparency and no access control measure was in place therefore this is best characterized as an illegal data disclosure or publication and not a breach or a leak. However, we must note here that the dictionary meanings of the word, leak, include 'intentional disclosure of secret information<sup>4</sup>.

Further, in the original version our report, we had clearly stated that:

It is also important to appreciate that despite the trending twitter hashtag, #AadhaarLeaks, and media reports referring to these instance of Aadhaar data as leaks, these are, in fact, not cases of leaking of confidential data available only for private or controlled access. These are cases where the data in question has not been treated as confidential at all, and the government agencies in question have, in fact, taken pains to publish them. Rather than leaks or security breaches, these are wilful and intentional instances of treating Aadhaar Numbers and other PII as publicly shareable data by the custodians of the data.

The presence of this paragraph in the report clearly indicates both our intent to classify this as data disclosure as well the intent of demonstrating the harm that such practices can have ramifications on the private information of citizens at large. The new report retains this paragraph, which should have additional context in the form of these clarifications.

#### Q3. Why are we updating the report?

The one significant change made in the updated version of the report is to change the phrasing of cases of publication of Aadhaar Numbers and other PII from 'leaks' or 'leakages' to 'public disclosure'. As researchers, we are sensitive to feedback we receive on our work and attempt to correct and call out misrepresentations of our work<sup>5</sup>, to the extent possible. In this case, we felt that the word 'leaks' while not incorrect, was being misunderstood.

It is important to note that as far as the data subject is concerned, the term leak, breach or disclosure makes no difference as far as potential for identity fraud or financial fraud is concerned, including harm that may occur to the subject due to such disclosure, both prior to the report being published or in the time after the report entered the public domain.

# Q4. What steps did we take to ensure that the PII published by the portals in question were taken down? What was the time period available to the concerned departments between CIS notifying them of the publicly available datasets and the report being published? Was this time period sufficient for them to carry out remedial action?

In the time period between our documentation of the portals in question in March-April 2017, and the publication of the report on May 1, 2017, we noticed that some of the portals had already masked the Aadhaar Numbers and other data. For the portals that had not done so, we reported these public disclosures prior to the publication of our report to the concerned government departments. We would like to note these retrospective mitigating steps may have little impact on the damage already caused by these public disclosures, as there was more than sufficient time for anyone looking at these sources of data closely to download detailed XLS files with sensitive PII, and misuse this information for fraud, prior to the report being published. Further, following the principles of accountability and transparency, we also notified the affected government departments, including the UIDAI, of the public disclosures made by these portals prior to publishing the report on our website. This ensured they were thus given ample opportunity to take down the sensitive data from the public websites.

Following this intimation, during our pre-publication checks, we discovered all the datasets mentioned in the report has been taken down by the concerned departments, prior to the report being published in the public domain. Considering that the datasets were publicly available not due to software vulnerabilities but due to a proactive choice to publish the data, this notice was sufficient to allow them to remove this information. Only when we were sure that the sensitive information had been taken down by the concerned departments, did we go ahead with the publication of report. At the time of publication, none of the entities had acknowledged our intimation or responded to us in any other form. With no additional harm to the data subjects possible due to the information having already been taken down, we considered the attention that would be garnered from an independently verifiable report (containing the URLs and tools) would aid in more robust security and privacy conscious practices in the future.

# Q5. What was CIS's intent behind the act of including the URLs and tools used in the research report?

CIS, as a research organisation, believes in the full and open disclosure of the methodology and also the data where appropriate so that accuracy of our research can be confirmed

through independent replication. Due to CIS's intimation, all the Aadhaar numbers and sensitive personal financial information was either masked, or protected, or taken down by the concerned departments, prior to the publication of the report. All such information remains inaccessible as of this statement. This makes it clear that no additional harm to the data subjects occurred due to the publication of the report and any statement to the contrary is ill-considered.

## Q6. Did CIS violate any legal or regulatory provisions in course of its research?

The relevant sections of the Information Technology Act, 2000 that some have argued is applicable in this case are Section 43 - "Penalty and compensation for damage to computer, computer system, etc.", Section 65 - "Tampering with computer source documents", and Section 66 - "Computer related offences", often known as the hacking provisions.

For CIS researchers to have violated either of these three provisions, it would need to be shown that they either could "accesses or secures access to such computer, computer system or computer network or computer resource" and did so "without permission of the owner or any other person who is in charge of a computer, computer system or computer network" [Section 43(a), and Section 66], or "tampered with computer source documents" [Section 65].

Neither of these provisions are applicable in this case, including in the case of changing the public URL string "nologin" to "login" while accessing the NSAP website, as can be seen in page 6 of the report. The reasons for this inapplicability are as follows:

- Prior and Proactive Publication All the databases mentioned in the report had been proactively published by the concerned government departments and had been available in the public domain for a significant period of time prior to the intimation provided to the government authorities and CIS publishing the report. These datasets were not protected or secured in a manner that would prevent an ordinary member of the public from accessing them.
- 2. Public Availability via Search Engines In the absence of a robots.txt exemption or alternative means to restrict search engines access, the significant portion of the data was widely crawled and indexed by search engines and available in the to anyone tying in the right keywords on the search engine. This public availability via widely used search engines not only made it far easier for this information to be accessed but also made it possible for it to be discovered inadvertently, significantly compromising the privacy of the affected individuals.
- 3. Lack of Access Controls for Sensitive Data The datasets used in the study were not guarded by any form of access control, including usernames, passwords or any other unique identifier that controlled access to them in any form. The lack of protection for such sensitive personal and financial information allowed for the data to be accessed without unique knowledge or significant effort, a fact that we have highlighted in the report.

