Digital Transformation in Government
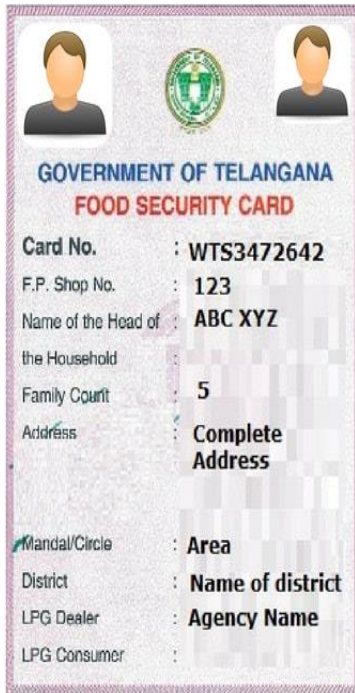
Part 2

G T Venkateshwar Rao ex IRS
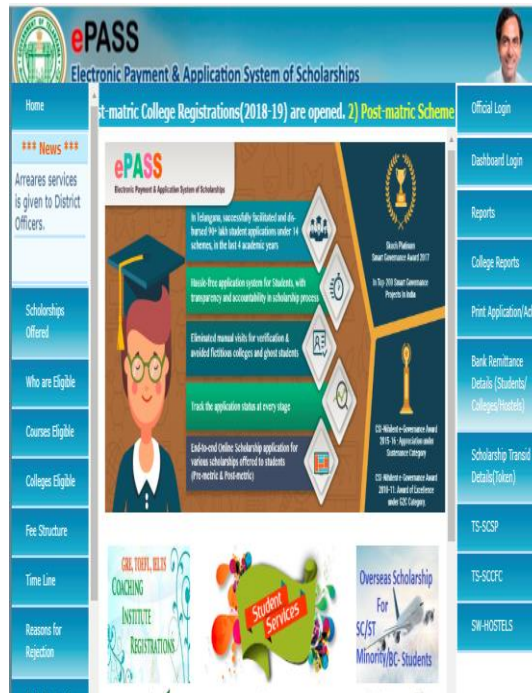
Feb 23

Few of the welfare schemes of Telangana

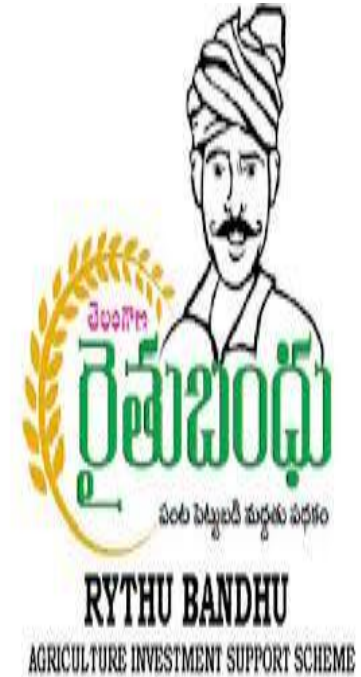**Ration Cards**

E PASS scholarships
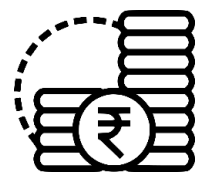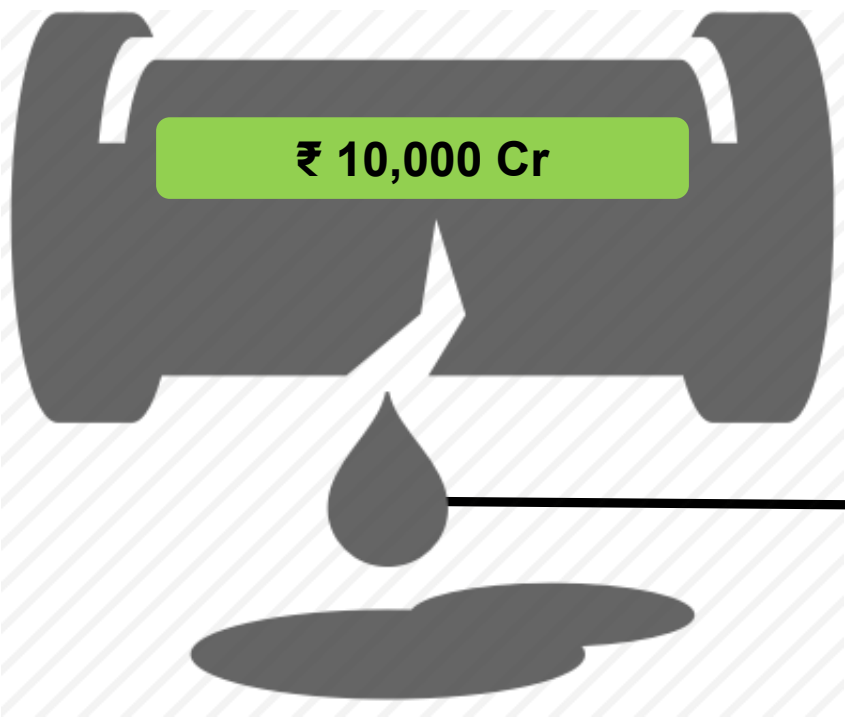
Aasara Pensions

Raithu Bandhu

Most of the welfare schemes have eligibility in terms of Income

Quantum Of Leakages Due To Wrong Inclusion

Total Budget For 2021-22 For Pensions

₹ 10,000 Cr

This is probably as big as a budget of a minor department!

₹ 100 Crores

Value of just 1% Leakage…

Challenges in reaching deserving Beneficiaries in welfare programmes

Eligibility of Aasara pension is prescribed

People fulfilling one or more of the following conditions listed below shall not be eligible for Aasara Pension:

Classification	Aspect
Self-Economic Indicators	Having land more than 3.0 acres wet/ irrigated dry or 7 5 acres dry.
	Having large business Enterprise (oil/rice mills, pumps, shop owners etc.).
	Owners of light and/or heavy automobiles (four wheelers and big vehicles)
Family Based Parameters	Having children who are Government/Public sector/ Private sector employment / Out-sourced/Contract.
	Having children who are Doctors, Contractors, Professionals and Self employed.
	One pension per family
Government Pensioner	Already receiving Government pensions or freedom fighter pensions.
Others	Any other criterion in which the verification officer may asses by the manner of lifestyle, occupation and possession of assets rendering the household as ineligible

The problem

Government has reduced age of Old Age Pension to 57 years from 65 years in Aug 2021

About 8.2 lakh applications are received claiming pension

How to identify eligible persons

Pension amount is RS 2,106 per month about Rs 48,000 per anum. It is a recurring expenditure

The problem

What is inclusion error

What is exclusion error

What is the solution?

