REQUEST FOR PROPOSAL

Volume - II

Terms of Reference and

Techno-Functional Requirements

Selection of Implementation Agency

for

Development, Implementation and Maintenance of

Social Protection Delivery Platform (SPDP) in Odisha

(RFP Ref. No. OCAC-SEGP-SPD-0023-2020-21041)

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Table of Contents

Table of Figures

1 Glossary of Terms

Acronym	Description
API	Application Programming Interface
ASA	Authentication Service Agency
ASHA	Accredited Social Health Activist
BDO	Block Development Officer
BI	Business Intelligence
CBS	Core Banking Services
CIDR	Central Identities Data Repository
CSC	Common Service Centre
CSP	Cloud Service Providers
CSS	Centrally Sponsored Scheme
DBT	Direct Benefit Transfer
DEO	Data Entry operator
DOB	Date of Birth
DSC	Digital Signature Certificate
ESB	Enterprise Service Bus
e-Sign	Electronic Signature
G2C	Government to Citizen
GP	Gram Panchayat
GST	Goods and Services Tax
HH	Household
HRMS	Human Resource Management System
IA	Implementation Agency
ICDS	Integrated Child Development Services
ICT	Information and Communications Technology
IDAM	Identity Access Management
IDM	Integrated Data Management
IEC	Information Education and Communication
iFMS	Integrated Finance Management System
IVRS	Interactive Voice Response System
JSY	Janani Suraksha Yojana
KALIA	Krushak Assistance for Livelihood and Income Augmentation
KPI	Key Performance Indicator
KYC	Know your Customer
MDO	Manual De-duplication Operator
MeitY	Ministry of Electronic and Information Technology
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
MIS	Management Information System
MoU	Memorandum of Understanding
MBPY	Madhu Babu Pension Yojana
MSP	Managed Service Provider
NEFT	National Electronic Fund Transfer
NFSA	National Food Security Act

Acronym	Description
NGO	Non-Governmental Organization
NHM	National Health Mission
NPR	National Population Register
OEM	Original Equipment Manufacturer
PDS	Public Distribution System
PFMS	Public Financial Management System
PII	Personal Identifiable Information
PMU	Project Management Unit
POA	Proof of Address
POI	Proof of Identity
PoS	Point of Sale
RTGS	Real Time Gross Settlement
SAN	Storage Area Network
SC	Scheduled Caste
SDC	State Data Centre
SDG	Sustainable Development Goals
SDK	Software Development Kit
SEC	Socio-Economic Census
SHG	Self Help Group
SI	System Integrator
SLA	Service Level Agreement
SMS	Short Messaging Service
SNP	Supplementary Nutrition Programme
SOP	Standard Operating Procedure
SPDP	Social Protection Delivery Platform
SPOC	Single Point of Contact
SSL	Secure Socket Layer
SSOT	Single Source of Truth
ST	Scheduled Tribe
ToR	Terms of Reference
UAT	User Acceptance Testing
UIDAI	Unique identification Authority of India
XML	Extensible Mark-up Language

2 Introduction to the Social Protection Delivery Platform (SPDP) of Odisha

2.1 Vision

SPDP is envisioned to be a one-stop platform for beneficiary registration and update processes across the social protection schemes and will be an integrated social registry that would serve as a critical foundation for various program operations by facilitating seamless data sharing.

A successful implementation of SPDP will enable various State departments to streamline their scheme management processes, facilitate data-driven policymaking and better expenditure planning for the Government, as well as simplify the benefit delivery experience for beneficiaries. The benefits that various stakeholders stand to gain from SPDP are outlined below:

- Government authorities [State/National] and various Departments
    - It will help in managing inclusion, exclusion and duplication errors in beneficiary records in Odisha
    - It will facilitate the creation of a single source of truth registry on 'socio-economic' attributes for Odisha's residents
    - It will aid Government efforts at scheme consolidation at-a-State level to give a view of all the schemes and their targeted beneficiaries. This will ensure appropriate fund allocations and in better expenditure tracking of the State's various DBT programs
    - It will facilitate better co-ordination across multiple Departments (via a 'common integration layer') to support interchange of information among the different scheme databases
    - It will aid Department efforts to improve the efficiency of current scheme operations; as well as bring in greater transparency and accountability in delivery of services
    - It will improve the outcome and impact evaluation of the State's various social protection programs
    - It will aid Government efforts in beneficiary fraud detection and resolution
    - It will provide more accurate beneficiary trends (e.g. linkages to social protection programs) for policymakers
    - It will help the State in better on-ground resource planning and thus, leverage HR capacities available at all levels (e.g. districts, blocks, villages) for streamlining the benefit delivery processes.
    - SPDP will help the Government to effectively address many UN Sustainable Development Goals and achieve measurable success, owing to its ability to streamline the population targeting process in public service delivery.
- Beneficiaries (Individuals & Families)
    - It will provide a common avenue for availing scheme-related information (across schemes) and thereby aid their decision-making process
    - It will simplify the service-delivery experience, by establishing 'common touch points' for managing their socio-economic data across the State (e.g. to add/edit their demographic attributes in "one" place, rather than individually update through various linked schemes)
    - It will ensure transparency via strong consent rules effective technical measures to safeguard an individual's PII.

2.2 Functional Scope

The key needs of the SPDP platform is to simplify various functions in the benefit delivery lifecycle, build a verifiable source-of-truth registry to support benefit disbursement processes of schemes, and strengthen inter-Department collaboration efforts. The design of the SPDP platform must address the various existing challenges in scheme operations faced by Departments and beneficiaries, as well as

leverage global best practices used for similar social protection delivery platforms. The table below outlines the functional goals of the SPDP platform:

1. The platform should function as a 'Single Source of Truth (SSoT)' for beneficiaries in Odisha
To enable a single-source-of-truth vision, SPDP will provide a centralized beneficiary registry that will manage the socio-economic profiles of the State's beneficiaries. For this purpose, SPDP needs to support master data management in its platform design. It should also support managing 'dynamic data updates' across the partner ecosystem. This is to ensure that the beneficiary data in SPDP is always up-to-date and negate data inconsistencies across the participating schemes in the ecosystem.
2. The platform should provide common services that can be used across participating schemes in the ecosystem
SPDP will facilitates seamless data sharing with the connected schemes, after the explicit consent from the beneficiary; as well as provide common services [e.g. beneficiary search, alert/notification capabilities]. There can be provisions made to support standards-based data exchanges with certain external systems as well. This common interoperability layer of SPDP, will help the Government negate the need to build individual point-to-point data interfaces; thereby reducing costs and simplifying operations.
3. The platform should support the service delivery autonomy of the participating Departments
The platform should not interfere with the operational and implementation aspects of the various DBT schemes in the State. Instead, the platform can function as a 'common avenue' for Departments to support specific scheme operations (e.g. registration and data updates of beneficiaries), which in turn can aid in their decision-making process. The platform will have a service catalogue which provides a collection of services for different components enabling the scheme owners to *aid* their service delivery, but at the same *retain* control over their functioning.
4. The platform should enable stakeholders and policy makers in 'Data driven decision making'
By being the most-trusted source of a beneficiary's socio-economic data in the State, the platform can help policymakers to make informed policy decisions, by providing rich data analytics and trends forecasting around key operational metrics. I.e. specific insights can be drawn from this platform, which could then be used to develop tailored strategies in the benefit delivery processes
5. The platform should be user-centric and simply the processes
SPDP must prioritize beneficiary-centricity in its operating model and technology architecture, and thereby aid the simplification of administrative processes in a Department's benefit delivery lifecycle
6. The platform should adhere to Government regulations on beneficiary PII and Consent
Platform should be designed to adhere to Governmental regulations around 'data privacy and security' protocols and 'consent rules for individuals'. The platform will adhere to the following regulations but not limited to: • Information Technology Act, 2000 • Personal Data Protection Bill 2018 • The Aadhaar (Targeted Delivery of Financial and Other Subsidies, Benefits and Services) Act, 2016, Aadhaar (Data Security) Regulations, 2016, Aadhaar (Sharing of Information) Regulations, 2016