Given that there was no access control placed on the data, that it was publicly indexed by search engines and all of this was enabled via the proactive publication of such data by government departments, it cannot remotely be claimed that access to the data was procured "without permission of the owner or any other person who is in charge of a computer, computer system or computer network". If what CIS researchers did violate the law, then every single person visiting a government website without taking prior approval

from the site's owner would be violating the law as well. Clearly that is not what the law is meant to do and as not been done in this case. Keeping these facts and the law in mind, there is no violation of the Information Technology Act, 2000 due to the research method adopted for this report, the intimation to government authorities prior to publication and the subsequent publication of the report.

# Q7: Was there a violation of the law due to the actions of other parties?

While none of the research dealt with the CIDR at the UIDAI or any other information stored with the UIDAI, the proactive publication of such documents (by unrelated government departments) without access controls and allowing it to be indexed by search engines by concerned departments does have ramifications with regard to the Aadhaar (Targeted Delivery of Financial and other Subsidies, benefits and services) Act, 2016 and its Aadhaar (Sharing of Information) Regulations, 2016 (No. 5 of 2016). These liabilities exist between the UIDAI and the concerned departments which published this information, and do not involve CIS in any manner.

Further, the publication of Aadhaar numbers by the government portals was in violation of Section 29(4) of the Aadhaar Act, 2016, under Rule 6 of the Aadhaar (Sharing of Information) Regulations. They were also not mandated by the Right to Information (RTI) Act, under the section on proactive disclosure (Section 4). Indeed, Section 8(1)(j) of the RTI Act specifically states there is no obligation to release personal information which is not related to public activity or for the larger public interest. CIS is not responsible for any of these practices nor for reporting the same via a documented, methodological and open access report.

#### **ENDNOTES**

- [1] <a href="http://cis-india.org/internet-governance/information-security-practices-of-aadhaar-or-lack-thereof-a-documentation-of-public-availability-of-aadhaar-numbers-with-sensitive-personal-financial-information-1">http://cis-india.org/internet-governance/information-security-practices-of-aadhaar-or-lack-thereof-a-documentation-of-public-availability-of-aadhaar-numbers-with-sensitive-personal-financial-information-1">http://cis-india.org/internet-governance/information-security-practices-of-aadhaar-or-lack-thereof-a-documentation-of-public-availability-of-aadhaar-numbers-with-sensitive-personal-financial-information-1</a>
- [2] https://www.thequint.com/news-videos/2017/05/13/exclusive-or-data-leaks-from-aadhaar-not-possible-says-uidai-ceo-ajay-bhushan-pandey-pan
- [3] http://blogs.economictimes.indiatimes.com/et-commentary/there-has-been-no-aadhaar-data-leak/
- [4] https://en.oxforddictionaries.com/definition/leak
- [5] https://twitter.com/pranesh/status/863132344890392578
- [6] Section 8(1)(j) reads: "Notwithstanding anything contained in this Act, there shall be no obligation to give any citizen information which relates to personal information the disclosure of which has no relationship to any public activity or interest, or which would cause unwarranted invasion of the privacy of the individual unless the Central Public Information Officer or the State Public Information Officer or the appellate authority, as the case may be, is satisfied that the larger public interest justifies the disclosure of such information".

#### Introduction

Since its inception in 2009, the Aadhaar project has been shrouded in controversy due to various questions raised about privacy,¹ technological issues,² exclusion³ and security concerns.⁴ In the last month, there have been various reports pointing out instances of public disclosures of Aadhaar number through various databases,⁵ accessible easily on Twitter under the hashtag #AadhaarLeaks.⁶ Most of these reports refer to publications of personally identifiable information of beneficiaries or subjects of the databases containing Aadhaar numbers of individuals along with other personal identifiers. All of these disclosures are symptomatic of a significant and potentially irreversible privacy harm, however we wanted to point out another large fallout, that create a ripe opportunity for financial fraud. For this purpose, we identified benefits disbursement schemes which would require its databases to store financial information about its subjects. During our research, we encountered numerous instances of publicly available Aadhaar Numbers along with other personally identifiable information (PII) of individuals on government websites. In this paper, we highlight four government projects run by various government departments with publicly available financial data and Aadhaar numbers.

#### Methodology

Below we briefly describe the methodology followed by us for the purpose of documentation of databases with Aadhaar numbers. We clearly spell out the scope of the project and the tools used for the purpose of documentation of data.

#### 1. What was collected?

Publicly available datasets which have Aadhaar numbers (full or masked<sup>7</sup>) and financial information such as bank account details of individuals. We looked at databases publicly available on the following portals identified from a pool of other government websites indexed on search engines which had banking information, including other portal linked to them:

a) http://164.100.129.6/netnrega/MISreport4.aspx?fin\_year=2013-2014&rpt=RP,

b) http://nsap.nic.in/

c) http://chandrannabima.ap.gov.in/Dashboard/Reports.aspx

d) http://www.nrega.ap.gov.in/Nregs/

Our research is focussed largely on the data published by or pertaining to where Aadhaar data is linked with banking information. We chose major government programmes using Aadhaar for payments and banking transactions. We found sensitive and personal data and information being accessible on these portals.

#### 2. How was the information documented?

Our attempt was to document datasets with Aadhaar number and financial data. This involved capturing images of all the page from the dashboard page mentioned above to the actual page with the data, in the manner specified below:

- a) Screenshot of each page using the Chrome plugins Full Page Screen capture (PNG Files)
   and Nimbus screenshot
- b) Screen recording of the documentation process using QuickTime Player and Nimbus Screen video recorder.

c) The websites were also cloned using httrack, allowing us to assess what could have been indexed by search engines and gauge impact of Aadhaar numbers being disclosed.