Leakages in welfare programs- Identity Fraud

Leakage on account of	Resolved through

Bogus Beneficiary
Non-existent real beneficiary

Duplicate Beneficiary
Multiple registrations by same beneficiary.

Right Beneficiary
Limited means to establish identify of right beneficiaries.

These leakages have been controlled through use of Aadhar & bio metric authentication

More than 2 lakh Cr saved by Government through use of Aadhar by preventing fake and duplicate beneficiaries

Aadhaar saved over ₹2 lakh crore by eliminating fake identities: NITI Aayog

Aadhaar has become the 'bedrock' for the government's welfare initiatives, NITI Aayog CEO Amitabh Kant said. (PTI Photo/Shahbaz Khan) **(PTI)**

1 min read . Updated: 02 Jun 2022, 05:25 AM IST

Edited By **Sounak Mukhopadhyay**

NITI Aayog CEO Amitabh Kant said that Aadhaar had become the 'bedrock' for the government's welfare initiatives.

Leakages in welfare programs- Eligibility fraud

Eligibility Fraud

Is the person eligible as per the scheme? Like owing of 7 acers of land, four wheeler, Government job, Income Tax payee et

No solution in the country as on date

Requires databases of all departments at one place

Requires common ID across the data bases. Common ID is not available across the databases.

What is 360 degree view, why and where it is required

Need for 360 Degree view for all Enforcement agencies

360° **view / Single source of Truth/ One View**

Drive home the message:
'I saw what you did, and I know who you are'

➢ **Using bits and pieces of information about a person of interest, e.g., name or address, cell number, vehicle number or a combination etc to get 360°**

➢ **Includes identifying related persons and entities**

| **Name** | **Address** | **Mobile No** | **Vehicle No** |

+

Data Analysis

=

Actionable Insights

| Bits and pieces of Data available | Near Real time | Outcome |
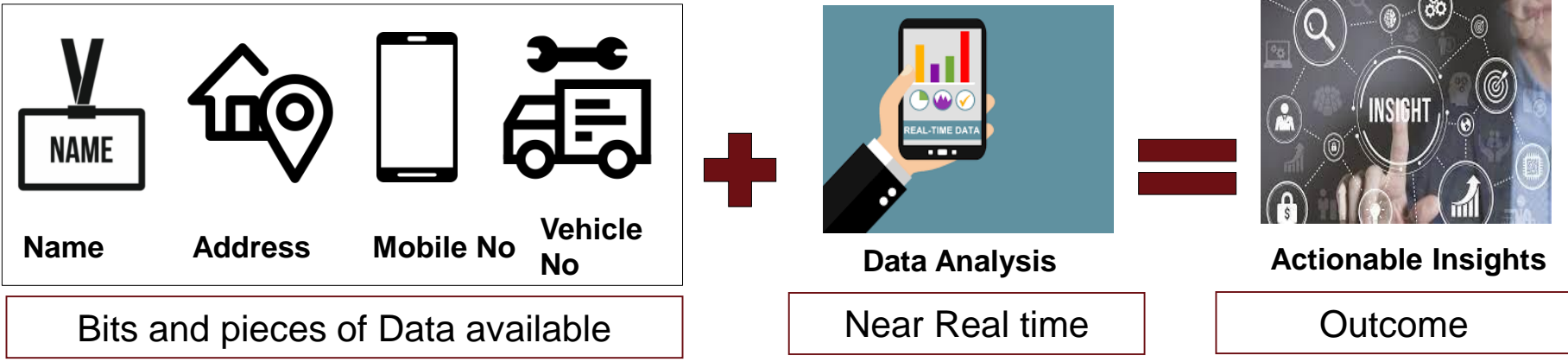
Citizen Information is Spread across

Income Tax Department

Through Project

ITDMS (Integrated Tax payer Data management System) in 2008.

First project in the country for complete 360 degree view

Used for 10 years till 2018

Merged with Project Insight in 2018

360 degree profile of Tax Payer 2008

Internal Sources
- PAN
- TDS
- OLTAS

External Sources
- Property
- Bank
- Credit Card
- Travel
- Stock Exchange
- Mobile no.

Passport no.
Mobile no.
Transaction no.

Combined Data
Identity Resolution (IR Engine)

Name / Address

Search Parameters
- PAN
- Name
- Father Name
- Address

Income History → Tax Payment History → Directorship

Matching Rules
IR Engine
- Name & Father Name
- Father Name = Name
- Father Name = Father Name
- Address Similarity
- Name / Address

Family members
- Child1 → Child2 - - -
- Father
- Sibling1 → Sibling2
- Spouse — Household entity1 — Household entity1
- Property Transaction — Bank Transaction — Credit Card Transaction

Family tree building is achieve for the first time by any enforcement agency

First project in India on 360 degree & Network (6th Feb 2009)

"**With the ITDMS deployed at all the DGsIT, it is expected to improve the data mining and non-intrusive investigative capabilities of the department substantially, Income Tax department has taken head start and is the first enforcement agency in the country to implement a state of art profiling system using sophisticated name search engine on Indian Names.**" **Shri S S Khan, Member , CBDT**

TIMES NATION

THE TIMES OF INDIA, HYDERABAD | FRIDAY, FEBRUARY 6, 2009

HRD MINISTER SAYS THERE'S STILL SCOPE FOR MORE QUOTAS IN IIT, IIM POSTS |9

SUPREME COURT EXTENDS DUTT'S ABROAD FOR A UN PROGRAMME

Evaders Beware: I-T on the prowl

Taxmen Using '360-Degree' Profiling To Collect Details Of Tax Evaders

Pradeep Thakur | TNN

New Delhi: Officials of the air intelligence unit at Delhi's IGI Airport recently identified a traveller suspected to be carrying huge cash in his baggage. But before the suspect could be detained, he had boarded the aircraft for Hyderabad. All that the airline staff could divulge about the traveller were his initials and mobile number.

The number was soon flashed to the headquarters of the Central Information Bureau (CIB) of the Income-Tax department in Delhi. What happened thereafter is a startling example of how 360-degree profiling, a new cutting-edge database that synergizes with various agencies and service providers, is being used to nab income-tax evaders.