- Electronic Consent Framework
- Data Sharing and Accessibility Policies
- National Data Sharing and Accessibility Policy (NDSAP)
- Odisha State Data Policy, 2015
- RTI Act
- Policy on Open Application Programming Interface (API) for Government of India
- Policy on Open Standards for e-Governance

2.3 Design Principles of the platform

The success of the SPDP platform will be based on the strength of its technical design as well as the utility of its services, for the connected ecosystem. It is important that clearly articulated design principles should form the basis of the SPDP platform architecture. These principles must support the Government's envisioned priorities for SPDP - a higher quality of service to residents, no unwarranted beneficiary exclusion, security and privacy alignment to the State and National laws/policies, better inter-scheme collaboration. These principles would also have to be compliant with industry-standard enterprise architecture frameworks used in the country [e.g. India Enterprise Architecture (IndEA)].

Table 1: Design Principles

No.	Considerations	Description
1	**Design for Inclusion**	All bonafide residents of Odisha are eligible to be a part of the SPDP registry, and thereby obtain a unique social protection Individual-ID. Insofar as subsidies, benefits or services to be given is concerned by individual Departments, the State Government may mandate that the receipt of these subsidies, benefits and services could be given only upon furnishing proof of possession of a valid Individual-ID number (or proof of making an application for enrolment for the Individual-ID). SPDP must be designed based on "minimalism" – wherein only a limited number of demographic and socio-economic attributes needs to be obtained from the registering beneficiaries. At the same time, the processes employed for registration and management of ongoing data updates, should be simple and straightforward for beneficiaries.
2	**Security and Privacy by Design**	Ensuring the security and privacy of an individual's PII data (in line with the policies set by the National and State Governments) are a fundamental component of the SPDP platform architecture. When building a program of this scale, it is imperative that 'privacy' and 'security' are not afterthoughts, but embedded into the platform design, from day one. This essentially translates to focused efforts around designing built-in privacy and security controls for all key functions/workflows/processes in the SPDP design. For instance, the following measures could be prioritized as important design considerations: • **Limited resident data -** It is essential that resident data is kept to a minimum and primarily focused on providing specific provisions (e.g. enabling identity and eligibility-related functions) in the service-delivery workflow and nothing else. Any other resident data (required for service transactions in a specific scheme) must be only maintained in the individual scheme-databases.

No.	Considerations	Description
		• **Individual-ID numbering scheme - T**he Individual-ID issued to every registered resident has to be a "random number", with no built-in intelligence or profiling information. • **PII security at all necessary levels -** Security of data should be ensured at the "application endpoints", the "transit" layer and "in the database" [i.e. security- 'at rest' and 'in-transit'] in the platform. Safeguarding the privacy and security of PII data - to prevent unauthorised access and/or alterations - must be a cross-cutting principle adopted across all design elements of the SPDP platform. This includes adopting internationally accepted norms and best-practices, as well as conforming to the National/State's data protection regulations and guidelines.
3	**Openness, Vendor Neutrality and Standards based Interoperability**	Ensuring 'vendor-neutrality and openness' are crucial factors that will enable SPDP's vision for widescale adoption and evolution, and thereby avoid vendor-lock in situations. Vendor neutrality can be achieved via several means: • Usage of open standards, open APIs, open source software and commodity infrastructure with multiple vendors • Adopting open procurement processes for the selection of managed service providers (with best-in-class technologies that meet SPDP requirements) • Openness and vendor neutrality ensure that the Government has access to the best technology at the lowest cost, but also has the flexibility to replace technology components, as and when required, through a plug-and-play mechanism. SPDP service components will also be embracing open protocol-based interoperability methods. This is another critical design priority, for ensuring seamless integration between SPDP and various third-party systems (e.g. scheme systems, public utilities) for delivering public services to beneficiaries.
4	**Service Unbundling**	The SPDP architecture will be "unbundled" into many independent atomic elements that can then be recombined and layered to execute specific transactions. SPDP will be positioned as a platform offering a palette of micro-services - for executing specific user functions - which can be adopted by participating schemes (where a specific scheme partner can choose a service or services, for their transactions). This modular design philosophy will also support ensuring other architectural priorities (e.g. refactorability, resilience and manageability) are adequately addressed in the SPDP platform.
5	**Design for Scale**	The volume of data managed by SPDP may increase over time (increase in coverage/integrated schemes/services etc.) and hence adequate attention must be given to strengthen the platform's technology and process components, on an ongoing basis. This should be achieved by the following measures: • Ability of the technology infrastructure to horizontally scale i.e. add additional system resources without having to shut down the core system components

No.	Considerations	Description
		• Support loose-coupling of various platform components through an API-based design Design considerations to ensure reliability or dependability of services, should be embedded into the platform infrastructure. The system has to self-heal as far as possible, and while this may not happen on day one, the path to it must be considered. This requires careful consideration of failure paths and a design that minimises the number of experts needed to fix a failure. Exception handling should be baked in, at first using right events/data points to capture a failure, thereafter by providing tools to analyse the events and raise effective alarms, and then algorithms to understand and respond to a failure.
6	**User-centricity**	SPDP will have to architected keeping a "user-centric design" as a central design principle. This is important so that the platform will be easy-to-use for all stakeholders concerned. Ensuring 'accessibility' and 'availability' (e.g. supporting 'online/offline' system availability) are key components of such a design. As the SPDP vision could also accommodate beneficiaries as potential users of the platform, it is important to prioritize platform-usability as a critical governing principle for the successful adoption of SPDP.
7	**Observability through data driven processes**	A key principle is to drive operational excellence in the SPDP program and improve the overall quality of public service delivery for residents. This involves measurement of operational processes, for SPDP services, at a high level of granularity using high quality data, creating well defined business metrics from this data and creating a feedback loop for sharing these insights and learning with the ecosystem for continuous improvement and optimization.
8	**Ecosystem approach**	Given the federated/modular nature of the SPDP platform and the vision to engage with various scheme-owners under a collaborative governance mechanism, it is important to enlist a group of operational partners under an 'ecosystem' model. This ecosystem can include external public and private utilities who will collaborate with SPDP for executing various functions [e.g. IA/MSP, CSCs]. Such an ecosystem approach will necessitate that the interfaces between these partners (and their systems) will have to be well defined and standardized - via a technology backbone that would hold together this partner ecosystem. This ecosystem shall also help the State accommodate niche service providers in the program, with the ability to create and coexist diverse solutions on a shared digital infrastructure.
9	**Strong Data Governance**	SPDP should be supported by a strong data-ownership model, which governs several policy requirements for the authorised data stewards/owners (e.g. provisions to access, create, modify, and use a specific SPDP data set, as well as rights to assign/delegate such access privileges to others). All authorized SPDP data owners/stewards not only have a responsibility to keep it safe and secure, but also carry a responsibility to ensure that it is current, consistent, and correct. Beneficiaries (who have records managed in the SPDP registry) are likely to go to designated local touchpoints for addressing any data discrepancies and updates (arising from certain life events such as