#### 3. Documentation

Alongwith the screen captures and recordings mentioned above, we also documented the following:

- a) URL of the main page of the website (one of the four above URLs),
- b) URLs of pages captured,
- c) Dates and times on which data is being captured
- d) Whether databases has full or masked Aadhaar numbers

#### **Scope of Work**

Using the above methodology, we documented the following schemes which had individual PII including Aadhaar Numbers and financial details such as bank accounts numbers:

- A. National Social Assistance Programme, Ministry of Rural Development, Govt. of India
- B. National Rural Employment Guarantee Act (NREGA), Ministry of Rural Development, Govt. of India
- C. Daily Online Payment Reports under NREGA, Govt. of Andhra Pradesh
- D. Chandranna Bima Scheme, Government of Andhra Pradesh

In the next section, we briefly highlight the findings from our documentation of the publicly available databases of each of the above mentioned schemes. It must be stated that since we began reviewing and documenting these portals, we have noticed that some of the pages with sensitive PII have now been masked, presumably in response to growing reports. However, the mitigating steps taken by the authorities are not known and the impact by the public availability of such information can't be completely assessed, But the potential risk through anyone looking at these sources of data closely to download detailed excel sheets with sensitive PII can't be undermined. Further, while some of data has been masked, it does not mean that government agencies have purged the data, which leaves it open to both cyberattacks, and any potential leakages of data by those with access to it. Therefore, retrospectively addressing some of these concerns has little or no impact without data de-identification standards, information security protocols and proper access control to sensitive PII collected. As on the date of publication, a number of these portals have taken down the pages with PII. For portals which continue to host sensitive data, we have reported to the concerned authorities including UIDAI.

#### **Key Findings**

#### 1. General Comments

A review of the above mentioned government schemes dashboard and portals demonstrated to us the dangers of ill-conceived data driven policies and transparency measures without proper consideration to data security measures and lapse statistical disclosure control. While initiatives such as the government open data portals may be laudable for providing easy access to government data condensed for easy digestion, however in the absence of

proper controls exercised by the government departments populating the databases which inform the data on the dashboards, the results can be disastrous by divulging sensitive and adversely actionable information about the individuals who are responding units of such databases. Thus, while availability of aggregate information on the Dashboard may play a role in making government functioning more transparent, the fact that granular details about individuals including sensitive PII such as Aadhaar number, caste, religion, address, photographs and financial information are only a few clicks away suggest how poorly conceived these initiatives are. In this section we point out specific instances of public availability of sensitive PII which causes irreversible damage.

The lack of consistency of data masking and de-identification standard is an issue of great concern. As mentioned earlier, the masking of Aadhaar numbers does not follow a consistent pattern. In some instances, the first four digits were masked, while in others the middle digits were masked. Given the multitude of databases publicly available, someone with access to different databases could use tools for aggregation to reconstruct information hidden or masked in a particular database. Further, most of the databases we encountered were also available for download as spreadsheets. The availability of the information in datafied formats also facilitates the use of data analytics to aggregate information from various sources, thus, increasing the risk of data points from different sources coming together to enable reconstruction of masked or undisclosed information.

What we have documented in our research is specific instances of publicly available PII. We have not downloaded all the available data from these websites, only enough to demonstrate this issue. A likely questions we expect from readers of this research is the scale of data available online. For this purpose, we have looked at aggregate numbers published by the portals themselves about MIS reports and other information they have digitised and published. Based on the numbers available on the websites looked at, estimated number of Aadhaar numbers disclosed through these 4 portals could be around 130-135 million and the number of bank accounts numbers disclosed at around 100 million from the specific portals we looked at. While these numbers are only from two major government programmes of pensions and rural employment schemes, other major schemes, who have also used Aadhaar for DBT could have disclosed PII similarly due to lack of information security practices. Over 23 crore beneficiaries have been brought under Aadhaar programme for DBT, and if a significant number of schemes have mishandled data in a similar way, we could be looking at a public disclosure closer to that number.

#### 2. National Social Assistance Programme

The National Social Assistance Programme (NSAP) is a welfare programme being administered by the Ministry of Rural Development. It is intended to provide public assistance to its citizens in case of unemployment, old age, sickness and disablement. The programme includes disbursement of benefits under the National Old Age Pension Scheme, National Family Benefit Scheme, National Maternity Benefit Scheme, Indira Gandhi National Widow Pension Scheme and Indira Gandhi National Disability Pension Scheme. 12

The NSAP portal has a dashboard for digitized data. As we explored the links in the dashboard further, it led to a several lists of beneficiaries with PII available about them. The portal allows users to explore lists of pensioners. These lists are organised by state, districts, area, sub-district/municipal area and gram panchayat/ward.<sup>13</sup>

PII: Among the attributes listed in the databases of pensioners available, the following are PII: Job card number, Bank Account Number, Name, Aadhaar Number, account frozen status. <sup>14</sup> In the annexure, we have screenshots of sample pages demonstrating the above.

While the details were masked for public view, someone with login access could get the details. When one of the url query parameters of website showing the masked personal details was modified from "nologin" to "login", that is control access to login based pages were allowed providing unmasked details without the need for a password.

It is entirely unclear to us what the the purpose behind making available a Data Download Option on the NSAP website is. This feature allows download of beneficiary details mentioned above such as Beneficiary No., Name, Father's/Husband's Name, Age, Gender, Bank or Post Office Account No. for beneficiaries receiving disbursement via bank transfer and Aadhaar Numbers for each area, district and state.<sup>15</sup>

Aggregate Numbers: The NSAP portal lists 94,32,605 banks accounts linked with Aadhaar Numbers, and 14,98,919 post office accounts linked with Aadhaar Numbers. While the portal has 1,59,42,083 Aadhaar numbers in total, not all of whom are linked to bank accounts.