Within seconds of receiving the suspect's number, officials put it into their 360-degree data bank. It turned out to be that of a leading Delhi-based industrialist. In the next few minutes, sleuths had been dispatched to all business and residential premises of the accused. By the time the suspect landed at Hyderabad in a few hours' time, he was detained with the cash

and confronted with all transactions made by him, his staff and family members in the past year.

Stunned by the extent of information officials had about his itinerary, contacts and transactions, the industrialist broke down and disclosed the source of the black money. He said it was meant to buy a property in Hyderabad.

Now increasingly being used by intelligence and enforcement agen-

A POTENT TOOL

What's 360-degree profiling?
It's a database of suspected money launderers, criminals and corrupt officials that tracks their activities and transactions in minute detail through synergy with various agencies and service providers

How does it map suspects?
Through their mobile conversations, credit card use, bank statements, travel tickets, hotel bills, real estate deals. Any transaction where PAN card is used shows up in suspect's profile

Who is under watch?
Some of the country's leading bureaucrats, politicians, journalists, lawyers and judges, industrialists and corporate houses

Has it helped recover money?
● Yes. A woman using three PANs, all registered at different addresses, was mapped and investigated last year. Within few days, her links with a leading real estate firm was established and she had to disclose hidden income of nearly Rs 100 crore
● Rs 40 crore recovered from Delhi-based stock broker on tip-off based on demat transactions

cies, 360-degree profiles have turned out to be one of the most potent tools in creating forensic evidence against an offender providing minute-to-minute details of the movements of the accused. The details include all the people the target had spoken to, met, how much he spent with credit cards, where he was at a particular time, in which hotel did he check into and had how many visitors he entertained etc.

These profiles have been constructed on thousands of individuals and companies whose meteoric rise and flamboyance paint a suspicious picture around them. The I-T department already has financial details of these individuals and their front entities and family members. The profiles are constantly updated by sleuths based on analysis of annual information reports (AIRs) and other financial data received from several institutions, banks, registrar of societies, intelligence agencies, hotels and tour and travel operators.

The Central Information Bureau (CIB) of the Income Tax department is the nodal agency for collating this information. Different investigative agencies in the country take help of Central Bureau of Investigation and its data bank on 360-degree profiles while investigating a suspect.

The offices of the Central Bureau of Investigation offices are spread across the country situated in all major state capitals where local level intelligence and data received are analyzed and routinely fed into the system. Information related to banking, cash transactions and credit card expenses are centralized in Delhi.

I-T data mining software gets PM's award

NEW DELHI: S S Khan, Milap Jain and G T V Rao, who developed the Integrated Tax Payer Data Management System (IT-DMS), a data-base mining software that provides actionable intelligence to help the Income Tax Department's Investigation Division follow potential violators, got the Prime Minster's Award for excellence in governance and administration as part of Civil Services Day on Wednesday.

The work on the software was started by Khan, the then DG I-T (Investigation), Delhi in 2006. After pilot testing, it was developed as Enterprise Level Solution and rolled out at all 14 stations of DG I-T (investigations) across the country in 2007. In fact, the I-T Department conducted about half a dozen searches based on the actionable intelligence provided by the ITDMS last year.　**ENS**

Latest position of using Aadhaar in department databases
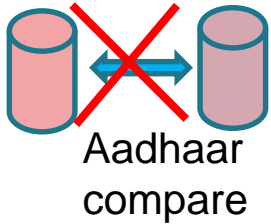
As per Aadhaar Act, Aadhar can not be used as key for comparing different data bases

Using Aadhar for comparison is punishable

Aadhaar can be used in the same database to prevent duplicate/fake beneficiary onboarding in schemes notified under Section 7 of Aadhaar act where a monetary benefit from state is received

Aadhaar – Phone no.

Only two are linkages of Aadhaar are allowed by i.e. Aadhaar - PAN and Aadhaar-Telephone

Aadhaar - Voter ID allowed also by Law but it is optional

What Telangana has done in 2014

In 2014 SAMAGRA KUTUMBA SURVEY DATA SKS consisting of information voluntarily declared by the Citizen is collected
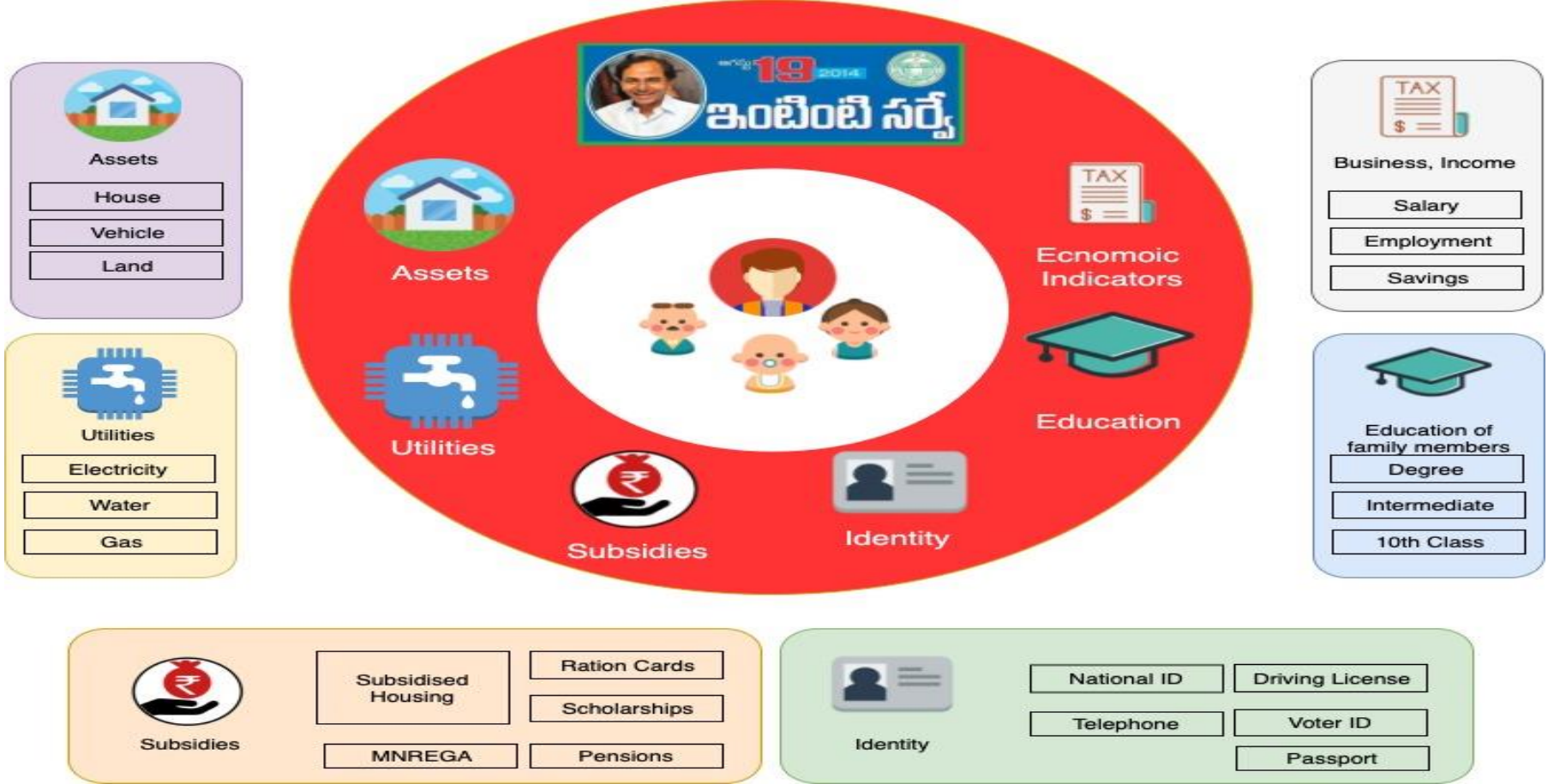
Family as a unit