No.	Considerations	Description
		relocation, marriage, etc). Hence data ownership privileges & permissions should be set at appropriate levels.
10	**Platform Resilience, Manageability and Reliability**	SPDP will undergo a lot of changes over time (e.g. legal, processes and technology related changes). Hence, 'manageability' (i.e. ease of implementing changes) of SPDP is important. SPDP must be resilient against hardware and software failures and avoid any 'single point of failure' and require minimum human interventions. Continuous monitoring of service components within SPDP is necessary to ensure adequate integrity of data and uninterrupted availability of business processes.

3 Proposed Architecture

The study of various schemes (and their underlying IT systems) in Odisha, provided a comprehensive view of the abilities of the current systems as well as key challenges faced by their respective Departmental owners. These learnings have also been evaluated against global best practices adopted in similar IT-based social protection delivery systems in other countries. The high-level architecture of Odisha's SPDP platform (illustrated below) have incorporated these learnings and global best practices.

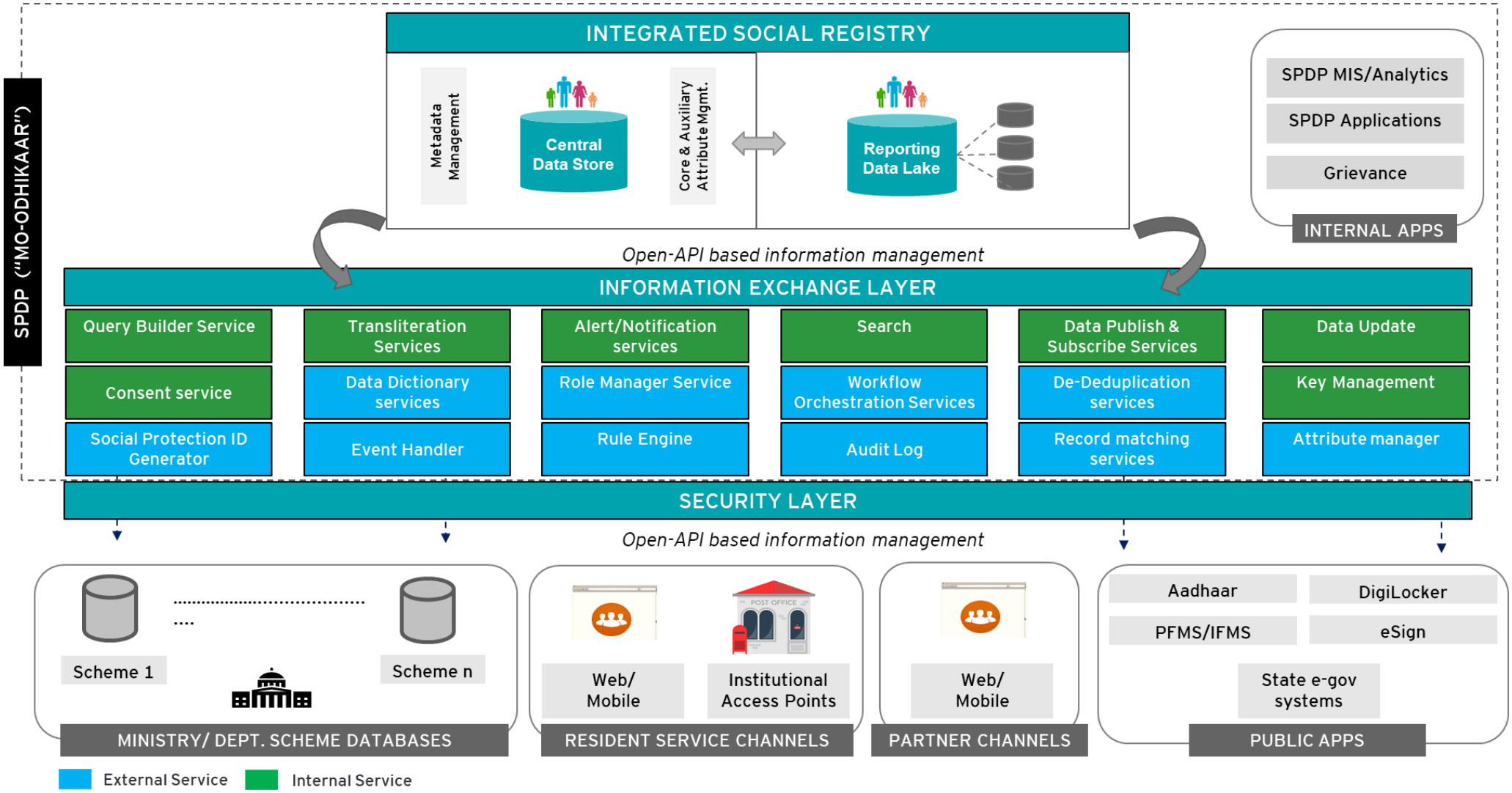

Figure 1: High Level SPDP Architecture

As illustrated above, SPDP is envisioned as a “three-tier” design, and involves the following layers:

1. A back-end integrated social registry for master-data management purposes. This registry will manage information about the beneficiaries and their various linked schemes. For e.g., this registry will include a “beneficiary database” that carries a beneficiary’s demographic and socio-economic information.
2. Front-end application modules to manage specific functions (e.g. registering beneficiaries, managing customer grievances).
3. All interfaces between SPDP and the external systems (e.g. Scheme systems, State/National systems) will be handled through a standards-based information exchange layer.

Platform, Toolkits and Microservices

SPDP shall be developed as a platform. The platform shall have components (services) that are generic in nature and can be used by all the schemes as services. The list of platform components, their services, and functionalities are explained in subsequent sections of this bid document.,

Various toolkit components that can be used to create, maintain, operate and monitor the schemes shall be built on the platform. These toolkit services shall be highly configurable, extensible as well as reusable to extend them based on context-specific scenarios. The list of toolkits, their services, and functionalities are explained in subsequent sections of this bid document.

The major difference between the platform components and toolkit components is that the platform components shall be used to provision scheme/beneficiary related services. The toolkit components shall be used to build scheme/beneficiary related components.

Microservices shall be developed using these platform and toolkit components. These microservices, which are highly re-usable, shall provide various services. The microservices shall be bundled, unbundled and re-bundled to configure various scenarios and apps for schemes. The microservices should be minimalistic, and independently replaceable and extensible. All micro-services must be documented with "metadata, input/output, test cases, version, deprecation rule" and must only be tested via automated test suite which is integrated to CI/CD pipeline. This is important for evolvability, backward compatibility, etc.