Further, the NSAP dashboard also lists the total number of beneficiaries, and the exploring the various links available for public access leads to information about mode of payment for each applicant (Bank/cash/PO) and payment category (DBT/Non-DBT).

#### 3. National Rural Employment Guarantee Scheme

The NREGA scheme seeks to provide livelihood security of households in rural areas of the country by providing at least 100 days of guaranteed wage employment in a financial year. This project extends to 683 districts in the country with over 25,46,00,000 workers. The NREGA portal has separate section on MIS reports. <sup>16</sup> We explored each of these MIS Report and followed the links available for public access to find a number of pages with databases containing various PII.

Within the MIS reports page, one of the heads was the Direct Benefits Transfer Reports which contain various sub-sections including one called 'Dynamic Report on Worker Account Detail'. This led us to granular reports for each district, mandal and panchayat.<sup>17</sup>

PII: The final pages in this link for each Panchayat had a list of very sensitive PII, namely Job card No., Aadhaar Number, **Bank/Postal Account Number,** no. of days worked, Registration Number, account frozen status<sup>18</sup>

#### Aggregate Numbers:

As per the NREGA portal, there as 78,74,315 post office accounts of individual workers seeded with Aadhaar numbers, and 8,24,22,161 bank accounts of individual workers with Aadhaar numbers. The total number of Aadhaar numbers stored by portal are at 10,96,41,502.

#### 4. Chandranna Bima Scheme, Govt. of Andhra Pradesh

This is a scheme to provide relief to the families of unorganized workers in case of death or disability of the unorganised worker. It involves registration of unorganised workers and their enrollment in the Chandranna Bima Scheme, data entry, maintenance of database, hard copies of signed applications and other connected matters. The registered unorganised workers are to be enrolled as members under State Accident Death and Disability Scheme, Aam Admi Bima Yojana (AABY) and will also be covered under the Pradhan Mantri Suraksha Bima Yojana (PMSBY).

The scheme dashboard is extremely informative about different kinds of data maintained by the scheme. We looked at the Aam Admi Bima Yojana documents which was organised in the form of lists workers registered for each district, mandal, village and block. <sup>19</sup> Within each block, there is a list of all registrant and finally each registrant has their own page with sensitive PII available.

PII: Under this database fields with PII include the following: Aadhaar Numbers, <sup>20</sup> Name, Father's/Husband's Name, age, caste, mobile number, gender, **partially masked bank account number, IFSC Code, Bank Name** and details of the nominee. <sup>21</sup>

Even though the details were masked while rendering, we found MS Access databases of all the data being published by the portal negating the masking process. At the same time urls which were used to get reports have Aadhaar numbers part of them making anyone familiar with web development access the details.

Aggregate Numbers: This database has 2,05,65,453 workers registered under the Aam Admi Bima Yojana.

#### 5. Daily Online Payment Reports of NREGA, Govt. of Andhra Pradesh

Along with the national portal maintained by Ministry of Rural Development, the Government of Andhra Pradesh maintains its own portal to track progress of NREGA work and payments made under it. The MIS reports section of the portal has reports for various works done under the programme, social audits, quality control, expenditure and direct benefit transfers (DBT). This section of DBT has been studied and documented.

Exploring DBT section gave us information on Aadhaar seeding for workers, Bank account seeding for PMJDY, Payment transaction details using Aadhaar Payments Bridge (APB), Details of Suspended NREGA workers, Consent forms status of workers, workers details along with UID, bank account details and phone numbers.

PII: The final pages in this link for each Panchayat had a list of very sensitive PII, namely Job card No., Aadhaar Number, **Bank/Postal Account Number, Whether it is seeded with mobile number,** no. of days worked, registration Number, date on which e-pay order number is created, date, date on which e-pay order number is sent to paying agency, date of which credit to worker's account, **time and date for disbursement, pay order amount, mode of payment**.

Aggregate Numbers: As of 28th April, the portal gives out details about 11299803 Aadhaar numbers and 76,63,596 bank account numbers seeded under PMJDY

# Collection of Aadhaar Numbers and associated data

#### A. Legal framework for collection of data

Various agencies in the country collect different information for statistical purpose empowered by the Collection of Statistics Act, 2008.<sup>22</sup> This information is collected by publishing a notification in official gazette and Section 9(4) prohibits the publication of identifying information unless permitted by the concerned person. Similarly, the publication of Aadhaar numbers is also prohibited under Section 29 (4) of the Aadhaar Act, 2016 unless the permission to publish them is sought from the Aadhaar number holder.

The storage of the Aadhaar numbers along with associated information by government or private entities is allowed under the Aadhaar Act, with the proviso that it may not be used for any purpose other than those listed in the legislation, the primary one being that of authentication. While the legislation prohibits storing the details about religion, caste, race, religion, caste, tribe, ethnicity, language, records of entitlement, income or medical history for the purpose of Aadhaar authentication but as evidenced by our findings, however,

as evidenced by our research this information is collected by various agencies. While this information should only be used for the purpose collected, not only were the internal access controls within and across different government agencies unavailable on the portals, instances of caste information linked to Aadhaar being stored and found as reported for specific sites is also shared both publicly on these portals.

The flow and control of information disclosure in India is regulated by government policies like National Data Sharing and Accessibility Policy (NDSAP), 2012 for publication of information and the Cyber Security Policy, 2013 for securing information. NDSAP required all government organizations to classify data into various categories like restricted data, sensitive data and open data. The Government Open Data License also explicitly excludes personal data from the scope of the license. Even though NDSAP requires securing information of sensitive and restricted data, it does not recommend the ways to do it. The standards around information disclosure and control do not exist. The Ministry of Statistics and Programme Implementation in its recent report was unable to suggest one for all other ministries until they get a standard implemented and tested within the ministry workings first.