Number of families

SKS ID is given to each Family

number of Members

What Telangana has done from 2016 using SKS data as base

Integrated People Information Hub,

Citizen 360

Samagra Vedika

Built on Income Tax department's work

Property Tax

LRS Data

Vehicles 2W/4W

Employee Data

IGRS Data

Aasara

Dharani

Rythu Bandhu

GST Data

Rythu Bheema

Birth/Death Data

Scholarships

SKS Data

Ration card Data

Kalyana Lakshmi

Samagra Vedika
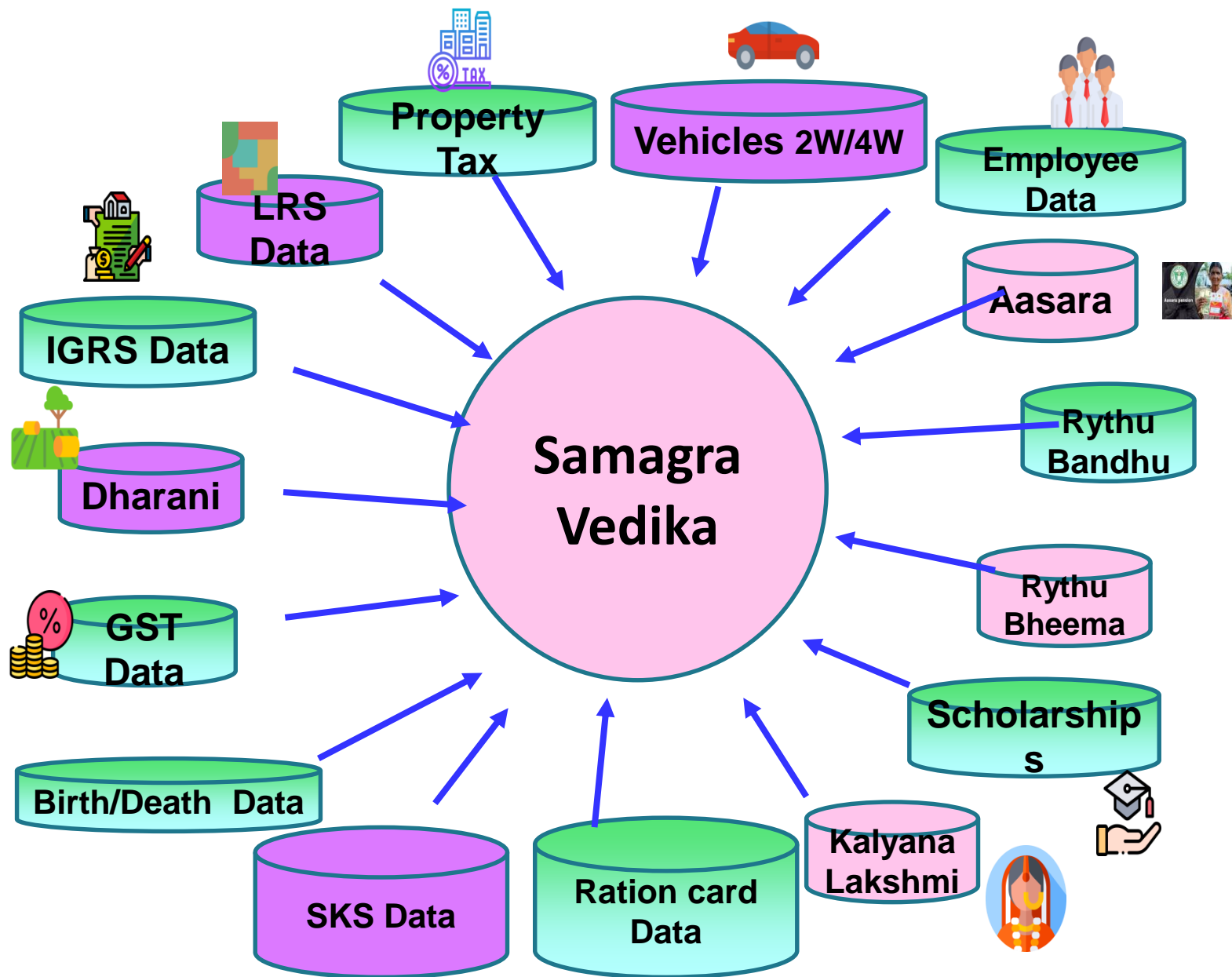
- Principle of Data minimization is followed.

- Only 8 to 10 fields are collected from each data source

- Name and Address is mandatory.

- Fathers name, DoB, Phone Number, Aadhaar number are collected if available

- ID number, description (for example in case of Vehicle data Vehicle number, Vehicle type (2W/3W/4W), Vehicle description. In case of land PPB number, extent in acers.

- A combination of whatever attributes available out of above are used to identify, link records of an entity and build network.