The platform services, toolkit components and microservices are indicative in nature. Bidders are expected to study the system in greater detail and propose further platform services, toolkits, and microservices.

4 Building the SPDP Registry

4.1 Approach for building SPDP Registry using Source Databases

Several approaches could be considered by the Government to build the SPDP registry. One way is to begin "grounds-up" and capture the demographic/socio-economic data of residents via an elaborate on-field state-wide registration process. The key limitations of this approach include significantly long gestation periods and considerable efforts required in terms of resources. Alternatively, the Government can leverage existing national *or* state databases to expedite the building of the SPDP registry. India also has a robust and stable ID ecosystem – 'Aadhaar' and numerous other functional IDs like PAN, Ration card, Voter ID card, etc. – which can be leveraged to streamline the beneficiary verification process to create an effective SPDP registry.

Based on the assessment and analysis of viable source databases, it is advisable to establish the SPDP registry by employing a combination of the following 15 source databases, to cover the major population of the State:

i. **PDS -** Maintained by Food Supplies & Consumer Welfare Department, this has the most accurate and verified household data of beneficiaries in the State under the PDS scheme.
ii. **Krushak Assistance for Livelihood and Income Augmentation (KALIA) -** Maintained by Agriculture & Farmer's Empowerment Department, this has 100% verified Aadhaar for individual beneficiaries with the most updated data under the KALIA scheme.
iii. **Unified District Information System for Education (UDISE) -** Covers student beneficiaries enrolled across various schools of the State.
iv. **E-Municipality -** Maintained by the Housing & Urban Development Department, the Birth Certificate module of the E-Municipality database covers ~53% of the State's urban population.
v. **Energy -** Maintained by Energy Department, this has the database of electricity consumers across the State.
vi. **HRMS** - Maintained by General Administration Department, this is a repository of service records of the employees of the Government of Odisha.
vii. **MAMATA –** Maintained by the Department of Women and Child Development, to alleviate the problem of maternal and infant undernutrition.
viii. **PAReSHRAM –** Maintained by Labour & ESI Department, this is a single-stop, self-contained, cost-effective and timely digital solution for all industries/ establishments/ shops/ contractors, regarding approvals and payments related to registrations, renewals, licenses, amendments, transfers etc. under the respective acts.
ix. **Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU GKY) –** Maintained by Panchayati Raj & Drinking Water Department, this has the database of skilled rural youth who are poor, to provide them with jobs having regular monthly wages or above the minimum wages.
x. **Driving License (SARATHI) –** Maintained by Commerce & Transport Department, this is a computerised database of vehicle-related licenses across the State.
xi. **Oldage Pensions (IGNOAPS & Madhu Babu Pension Yojana) -** Maintained by Department of Social Security & Empowerment of Persons with Disabilities (SSEPD).
xii. **Scholarships -** Includes scholarship schemes of ST & SC, Higher Education, School & Mass Education, Skill Development & Technical Education, Labour & ESI and Agriculture Department).
xiii. **Student Academic Management System (SAMS) -** Pertains to Higher Edu, School & Mass Education, Skill Development & Technical Education and Sports & Youth Services Departments.
xiv. **Board of Secondary Education (BSE) and Council of Higher Secondary Education (CHSE) Results Database**
xv. **EPIC database**

The table below outlines a comparative view of key parameters across the major source databases:

Parameters	SOURCE DATABASES							
	NFSA-PDS	UDISE+	KALIA	ENERGY	E-MUN. BIRTH	HRMS	OLDAGE PENSIONS (NSAP & MBPY)	DRIVING LICENSE
Population Coverage	3.23 Crs Rural – 2.95 Crs Urban – 0.29 Crs	69.17 L Rural – 58.26 L Urban – 10.91 L	65 L	27.6 L (Urban)	37.3 L	8.02 L	48.13 L	28 L
Family Coverage	97.8 L	NA	65 L	NA	NA	NA	NA	NA
Aadhaar Seeding	74%	71%	100%	NA	NA	100%	86.5%	
Bank A/c Seeding	86%	NA	100%	NA	NA	100%	23.4%	NA
Attributes Captured	Total 18 attributes Mandatory – 14, Optional - 4	Total 31 attributes Mandatory – 27, Optional - 4	Total 15 attributes Mandatory – 12, Optional - 3	Total 21 attributes Mandatory – 10, Optional – 11	Total 18 attributes Mandatory – 16, Optional - 2	Total 23 attributes;	Total 27 attributes Mandatory – 19, Optional - 8	Total 11 attributes Mandatory – 9, Optional – 2
Unique Identifier	11-digit Ration Card No.	16-digit Unique Student ID	10-digit KALIA Beneficiary ID & Aadhaar	12-digit Customer ID	8-digit Birth Certificate Registration Number	8-digit HRMS ID	16-digit Sanction Order No.	11-digit Driving License No.

The creation of the SPDP registry involves *three* 'database' stages:

- **Stage I: Non-Verified** - This will be a 'temporary' database into which beneficiary records from the source databases will be imported. This data-import activity may be performed via a batch-mode ETL process. This will not entail an 'import of full-beneficiary records' from each of the 15 databases; but instead beneficiary records with ***only a pre-defined set of attributes*** [relevant for developing the SPDP registry], will be imported into this 'Non-verified database'. The list of pre-defined attributes needed for this process will have to be finalized by the Government.
- **Stage II: Semi-Verified** - All beneficiary records in the 'non-verified' database, will be subjected to harmonization process in this stage, and the records will be classified into 'two' clusters:
  - Conclusive Records: which are records that can establish uniqueness of a beneficiary
  - Inconclusive Records: which are 'duplicate' records which cannot establish the uniqueness of a beneficiary

  The harmonization process can be executed via an AI-based rule-driven algorithm that can match attribute values across all 15 databases to determine if there is an '*exact match'* or a *'very high probability match*'. The algorithm can also determine conditions under which the 'conclusiveness' of the beneficiary record can be confirmed. For instance, even if the "non-verified" database may

have 12-15 attributes per each beneficiary record on an average; the authorities can define the minimum number of attributes [e.g. 3 attributes – name, date of birth, father's name,] in the algorithm, that has to be either an "exact match" or "very-high probability match" to confirm the conclusiveness of the beneficiary record. Any beneficiary records that cannot pass this logic, will be the basis for classifying them as 'inconclusive' and hence, will be grouped in a separate "cluster" as outlined above.

- **Stage III: Verified** - All in-conclusive records resulting from the harmonization process will be handed over to the field-staff for 'registering' these beneficiaries in SPDP. Hence, inconclusive records will be treated as a "new beneficiary registration" case for SPDP. This field verification exercise could be implemented by Government-authorized staff (or an independent verification agency contracted by the Government). Based on the record list present in the semi-verified database, the verification staff can be given target areas [and a resident list belonging to that area] to conduct this verification process, as well as complete the 'SPDP' registration process. This process would entail the following sub-steps:
  - Verification of an 'Individual' in a household: which can be performed via the following methods:
    - If the individual's Aadhaar is available = then Authenticate (Demographic/Biometric) against Aadhaar database
    - If the individual's Aadhaar is not available = then Authenticate using any/all of these methods:
      - Use any other alternate IDs (e.g. Ration Card number) which can be used to perform a live check against the specific ID database (e.g. PDS)
      - Mobile-OTP validation

  In the next step, both sets of 'conclusive' and 'inconclusive' records are subjected to a de-duplication process. Once the deduplication process is successfully completed for beneficiaries, the semi-verified database is then deemed to be a 'verified database' [i.e. the SPDP registry] carrying their "golden' records.