NDSAP and Right to Information Act, 2005 require Chief Data Officers and Public Information Officers for each department for dissemination of information. It is these officials who are supposed to control the publication of information and are responsible for classifying various datasets of the institution. However, this exercise of classifying datasets is not being done by various government agencies. Banks are mandated by RBI to have Chief Information Officers and Chief Information Security Officers to safeguard information.

#### B. Publication of Aadhaar numbers by design

Information and data leaks have been occurring in India for a long time.<sup>25</sup> But with the scale and design of Aadhaar, any information being disclosed is dangerous and its impact not entirely reversible.<sup>26</sup> Aadhaar, by design, facilitates other bodies, private or public, to collect various demographic information or use its existing databases to seed Aadhaar Numbers. Since the inception of the UID project, there has been a focus of seeding other databases with Aadhaar numbers.<sup>27</sup> The presence of Aadhaar number as a unique identifier present in these databases also presents the possibility of relationally conjoining databases and easily gathering information about individuals.<sup>28</sup> Due to the usage of Aadhaar Number for identification, authentication and authorization for transactions, the financial risks presented by disclosure of such are greatly exacerbated.

It is also important to appreciate that despite the trending twitter hashtag, #AadhaarLeaks, and media reports referring to these instance of Aadhaar data as leaks, these are, in fact, not cases of leaking of confidential data available only for private or controlled access. These are cases where the data in question has not been treated as confidential at all, and the government agencies in question have, in fact, taken pains to publish them. Rather than leaks or security breaches, these are wilful and intentional instances of treating Aadhaar Numbers and other PII as publicly shareable data by the custodians of the data.

#### **Implications for Financial Fraud**

#### A. Aadhaar and Banking

The decision to use Aadhaar for Direct Benefit Transfer (DBT) for individual beneficiaries under social welfare schemes was made to stop duplicate applicants, frauds, middlemans

and end corruption within government. A cumulative amount of Rs 1,78,694.75 has been transferred using DBT for 138 schemes under 27 ministries since 2013.<sup>29</sup> Various financial frameworks like Aadhaar Payments Bridge (APB) and Aadhaar Enabled Payment Systems (AePS) have been built by National Payment Corporation of India to support DBT and also to allow individuals use Aadhaar for payments.

To allow banking and payments using Aadhaar, banks and government departments are seeding Aadhaar numbers along with bank account details. While several government programmes are seeding (linking) Aadhaar and bank accounts for DBT, an important programme under which Aadhaar is being linked to bank accounts is the Pradhan Mantri Jan-Dhan Yojana (PMJDY). Banks are issuing basic banking or "no-frills account" using Aadhaar as the primary authentication for individuals to receive benefits from government schemes. Our research clearly indicated that the Aadhaar seeding process is one of the things being tracked through various dashboards and portals to track progress. Even though Aadhaar is not mandatory everywhere, state governments and government departments are collecting this information under various schemes despite the absence of information security practices to handle so much PII.

Using Aadhaar enabled payment instruments can potentially simplify payment transactions for governments and certain classes of people, but however its possible use without a two factor authentication<sup>33</sup> in banking and other security features are harmful and increase risk of financial systems for banks and account holders. In the banking industry, standards like Payment Card Industry Data Security Standard (PCI DSS)<sup>34</sup> for payment cards and ISO 27001,<sup>35</sup> ISO 27002 for risk assessment have to be carried out. However, in the case of Aadhaar, standards for data storage, sharing and transmission during collection are not available. The risk assessment includes modeling and evaluating threats constantly and mitigating them, however, the threats around Aadhaar are new and are not really understood by banks and other financial institutions. Apart from following rules and providing safeguards to protect customer information, institutions are mandated to report breaches and data leaks to national institutions like CERT-In, NCIIPC, IDRBT, RBI. However, most institutions may want to withhold information of breaches to stay away from penalties.

#### B. Social Engineering and other kinds of frauds

The availability of large datasets of Aadhaar numbers along with bank account numbers, phone numbers on the internet increases the risk of financial fraud. Social engineering is often used to find out details of bank account details, credit card numbers and passwords to steal money from individual's accounts. One of the prime example is individuals receiving phone calls from someone claiming to be from the bank. Aadhaar data makes this process much easier for fraud and increases the risk around transactions. In the US, the ease of getting Social Security Numbers from public databases has resulted in numerous cases of identity theft. These risks increase multifold in India due the proliferation of Aadhaar numbers and other related data available.

Mobile phone users in India often have more than one number registered in their name, particularly for the migrant population who may travel and get local numbers. In such cases it is possible the number registered with UIDAI is not the one in use or the mobile number is not linked to the Aadhaar Number.<sup>38</sup> Financial fraudsters could potentially link their phone numbers to Aadhaar numbers and also update it in the bank using individuals Aadhaar information and deprive the individual of their benefits from the state.<sup>39</sup> It has been reported that brokers do buy tons of copies of Aadhaar documents from shops selling SIM cards and other institutions, for the purposes of identity fraud.<sup>40</sup>

Aadhaar Payments Bridge (APB) and Aadhaar enabled Payment Systems (AePS) are the prime reason why bank accounts are being mapped to Aadhaar. While National Payments Corporation of India (NPCI) claims they do not store account details of bank, but only store Aadhaar numbers and name of the bank, these are certainly being stored by various government departments who are seeding NPCI mapper. NPCI has also built a Aadhaar lookup for banks to know status of a Aadhaar number being active or not enabling district bank managers have access to Aadhaar numbers of individuals.<sup>41</sup>

The NREGA portal of Andhra Pradesh gives a detailed understanding of the workflow for Aadhaar Payments Bridge (APB), officials exchange information for the APB is in the form a text file shared containing Aadhaar Numbers and disbursal amounts between the service provider and the banks. As of now this process could be potentially exploited to transfer larger sums of money than the actual amounts. There are no existing standards for encryption and security procedures to safeguard these files, or the security of the communication. The functioning of DBT makes it impossible for a recipient to deny such monetary transfers and has potential for both state and non-state actors to frame individuals by depositing large chunks of illegal money.