- Accuracy nearer to ID based linkage

- System based decision without manual intervention
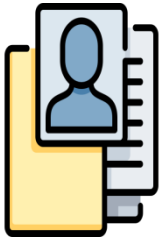
Variety - Variations in Name & Father's Name

abc	**Spelling**	• N R Muralee Krishna • N Rada Krisnaa
ABC	**Abbreviations**	• N R Murali Krishna • N R Krishna
▭▭▭	**Sequence Variation**	• Murali Krishna N Radha • N M Radha Krishna
⊕ ⊖	**Addition/ Deletion**	• N Murali Krishna • Radha Krishna Kumar
↗↘	**Splitting**	• Murali Krishna N Radha • Radhakrishna N M

Variety variations in Addresses

EXAMPLES OF VARIATIONS IN ADDRESSES

PLOT NO 110 RD NO 65 J HILLS CO OP SOCIETY HYDBAD

P NO 110 RD NO65 JUBILEE HILLS HYDRABAD

RD 65 JUBLEEHILLS HYDERBAAD

110 ROAD NO 65 JUBLEE HILLS HBAD

SAME ADDRESS IS WRITTEN IN MULTIPLE FORMS
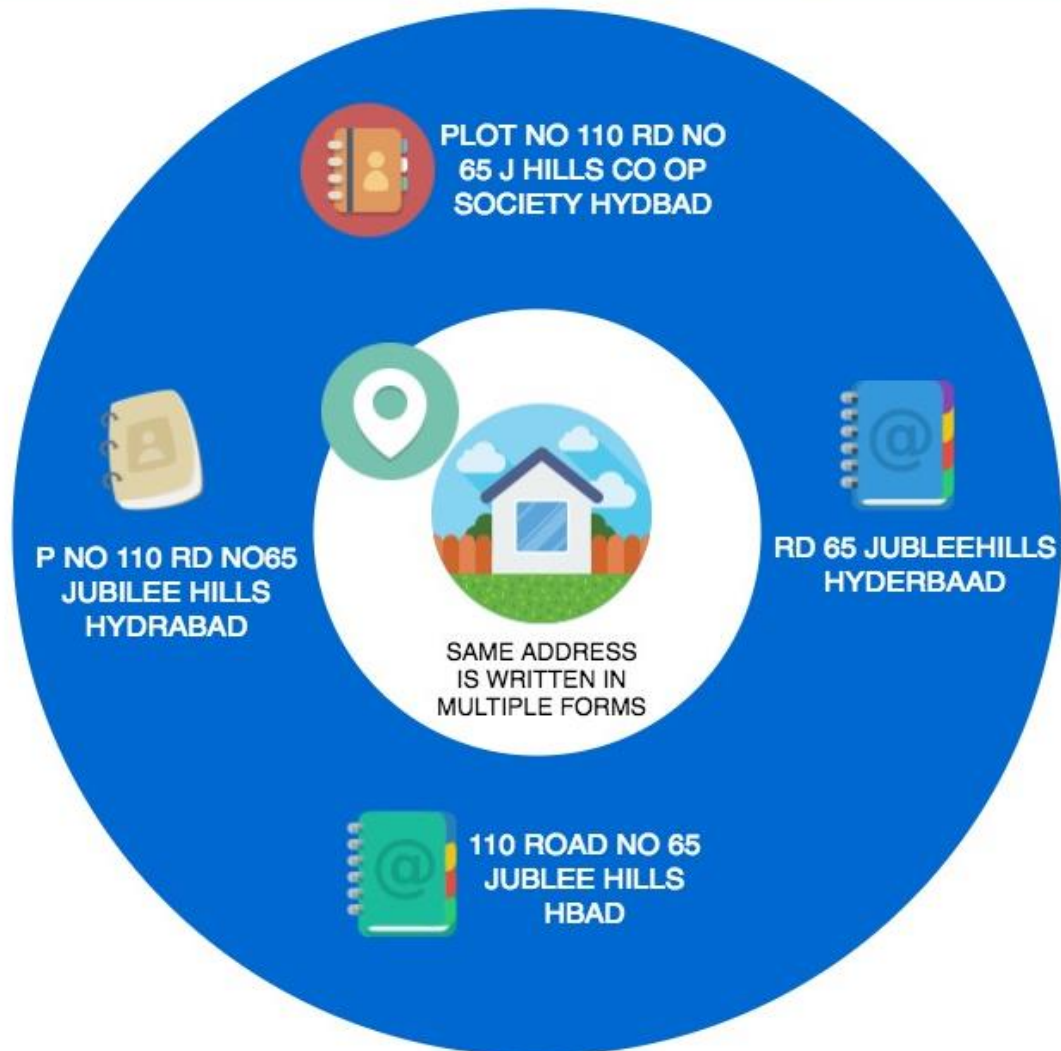
Variations and errors in date inputs

1. Interchange day and month: dd/mm/yyyy or mm/dd/yyyy

2. Input error in numbers

Key Performance Metrics of Demographic based Entity resolution

1 HIGH PRECISION
High positive matching. Never miss the right match.

2 MINIMUM FALSE POSITIVES
High negative matching accuracy. Get least number of false positivies.

3 QUICK
Very quick response time. Less than 2-3 seconds on 1 Cr records.

4 ABILITY TO RANK OUTPUT
Ability to rank results so that the best results come on top.

5 DYNAMIC RULES
Ability to define combination of multiple rules on Name, Address, DoB, etc.

6 HANDLE VARIATIONS
Handle all variations in Name, Address, DoB etc.
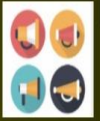
All these are simultaneously acheived on very large databases (100 Million + records)