All residents are required to furnish proof (e.g. proof of identity, proof of address, proof of age) via supporting documents, which would be verified by the staff and then scanned/uploaded and also directly pulled in electronic form from Digi Locker whenever required, based on beneficiary consent. Any other details that were not available for a beneficiary record in the semi-verified database (e.g. marital status) and is necessary to complete his/her registration into SPDP, will be collected/entered in the registration application. Beneficiary consent for using SPDP services [including sharing with other Departments for service delivery purposes], will also be taken during this process. Once the registration activity is complete and submitted by the field staff, it would be sent to other designated SPDP authorities for a final verification and approval, before a unique record is created for the beneficiary (i.e. his/her golden record) in the 'SPDP registry'.

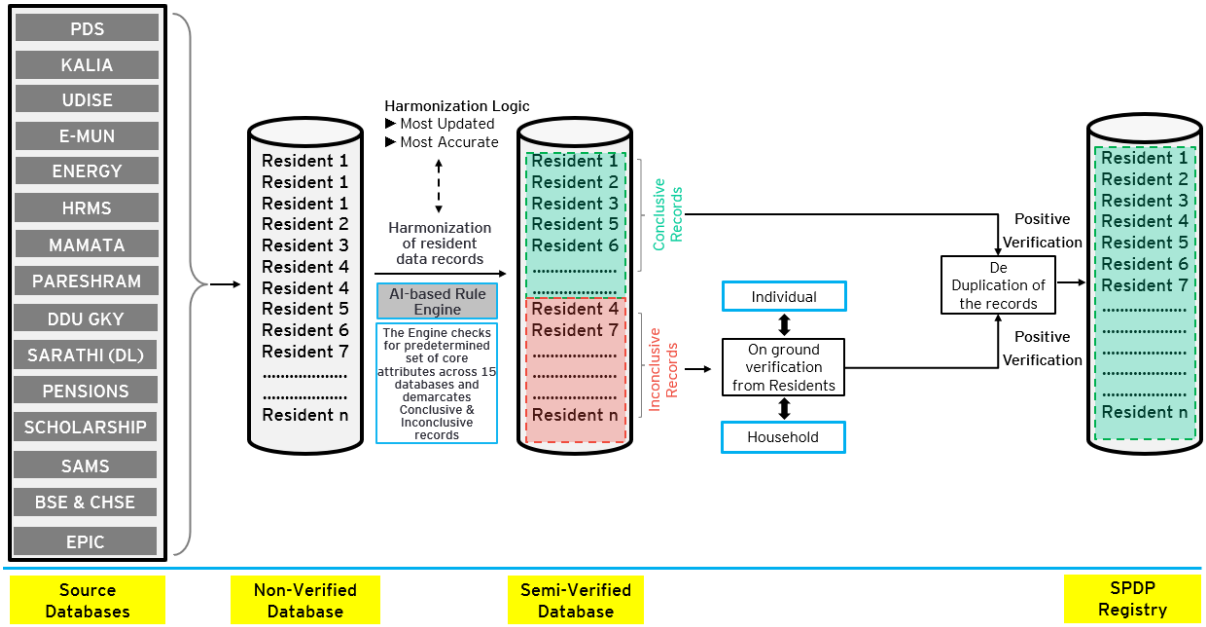

Figure 2: Building the SPDP Registry

4.2 Defining the SPDP Registry Data Structure

The choice of data attributes that are collected for a Social ID depends upon the inclusivity, cost, purpose, trustworthiness and compliance with the data protection and privacy laws. There are mainly two kinds of data:

- Demographic data
- Socio-Economic data

The choice of data collected can be evaluated based on the other factors like registration process, authentication process, types of credentials, data exchange framework, privacy and security etc.

Key considerations for the type of data collected are:

Inclusion: A barrier of participation can be generated as certain groups might not be able to provide specific data due to unavailability or due to technical difficulties

Reliability: If large number of data fields are captured for Social ID, it can lead to security risks and decrease the accuracy and completeness of information over time.

Data Protection: According to the data protection standards, minimum data should be collected to limit the risk of privacy invasion.

Sustainability: More the data fields, the longer it will take for registration and will also increase the overall cost of operations.

The PII data collected will be considered as sensitive data as certain fields are sensitive in nature and might have serious impact on the individual as they would include characteristics like ethnicity, health information, income etc. Thus, the data collected should be managed with utmost precaution by the appropriate entity.

The structure of the Social ID number has to be made in the following format:

Random: A random number for the social ID is generated using a mathematical algorithm and it has no intelligence or information of the person

Generating the Social ID

After successful registration into the program, each beneficiary will be provided with a unique "Individual-ID". Each ID will be linked to a respective unique "Household-ID" as well. In case the beneficiary is the first one to enrol from his/her family, a new Household-ID will also be generated (at the same time as the Individual-ID generation), which will be linked to his/her Individual-ID.

Nomenclature of 'Individual-ID' and 'Household-ID'

Both the "Individual-ID" and "Household-ID" should be generated as 'random numbers' and *not* as a pattern-based number with encoded information or alphanumeric string. This is recommended for the following reasons:

- A random number will avoid prospect of profiling of individuals
- A random number-based system will be more secure and avoid guessing of an individual's unique Individual-ID number (or the Household-ID) and potentially hacking the system

Based on popular ID models, this random Individual-ID/Household-ID can have a string size of anywhere between 10 -12 digits (thereby having enough numbers of the current and future State population), where the last digit of the ID is reserved as a "checksum" digit. The randomness of the number will make it difficult to guess the number. The last digit which is reserved for the checksum will help in eliminating the data entry errors, like single digit, transposition of adjacent digit, jump transposition, twin, phonetic and jump twin. The check sum digit can follow the Verhoeff method which help in eliminating the major errors successfully

In the SPDP registry, two types of attributes – 'core' and 'auxiliary' attributes – will be stored. Keeping in line with the principle of 'minimalism' in the SPDP architecture, the core and auxiliary attributes collected from each beneficiary will have to be kept to a *minimum set only* – i.e. only enough to build a unique socio-economic profile of the beneficiary. The 'core' attributes will be a combination of '*demographic attributes'* (e.g. name, gender, date of birth) and '*socio-economic attributes'* (e.g. household type, availability of drinking water etc). The 'auxiliary' attributes can be *self-declared* attributes - i.e. the attributes that provide additional information on a beneficiary (e.g. income, mobile number, bank account number). The core attributes will be 'mandatory', whereas the auxiliary attributes will be 'optional'. Beyond these minimal attributes, the SPDP registry will not collect/store more beneficiary data from the various partnering scheme databases. The following data management principles need to be adhered-to, while *capturing* beneficiary data and *updating* attributes in the SPDP registry:

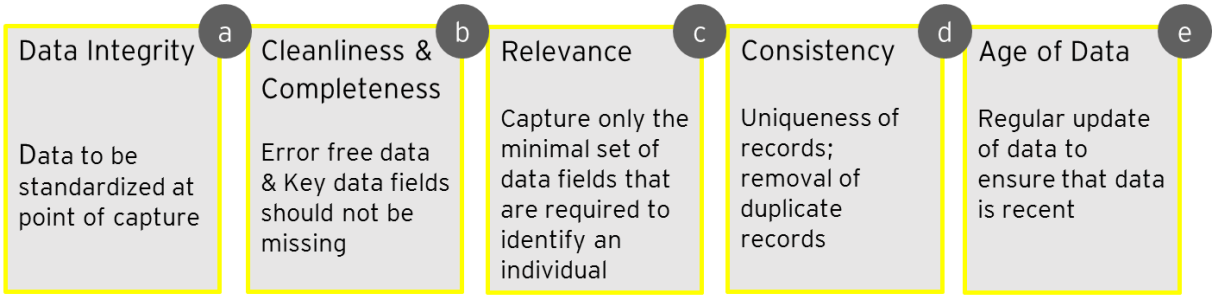

Figure 3: Data management priorities for the SPDP Registry

The following figure illustrates an indicative list of core and auxiliary data attributes proposed to be maintained in SPDP Registry. The identified core attributes (6 nos.) are already being maintained in the 15 databases identified as source data sets for developing the registry.

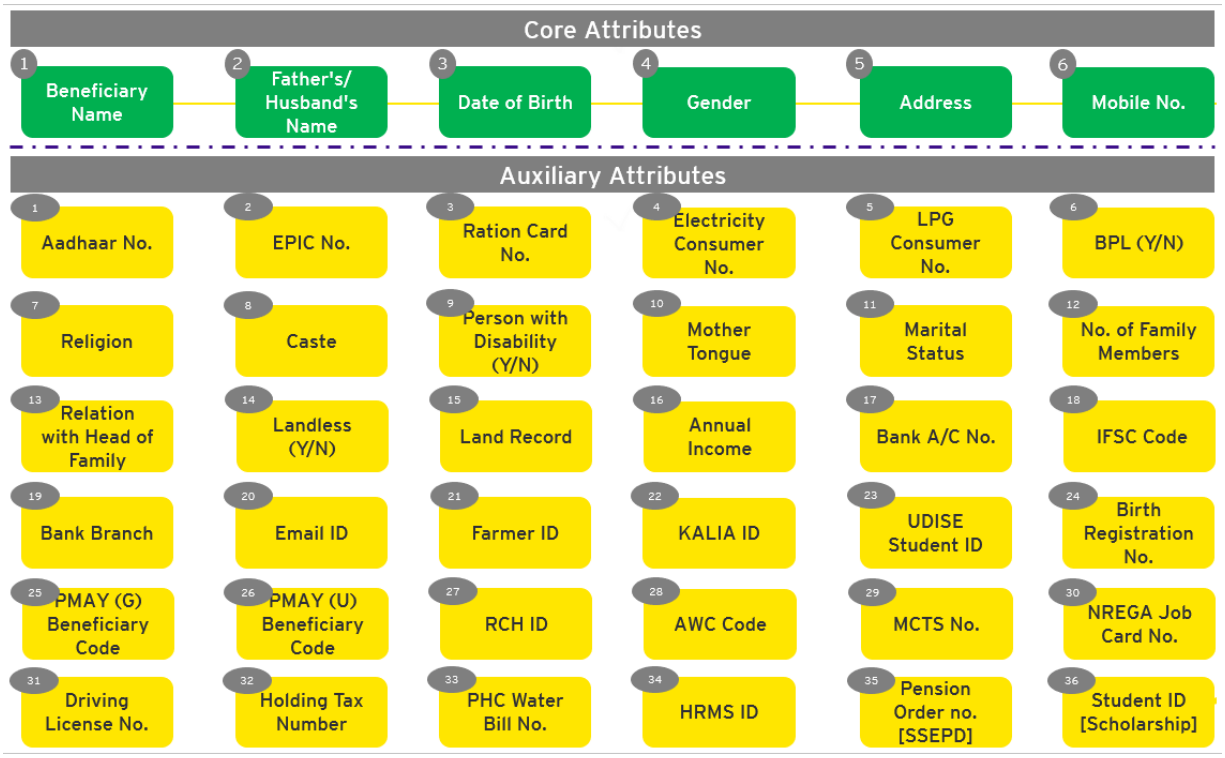

Figure 4: Data attributes for the SPDP Registry

The illustration below is a high-level summary of the registry data structure to be used in the SPDP platform architecture:

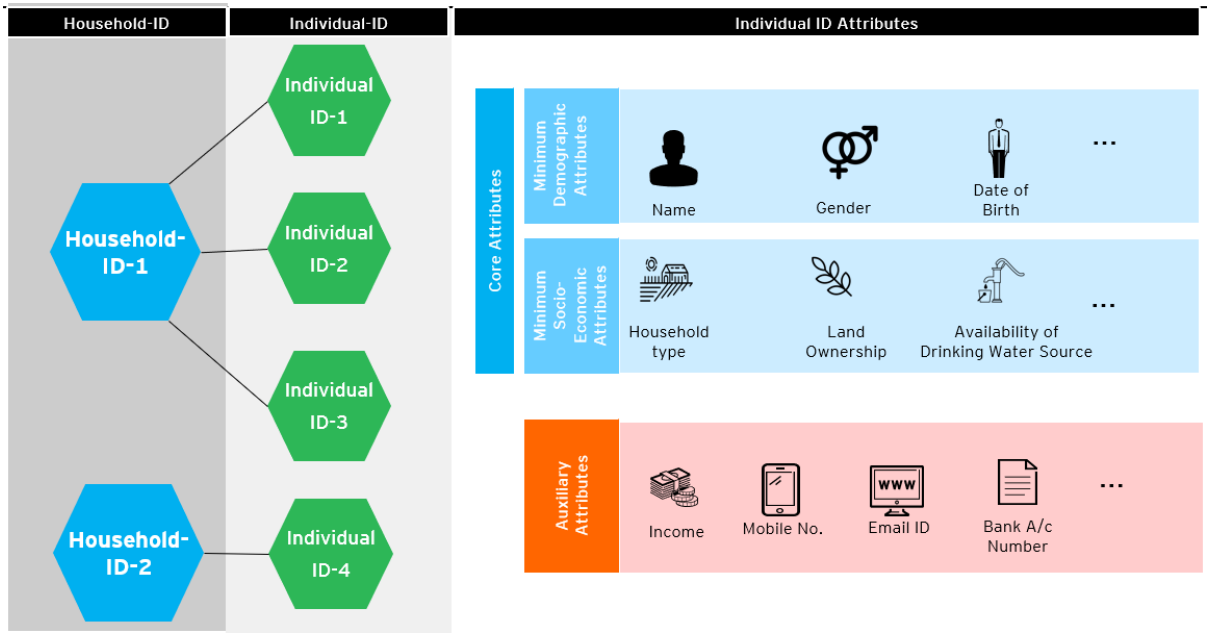

Figure 5: SPDP-ID Data Structure

It is recommended that both the Individual-ID [generated for every individual, after successful registration] and Household-ID [generated for every household, after successful registration] are shared with and stored in all partnering scheme databases as well. This is important to facilitate the easy communication of any future beneficiary record exchanges [e.g. updates to an individual's socio-economic profile, originating from any of the partnering scheme databases] with the SPDP registry. SPDP can also subsequently communicate such 'new updates' to other participating scheme databases, using the individual's Individual-ID.