In the recent past, there have been reported of cases of employees of services provider caught stealing the biometric data collected for Aadhaar authentication. <sup>42</sup> It has been stated by the government that so far 34000 operators have been blacklisted for enabling creation of fake Aadhaar numbers. <sup>43</sup> Biometric data can often be public in that "people's fingerprints can be lifted remotely and without consent from a variety of objects that they may touch, and their iris data may be picked up by a high resolution, directional camera from a distance." <sup>44</sup> In light of these factors, the public presence of Aadhaar numbers, details about DBT transfers, registered mobile phone numbers and seeded bank account numbers presents a huge opportunity for financial fraud.

In case a financial fraud takes place through AePS, the consumer may not be able to assert his claims for compensation due to the terms and conditions around liabilities, these terms force the consumer to take liabilities onto oneself than the payment provider. The terms and conditions have been vague in the recent AePS applications like BHIM Aadhaar App. 45 Regulations and standards around Aadhaar are at a very early and nascent stage causing increase in financial risk for both consumers and banks to venture into AePS.

#### **Conclusion**

While the UIDAI has been involved in proactively pushing for other databases to get seeded with Aadhaar numbers, they take little responsibility in ensuring the security and privacy of such data. It is important to note that when Nandan Nilekani claims repeatedly that the Aadhaar data is secure, <sup>46</sup> his focus is largely on the enrolment data collected by UIDAI, or authentication logs maintained by it. With countless databases seeded with Aadhaar numbers, we would argue that it is extremely irresponsible on the part of the UIDAI, the sole governing body for this massive project, to turn a blind eye to the lack of standards prescribed for how other bodies shall deal with such data, such cases of massive public disclosures of this data, and the myriad ways in which it may used for mischief. UIDAI may point to Section 29 (4), which makes publication of Aadhaar Numbers illegal, to state that legal machinery exists to deal with situations such as these, but its selective implementation against anyone pointing out flaws can be harmful. <sup>47</sup> However, given the scale of the project, the amount of data involved, and the large expanse of both public and private parties involved, we would argue that there is no way that UIDAI, in good faith, could have

determined the presence of one legal provision, on its own, as sufficient deterrent to prevent such flagrant misuse of data. Further, it is staggering that while these databases have existed in the public domain for months, while framing the Aadhaar Act Regulations in late 2016, the UIDAI did not even deem these as important matters to be addressed by way of regulations or standards.

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- [18] Section B (6) in the Annexure.
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#### **Annexure**

#### A. National Social Assistance Programme (NSAP)

The below images are screenshots of pages we accessed on the NSAP portal tracking the path from the main dashboard to pages with PII

(1)



(2)



(3)



(4)

100	AP-A-06528955	4527	 	KEOPANNA	70 / M	IGNOAPS		Bank		
101	AP-A-06528957	4529		MARASAPPA	78 / F	IGNOAPS	AGALI	Bank		
102	AP-A-06528941	4513		GUJJAPPA	75 / F	IGNOAPS	AGALI	Bank		
103	AP-A-06528916	4488		HANUMAPPA	71/M	IGNOAPS	AGALI	Bank		
104	AP-A-06528965	4537		JAVARAPPA	71/F	IGNOAPS	AGALI	Cash		
105	AP-A-06528958	4530		KARIYAPPA	73 / F	IGNOAPS	AGALI	Bank		
106	AP-A-06528956	4528		RANGAPPA	71/F	IGNOAPS	AGALI	Bank		
107	AP-A-06528928	4500		KATANNA	78 / M	IGNOAPS	AGALI	Bank		
108	AP-A-06528914	4486		HANUMAPPA	67 / F	IGNOAPS	AGALI	Cash		
109	AP-A-06528946	4518		ТНІММАРРА	71/M	IGNOAPS	AGALI	Bank		
110	AP-A-06528912	4484		NAGAPPA	75 / F	IGNOAPS	AGALI	Bank		
111	AP-A-06528954	4526		SANNA THIMMAPPA	77/F	IGNOAPS	AGALI	Bank		
112	AP-A-06612904	85223		TIMMANNA	71/M	IGNOAPS	AGALI	Cash		
113	AP-A-06528861	4433		EERANNA	66 / F	IGNOAPS	AGALI	Bank		
114		85224		GOUSE MOHADDIN SAAB	66 / M			Cash		
115	AP-A-07307649	403773		Giriyappa	70 / F	IGNOAPS		Cash		
116	AP-A-06604723	76094		SANNA LIOGAPPA	66 / F	IGNOAPS	AGALI	Bank		
117	AP-A-06528963	4535		OBALAPPA	72 / F	IGNOAPS	AGALI	Bank		
118	AP-A-06528915	4487		SHANKARAPPA	73 / F	IGNOAPS	AGALI	Bank		

#### **B. NREGA**

(a) The below images are screenshots of pages we accessed on the NREGA portal tracking the path from the main dashboard to pages with PII.