Technology Stack

Data Sources

Data from government departments

Data Analysis, Processing

Data Lake/Warehouse

Data Warehouse, Modelling

Core Entity Resolution Technology

Visualization and consumption

User departments- Largest Big Data application in the country
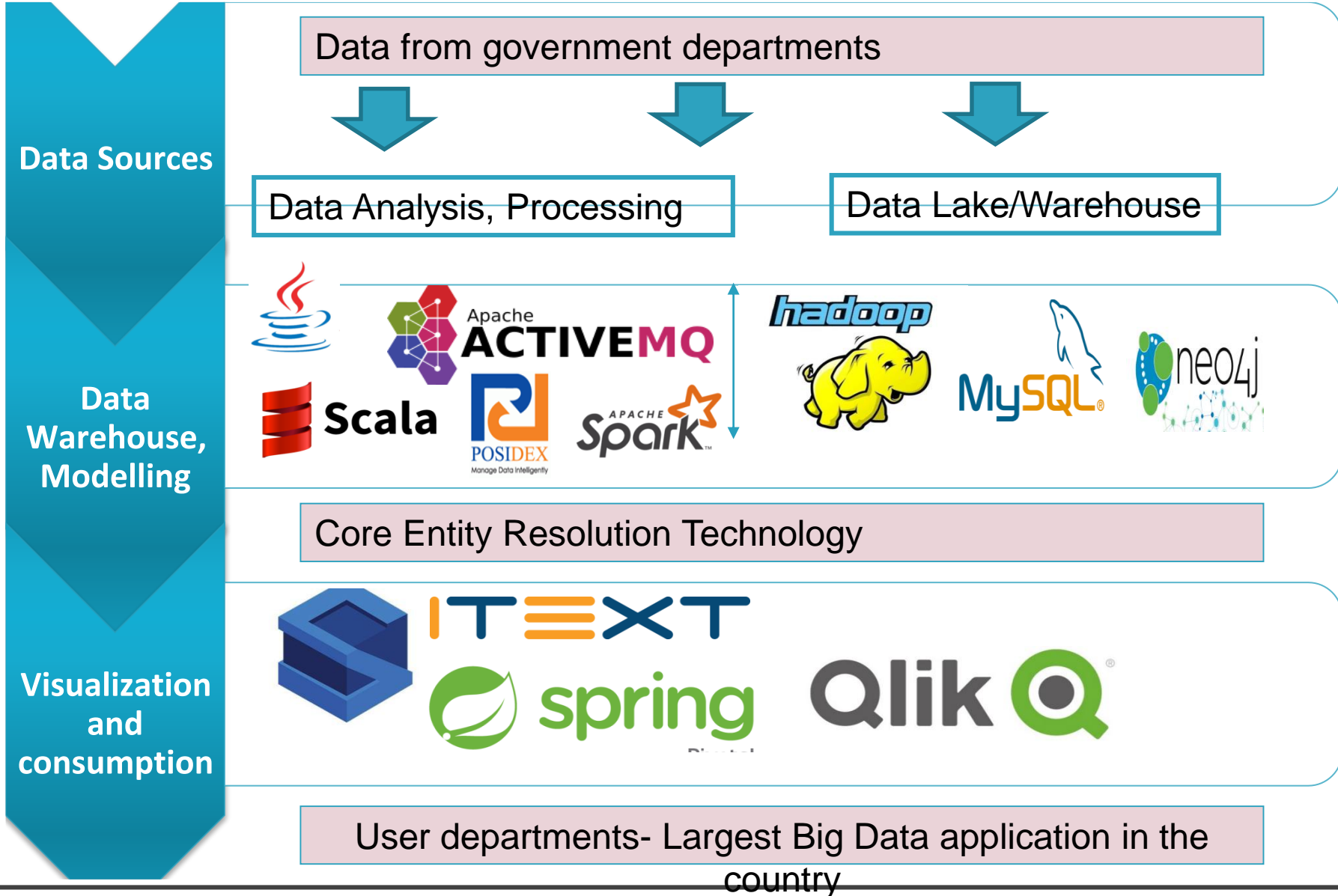
Included in the Economic Survey of 2019 submitted to Parliament as an excellent data integration initiative without common ID

Economic Survey lavishes praise on 'Samagra Vedika'

The initiative is an integrated platform with databases

SERISH NANISETTI
HYDERABAD

The Economic Survey 2018-19 singles out Telangana's Samagra Vedika initiative as a lesson in federalism among governments. The policy document compares the State's digital initiative with Transport for London (TfL) and the digital transparency policy ushered under President Barack Obama in 2009 in the United States.

The TfL is putting out timetables, service status and disruption information in an open format, allowing others to access and use the data to improve their deliverables.

In its data convergence chapter titled: Data' Of the People, By the People, For the People', the Economic Survey holds up Telangana's example for harnessing data for social use.

The Telangana government's Samagra Vedika is an integrated platform with databases of various departments.

It was developed by the Information Technology, Electronics & Communications and Planning Department and uses most of the information collected during the Integrated Household Survey (IHS) in 2014.

Potential benefits
"The Telangana Government's Samagra Vedika initiative gives a flavour of the potential benefits of integrating data sets. The initiative links around twenty-five existing government datasets using a common identifier – the name and address of an individual," says the Economic Survey.

Samagra Vedika gives officials access to the information about the economic status of citizens and applicants concerning his/her family status, land, property, vehicles owned, GST receipts, income tax and even monthly power bills.

'Tamper-proof'
The Survey document also praises the data access architecture which it calls tamper-proof. "The initiative also puts in place all the necessary safeguards to preclude any tampering of data or violation of privacy.

The right to add or edit data in the database varies by ministry or department. A given department can

only write data for select fields – the motor vehicles department cannot, for instance, manipulate data relating to education, even though it can view the data," says the survey document.

The Economic Survey also picks up Telangana's policy for Electric Vehicles.

Unlike other States which have set themselves numerical targets for the switchover to EV, Telangana has targeted 100 % electric buses for intracity, intercity and interstate transport for its State transport corporation.

Worst performers
But one parameter where the Telangana government didn't cover itself in glory is in the 'Open Defecation Free' status where it brings up the rear.

It is among the three worst performing States after Goa and Odisha.

While most States have reached 100% coverage of Indian Household Latrines (IHL) at least on paper, Telangana is shown as lagging at 73.99% which is better than Odisha 45.36% and Goa 5.84%.

Telangana's Samagra Vedika initiative has found mention in the latest economic survey. The initiative has tremendous potential. So far, we are just at the tip of the iceberg

SK Joshi,
Chief Secretary

NIT No.	NAME OF WORK	Estimate Amount/ECV	Start Date/Last Date & Times for receipt of Bid	Name & Address Officer Cell No.
14/EE/Div-29/GHMC /2019-20	AMENDMENT-2 1) Providing and Erection of Dewatering Pumps with accessories for	8.00 Lakhs	For 02.07.19 at 4.30 PM 03.07.19 at 4.30 PM Read as 05.07.19 at 4.30 PM	E.E.Div-29/GHMC Cell No.9000058718