5 Department and Scheme Onboarding Strategy

An important aspect that the BPR will cover is the department and scheme onboarding element of the solution. This will need a targeted approach in order to evaluate schemes and understand readiness for onboarding onto the proposed SPDP platform. It will involve familiarising the scheme owner Departments, Government Agencies and other authorities with a standardised method of identification, evaluation and consequent onboarding of schemes. It will be conducted through stakeholder interaction-based studies of the scheme owner ministries/administering departments, the specific schemes of the departments, evaluating onboarding readiness of schemes, prioritising schemes basis their maturity levels, and creating a methodology for future onboarding of new schemes as and when they need to be onboarded.

5.1 Objectives of the Onboarding Strategy

Key objectives of the department and scheme onboarding strategy are as follows:

- Standardization of scheme onboarding process through defining a prioritisation methodology to ensure seamless onboarding of present schemes and future scalability of new schemes
- Creation of a plug and play, module-based bundling of services for scheme owner departments to select from, depending on the maturity stage of their schemes
- Reduction of onboarding timelines across schemes of varying priorities through use of SDL toolkits
- Fast tracking of newly added high priority schemes

5.2 Defining the Scheme Prioritization and Roll out Process

There are 58 Centrally Sponsored Schemes (CSS - list provided at Annexure) and approximately 432 State Sponsored schemes currently operational in the State.

A list of 24 schemes have been prioritized for onboarding in the SPDP platform in phase I. The schemes beyond 24 will be taken up for onboarding in subsequent phases. Current state assessment for these 24 schemes were already taken up as part of strengthening DBT ecosystem in the State under World Bank's technical assistance program, and this basis has been considered for selecting them under phase I roll out. For the purpose of pilot roll out under phase I, 3 out of 24 schemes have been identified. The 3 pilot schemes include 1 fully online scheme (SC/ST/OBC/EBC Post Matric Scholarships of ST&SC and MBC Welfare Department), 1 partially online scheme (KALIA) and 1 fully offline scheme (Mukhya Mantri Kalakar Sahayta Yojana - MMKSY).

The 24 schemes identified for onboarding in phase I are provided in table below:

S. #	Department	Scheme Name	Fully Online/ Partially Online/ Fully Offline	Pilot/ State-wide
1	Agriculture & Farmers Empowerment	Seed Subsidy - National Mission on Oil Seed & Oil Palm	Partially Online	State-wide
2	Agriculture & Farmers Empowerment	Seed Subsidy - Rashtriya Krishi Vikas Yojana	Partially Online	State-wide
3	Agriculture & Farmers Empowerment	Seed Subsidy - National Food Security Mission	Partially Online	State-wide
4	Agriculture & Farmers Empowerment	Seed Subsidy - Odisha Input Subsidy	Partially Online	State-wide
5	Agriculture & Farmers Empowerment	ATMA and NMAET	Partially Online	State-wide
6	Agriculture & Farmers Empowerment	KALIA	Partially Online	Pilot
7	Agriculture & Farmers Empowerment	RIDF - Jalanidhi	Fully Online	State-wide
8	ST & SC Development	Post-Matric Scholarship for ST, SC, OBC & EBC Students	Fully Online	Pilot
9	ST & SC Development	Pre-Matric Scholarship for ST & SC Students	Fully Online	State-wide
10	Panchayati Raj & Drinking Water	MGNREGA	Partially Online	State-wide
11	Panchayati Raj & Drinking Water	PMAY - G	Partially Online	State-wide
12	Panchayati Raj & Drinking Water	Biju Pucca Ghar Yojana	Partially Online	State-wide
13	Food Supplies & Consumer Welfare	Paddy Procurement	Partially Online	State-wide
14	Health & Family Welfare	ASHA Worker's Incentive	Partially Online	State-wide
15	Health & Family Welfare	Janani Suraksha Yojana (JSY)	Partially Online	State-wide
16	Women & Child Development	ICDS - AWW Honorarium	Partially Online	State-wide
17	Women & Child Development	ICDS - Supplementary Nutrition (SNP)	Partially Online	State-wide
18	Women & Child Development	MAMATA	Fully Online	State-wide
19	Housing & Urban Development	National Urban Livelihoods Mission (NULM)	Partially Online	State-wide

20	Housing & Urban Development	Pradhan Mantri Awaas Yojana (PMAY) - U	Partially Online	State-wide
21	School & Mass Education	Sarva Shikshya Abhiyan (SSA)	Partially Online	State-wide
22	Higher Education	Medhabruti Scholarship	Fully Online	State-wide
23	SSEPD	Madhu Babu Pension Yojana	Partially Online	State-wide
24	Odia Language, Literature and Culture	Mukhya Mantri Kalakar Sahayta Yojana	Fully Offline	Pilot

Fully Online (05/24 Schemes)

Partially Online (18/24 Schemes)

Fully Offline (01/24 Schemes)

6 Technical Design Considerations

The table below provides a summary of the platform's technical design considerations that has to be accommodated in its architecture:

Table 2: Key Highlights

No.	Features	Description
1	**Open Standards technologies and Open Data**	SPDP shall prioritize the use of open standards for interoperability purposes between SPDP and the partner systems. This ranges from adopting various national e-Gov standards (for data vocabularies) and industry-standard messaging protocols. SPDP will also prioritize the usage of open-source technologies for various platform components, and thus stay vendor-neutral in its architecture philosophy.
2	**Plug and Play API and API enabled microservices for reuse across systems**	To support the vendor-neutrality goals further, SPDP will prioritize the usage of Open APIs as the primary means of data integration across the connected ecosystem (e.g. even if there will be proprietary technologies used in the platform). Additionally, SPDP's goals are predicated on its vision to establish itself as a "palette of services" for its connected ecosystem. To achieve this goal, SPDP will prioritize API enabled microservices as a key design requirement. Hence, connected systems can subscribe to specific SPDP microservices, if they choose to do so.
3	**Centralized IDAM to provide a One-Government View**	SPDP will have a centralized IDAM to manage access rights and privileges for authorized system users, as well as audit events in the platform. This will help in increasing the traceability and accountability in the system and reduce the potential risk of attacks to the system.
4	**Configurable workflow templates for optimizing processes**	SPDP will provide configurable templates as part of its applications and services, and thereby optimize specific processes. For e.g. the grievance redressal application can have configurable time/event templates, as well as support auto-handover of tasks across the redressal lifecycle via a workflow orchestration service.
5	**ESB-API Gateway to ensure seamless integration of systems**	SPDP's information exchange component will house an ESB-API Gateway to manage the various microservices and enable API based collaboration with external systems (i.e. scheme systems and authorized public utilities).
6	**Enhanced Security and Privacy through Policies and Tools**	In alignment with National and State's prescribed policies and guidelines for safeguarding an individual's PII, SPDP's architecture will embed the necessary privacy and security controls (e.g. around data encryption, access management, consent) as fundamental design priorities.
7	**Easily replicable blocks for better**	SPDP will be designed and developed using loosely coupled application units and micro-services. This design will support