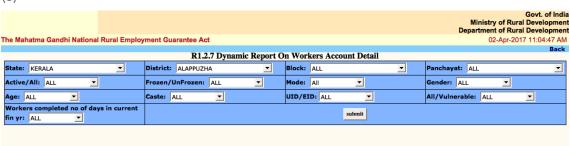
(1)



(2)



(3)



(4)

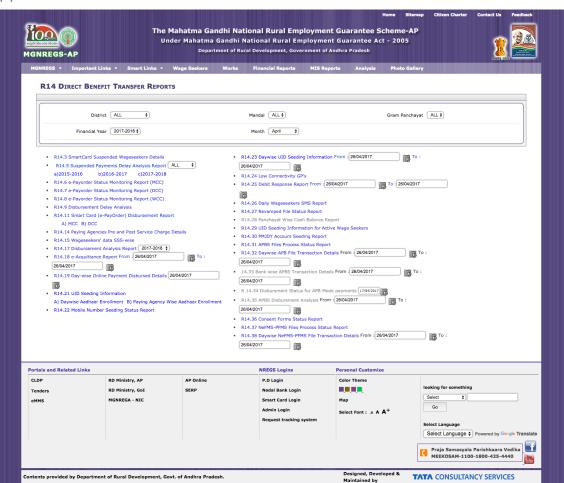


(b) The below images are screenshots of pages we accessed on the NREGA Andhra Pradesh portal tracking the path from the main dashboard to pages with PII.

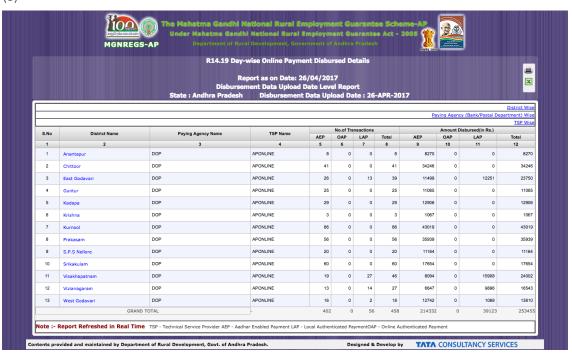
(1)



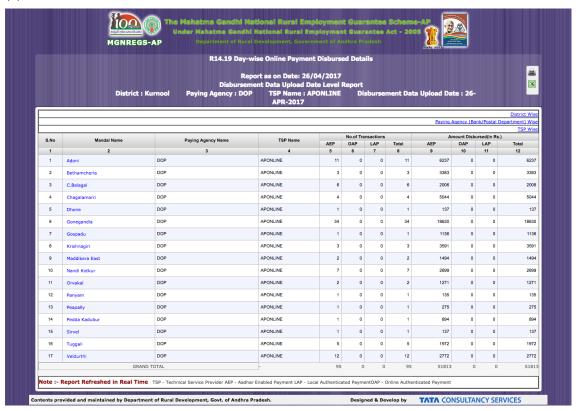
(2)



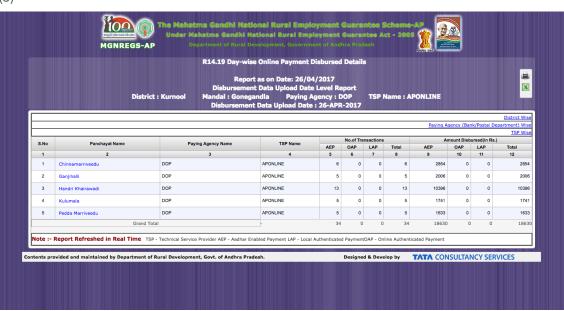
(3)



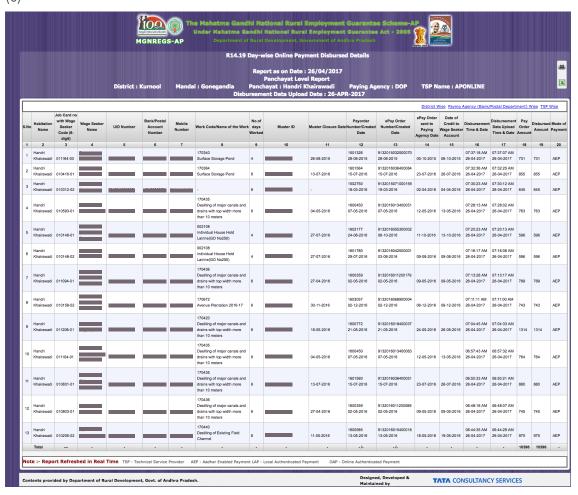
(4)



(5)



(6)



#### C. Chandranna Bima Scheme

The below images are screenshots of pages we accessed on the Chandranna Bima portal tracking the path from the main dashboard to pages with PII.

(1)



(2)

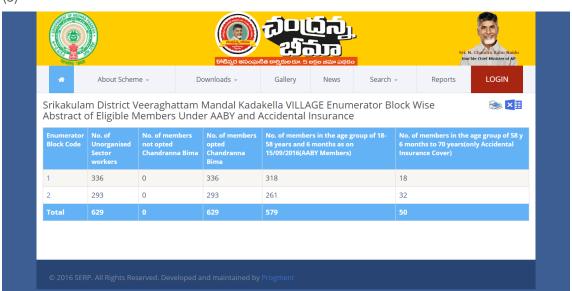




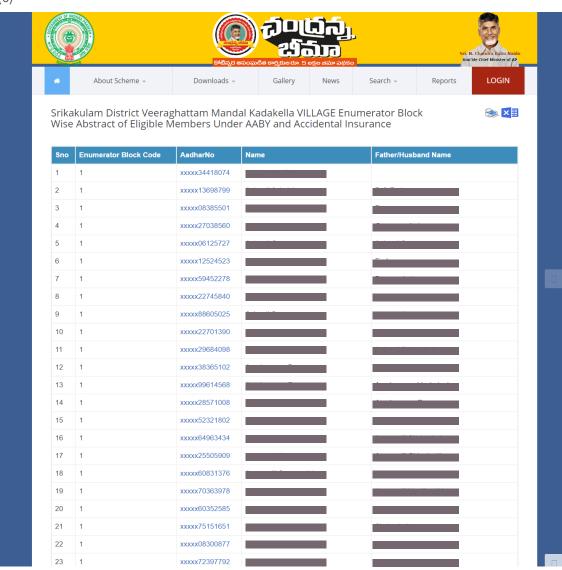
(4)