Greater Hyderabad Municipal Corporation

Beneficiaries for Old age pensions

New on boarding Methodology

What

How

Objectives

Identification of eligible persons for Welfare schemes

Minimizing manual discretion

System based decision

Real time Access to Concerned Officials on reasons

High accuracy

Least *inclusion* errors

Least *exclusion* errors

Digital trail of the identification process
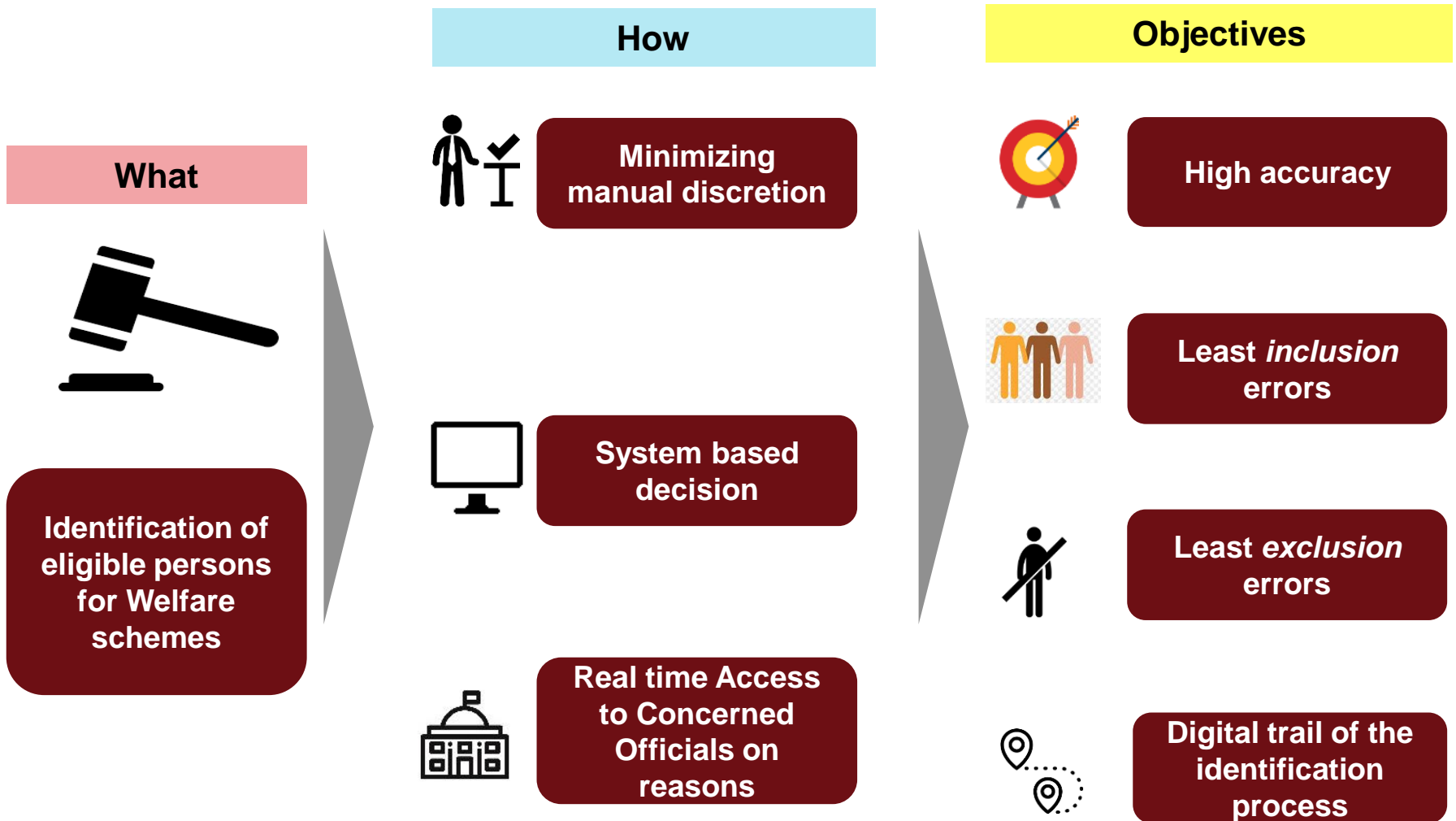
Using for new Aasara Pensions 2021

Eligibility for Aasara Pensions is reduced to 57 years from 65 years

About 8,12,000 New applications are received in Oct 2021. Only applicant information is collected. Family information is not available

InEligibility Criteria

a) If the applicant is already existing Aasara pensioner
b) If applicant's spouse is Aasara pensioner(Other than disability)
c) If applicant is a Government or retired employee
d) If family of the applicant (family as per SKS/Ration)
   I. Holds 7 acres of agricultural land
   II. Owns a four wheeler
   III. Whether family member of the applicant is a Government or retired employee or professional
   IV. Whether applicant's family owns a Business (has GST number)

Using for new Aasara Pensions 2021

SlNo	Satisfying criteria	No of Applications	
		Phase 1	Phase 2
1	Bio metric authentication not done after three attempts and applicant not in Samagra data base.	3,430	0
2	Duplicate Aasara Applications	4,961	0
3	Existing Aasara Pensioner (with or without economic Criteria)	1,925	16
4	Family member is an Aasara pensioner other than dis ability (with or without economic Criteria)	61,383	7,171
5	Whether applicant is a Government or retired employee or professional (with or without economic Criteria)	866	143
6	Whether applicant's family member is a Government employee (with or without economic Criteria)	5,085	672
7	Applicant's Family holding land more than 7 Acres	55,367	3,980
8	Applicant's Family having a Four wheeler	30,535	3,325
9	Applicant's family is sold or purchased immovable property whose registration value id more than 5 lakhs	30,396	3,612
10	Applicant's Family Owns a Business	229	25
11	Combination of 7,8,9,10	20,401	2,074
	Total Ineligible applications	2,14,578	21,018
	Total applications received	7,40,325	71,492
	Ineligible percentage	28.98%	29.39%

Savings to the Government

Savings per annum by virtue of this excise **2,35,596 * Rs 2,016*12 = Rs 569.9 Cr per annum**

System based decision of benefeciaries

Transparent

Quick

Shows power of IT

Example of one application (1/2)

Application Number	Name	Relation Name	Address	Date Of Birth	Mobile number	Aadhar Number
PEN022100623630	REDDY MANEMMA	REDDY SATHI REDDY	2-28 RAGHOTHAMPALLY AKARAM Dubbak SIDDIPET	1963-01-01	9502458125	XXXXXX751848