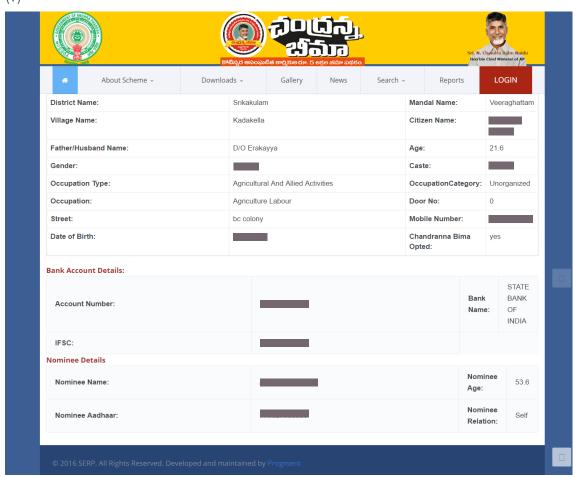
(5)



(6)



(7)

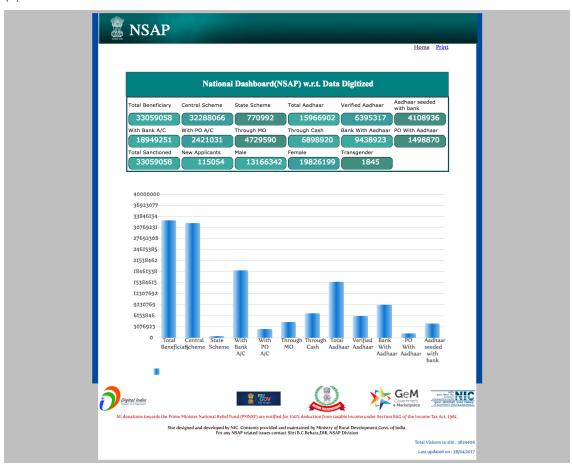


#### **D.** Aggregate Numbers

(1)

									Ministr Departmer			
ationa	al Rural Employment Gu	arantee Act							01			
	arriara amprojinom ca											
		R1.	1.3 Total Nu	nher of As	dhar Nos./ EID	Nos. ente	red for MG	NREGA Workers in MIS				
			III IOUII NU	HOCE OF THE	didi 11032 EID	1103. CHIC	red for Mid.	WEGA WOLKERS III MIS				
○ All Active Workers Active Current Yr Only												
		No. of Registered Workers										
S.No.	States	Total	Total With Aadhaar Verify Without Aadhaar Aadhaar With EID in With Aadhaar No. and Post Office With Aadh									
			No.	Aadhaar	No.	No.%	MIS	Account	Account			
1	2	3	4	5	6	7=4/3*100	8	9	10			
1	ARUNACHAL PRADESH	471470	120391	62446		25.54		12937	48804			
3	ASSAM BIHAR	7293998 22818722	3092610	2685424	7293994 19726112	13.55	47674	991	2421196			
4	CHHATTISGARH	22818722 8892660				71.97	18009	991 1074850	2421196 4501799			
5	GOA	46847	16244		30603	34.67	79		13131			
6	GUJARAT	8271798			5832789	29.49	15320	447565	1561749			
7	HARYANA	1573535				68.23	4956	20173	872282			
	HIMACHAL PRADESH	2244898				70.68	2748	17680	1124790			
	JAMMU AND KASHMIR	2241806			1485128	33.75	1097	1980	636335			
10	JHARKHAND	8323732			3737674	55.1	88348	393229	3150395			
	KARNATAKA	13802989				66.33	146209	222194	7778452			
	KERALA	5002014			1650652	67		69171	2555400			
13	MADHYA PRADESH	16633887	9742414	8346046	6891473	58.57	21923	497834	7615271			
14	MAHARASHTRA	20377810	6759299	6112058	13618511	33.17	34518	1136851	3965931			
15	MANIPUR	1019685	323426	109163	696259	31.72	5204	7026	217449			
	MEGHALAYA	1050233			1049516	0.07	0	8	674			
	MIZORAM	385183		60698	298599	22.48	193	2334	81579			
	NAGALAND	722031		83541	550970	23.69	1539	5	29508			
	ODISHA	17110663			11930101	30.28	15563	613115	3648476			
	PUNJAB	2125758			485173	77.18	4315	48444	1207260			
	RAJASTHAN	23124667				44.19		546506	8444977			
	SIKKIM	127881	104036		23845	81.35		3915	93024			
23	TAMIL NADU	11719139			2148116	81.67	46071	0	8584873			
	TELANGANA	12824452		6735459		55.06		1566863	1866891			
25	TRIPURA	1115890	1098947	1013792		98.48	2143	613	1087030			
	UTTAR PRADESH UTTARAKHAND	21997043 1831979		10238614 1073241	11343076	48.43	15879 1012	52483 66377	9664485 898183			
28	WEST BENGAL	1831979 28676755		12656759	732715 15329578	46.54		1045687				
	ANDAMAN AND NICOBAR				153295/8	71.11			10434328 27370			
	DADRA & NAGAR HAVELI	12435		0	16241	/1.11	0 642	2237	2/3/0			
	DAMAN & NAGAR HAVELI	12435	"		12435		0	0	0			
	LAKSHADWEEP	16431	13260	6693	3171	80.7	35	3732	2746			
	PUDUCHERRY	157739		63784		43.47	510		66019			
55		242070354		100637062		45.34			82600410			
								e financial year or in current fin				

(2)



(3)