Family details & Economic Indicators/Existing pension

Sl No	Name	Relation Name	Address	Nature of Relationship	Data Source	Family Member is an Existing Pensioner	Land Details	Four Wheeler	Property Sold or Purchased	Family Member is Govt Emp
1	SATHI REDDY	LINGA REDDY	2-28 CHINNAREDDI STREET Raghottampalle Raghottampalle Dubbak Siddipet	Self	Family Member Pensioner	MDDBR00382 O.A.P	NA	NA	NA	NA
2	REDDY KARNAKAR REEDY	SATHI REDDY	12-1-80,MOHINPURA,SIDDIPET,SIDDIPET,Telangana,502301	Son	IGRS	NA	NA	NA	13262/1709/2019 Rs. 5,73,000 EX	NA
3	REDDY MANEMMA	SATTAREDD Y	dubbak mandalam raghotthampally village DUBBAK DUBBAK MEDAK	Wife	Land Records	NA	T10060200 382 2.25 Acres.	NA	NA	NA
4	REDDY PRABAKAR REDDY	SATYAREDD Y	dubbak mandalam raghotthampally village DUBBAK DUBBAK MEDAK	Son	Land Records	NA	T10060200 918 7.55 Acres.	NA	NA	NA

Example of one application (2/2)

Family details & Economic Indicators/Existing pension

5	REDDY SATTIREDDY	LINGAREDD Y	dubbak mandalam raghotthampally village DUBBAK DUBBAK MEDAK	Self	Land Records	NA	T10060200 744 7.53 Acres.	NA	NA	NA	
6	REDDY LAKSMI	SATYAREDD Y	NULL mohin pura SIDDIPET[R] SIDDIPET MEDAK	Wife	Land Records	NA	T10060200 644 10.35 Acres.	NA	NA	NA	
7	R.PRABHAKAR REDDY	SATTIREDDY	NA	Son	Urban Loacal Bodies	NA	NA	NA	NA		Jawan
8	REDDY KARNAKAR REDDY	REDDY SATHI REDDY	H.NO.12-1-80 MOHINPURA SIDDIPET SIDDIPET DIST	Son	VEHICLEDAT A	NA	NA	TS36D33 30 MARUTI-DZIRE VDI BSIV MOTOR CAR	NA	NA	

Issuing pattas to Podu lands (forest lands occupied by persons)

Who are financially deserving families and Who do not have lands

Relevant for Forest service officers

Not Recommended Podu Applications

Application no/Identifier	source	NAME	Relation Name	DATA
ROFR022100423658	podu	Pasha Rajitha Devi	Rajireddy	
T21110030368	state land	PASAM RAJITADEVI	SANJIVAREDDY	T21110030368 :: 2 Acres
T22030071808	state land	PASHAM RAJITHA DEVI	PASHAM SANJEEVA REDDY	T22030071808 :: 4 Acres
T22030090251	state land	PASAM RAJITA DEVI	SANJIVAREDDY	T22030090251 :: 1 Acres
ROFR022100423658	Family as per podu	Pasham Sanjeeva Reddy		
T21050010308	state land	PASAM SANJIVA REDDY	MALLAREDDY	T21050010308 :: 12 Acres
T21110020680	state land	PASAM SANJIVAREDDY	MALLAREDDY	T21110020680 :: 12 Acres
T22070020660	state land	PASAM SANJIVA REDDY	MALLAREDDY	T22070020660 :: 12 Acres
T30020060399	state land	PASHAM SANJEEVA REDDDY	PASHAM MALLA REDDY	T30020060399 :: 12 Acres
T30160060186	state land	PASAM SANJIVA REDDY	MALLAREDDY	T30160060186 :: 12 Acres
TS03ES3127	vehicle data	Pasham Sanjeeva Reddy	HUSBAND	MOTOR CAR :: RENAULT KWID RXT 1.0 CLIMBER BSIV TS03ES3127

360 degree view is similar to Iceberg view
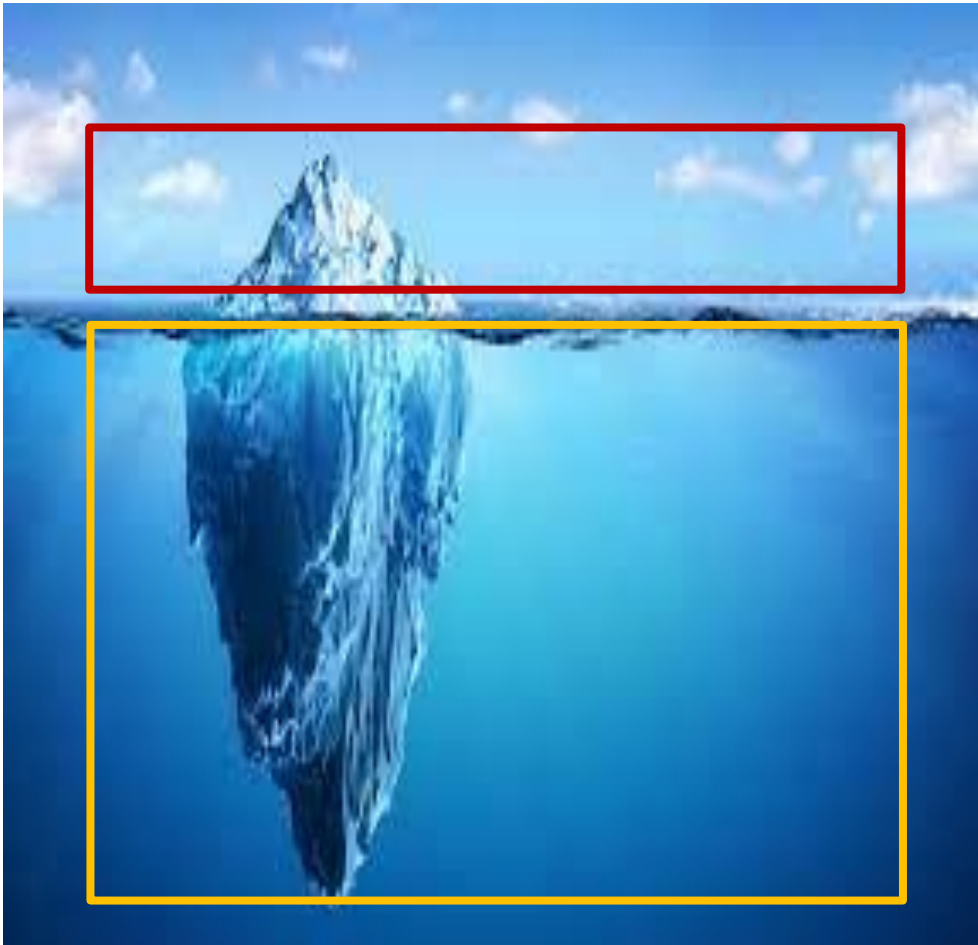
Government projects Typically gets this 360 degree view

Actual 360 degree view available in the data

Private sector projects Typically gets this 360 degree view

Thank You.