No.	Features	Description
	refactorability and faster platform upgrades	architectural reuse, effective debugging of individual units and platform innovation without disrupting the whole platform ecosystem every time. It will thereby help in cost saving and faster development of the systems.
8	**Cleansed and updated Master data**	SPDP's registry will act as a single source of truth for various stakeholders across different government departments. The registry will embed data harmonization, cleansing and standardization techniques in its core architecture. SPDP will also facilitate data consistency and accuracy in its registry as well as across the connected ecosystem, via the help of publish/subscribe services information exchange layer.
9	**Enhanced Analytics and Query builder services**	SPDP will be enabled with advanced analytical tools and query builder services for better data mining and analysis purposes. These tools/service will also be extended to its connected ecosystem partners (like the State scheme systems). Insights drawn from these tools/services will help the State to identify key trends and use them to shape/modify various policies.
10	**Service monitorability via measurable KPIs**	SPDP's applications and services will be monitored (using standardized and monitorable processes) to ensure minimal service disruption, quality of services and ecosystem trends pertaining to specific transactions (e.g. registration and update management of beneficiaries).

7 Scope of Work

The scope of this project includes the following:

i. Requirement gathering and System Specifications
ii. Data standardization and localization with respect to LGD - AI based tool to be used for LGD mapping
iii. Solution Design
iv. Solution Architecture
v. Platform Components Development
vi. Toolkit Components Development
vii. Integration of Scheme Management Systems using data unification strategies and API development
viii. Integration of SPDP with Odisha SDG Framework
ix. Integration of SPDP with Odisha One service delivery portal
x. Solution Testing
xi. Security Audit for Framework and Application
xii. SSL Certification
xiii. Infrastructure Support
xiv. Training and Capacity Building
xv. Operations and Maintenance

The IA shall supply following items required to complete the SPDP solution scope:

i. For production deployment OCAC will procure licences for database like that of Oracle 12-C latest version, ETL, AI based de-duplication Tool and MDM Tool like that of IBM.
ii. Latest version of any software product used by IA to facilitate roll out of the solution and associated licenses.
iii. Related documentation both in hard copy and soft copy.
iv. Technologies matrix.

The IA shall provide for software license management and control. IA shall maintain data regarding entitlement for software upgrades, enhancements, refreshes, replacements and maintenance.

The ownership of all licenses supplied by IA for the purpose of this project would be with OCAC. Nature of licenses must be perpetual.

7.1 Requirement Gathering and System Specification

The IA will carry out a detailed assessment to refine the FRS provided in this RFP, incorporating the requirements provided by relevant stakeholders. As part of the requirement gathering activity, IA should study the identified data sources as mentioned in this RFP, existing scheme management portals, MIS portals of departments, Aadhaar seeding & authentication portals, departmental information & service needs and other requirements. IA shall translate all the mentioned requirements into System Requirement Specifications (SRS), in consultation with OCAC and the Consultant.

The IA has to consult all the concerned stakeholders and design detailed workflows for all the system requirements. Detailed workflows need to be signed off from OCAC. The document should contain the requirements providing visual screen shots, portal designs, login pages, reporting formats etc. for various functions and layouts as part of the system, including functions of the systems. The IA I must maintain a Traceability Matrix from SRS stage for the entire implementation.

7.2 Data standardization and localization with respect to LGD (mapping of LGD) using AI based tool

During the current state assessment of multiple schemes, it was found that the data structure of various scheme databases is not standardised, and data captured against various attributes are also not uniform and updated. It was observed that names of different administrative units were mentioned differently by different departments. In order to standardise the same, all departments are required to follow LGD (Local Government Directory). Each Departments has its own Administrative units and the common problem faced here is during matching, syncing and linking of the same demographic units across Departments. It often leads to problem while working on Demographic profiling because of the fact that the Census data is based on Local Government Directory.

There is a need for standard codification of all administrative units (Districts/Blocks/GPs/Villages/Panchayats/Urban Local Bodies etc.) as well as developmental and programmed unit hierarchies across all the Governments Departments in Odisha in accordance with LGD.

So, a robust AI based tool need to be developed which will help departments in referring the common code structure, mapping their existing administrative units with the common code and will have auto reflection of this mapped code across all its software applications.

7.3 Solution Design

As part of this activity, IA shall prepare the SPDP Design Document specifying construction details of the system, each system component's interaction with other components and external systems, and the interface that allows end users to operate the system and its functions. IA shall prepare data integration and data quality design, specifying how data from disparate source systems shall be integrated in SPDP. IA shall also develop the design for Analytical Dashboards. The IA shall be entirely responsible for the design and architecture of the system implemented to satisfy all requirements as described in this document including sizing of required hardware, if any.

The application design guidelines are as follows:

1. The solution design should be n-tier services-based architecture for all environments.

2. The solution design should focus on developing workflow and business transaction, rules management, configuration management.

3. The solution design should be done in such a manner that components are loosely coupled; ensuring that the application components are treated individually, and dependencies are reduced. The IA should ensure that addition, removal, failure or update of one component has a minimum impact on other components.

4. The IA should ensure that services should be written in such a way that they can be automated for testing. Test automation is necessary to ensure services can be upgraded, re-factored, etc. without breaking other services that use them. The IA should ensure that all services should be inherently versioned, and all invocations must specify the version of service.

5. The IA should ensure that new versions of services should be backward compatible with at least one or two previous versions, so that users of the service can start using new version of the service without mandatorily making changes to their code.

6. The solutions design should provide for service abstraction, to control what part of the service logic of a particular application needs to be private (hidden) and which parts need to be made public (consumable).

7. The solution should not only be modular in nature but be adaptive to converse with other technology components such as platforms and databases, complete with management suites or with the induction of adaptors and interfaces or even smaller bespoke solutions to support the same.

8. All applications must take into account appropriate security, performance, efficiency and maintainability issues based on the functional, technical and non-functional requirements and defined SLAs.

9. The IA needs to set up, operationalize and maintain system for APIs and web services.

10. While doing application development and maintenance the IA is expected to follow and comply with the processes as per at least CMMi Level 5 standards.

11. The ownership of the product licenses, wherever applicable, would be with OCAC. Nature of licenses must be perpetual.

12. Any proprietary software which would be part of the solution must be of the latest commercially available version.

a. Proprietary software must be supported in terms of upgrades, bug fixes, functionality enhancements and patches to cater to changes to statutory requirements by their respective OEM for the entire duration of the contract plus 6 months after end of contract.

b. OEM support should be made available on all deployed versions for the contract period.

13. The IA shall create the following environments and propose the necessary infra sizing in consultation with OCAC -

a. Development environment

b. Testing / UAT / Pre-Production/ Staging environment

c. Sandbox (for API deployment)

d. Production environment

There should not be any direct access to the data layer for users. The IA shall provide the details of data synchronization strategy both in batch mode and in real time. OCAC in consultation with IA, shall decide on the methodology of data synchronization based on service requirements. All data entry in the system shall be performed in English only. However, system should have a provision to display labels of the application software in both English and Odia languages.

7.4 Solution Architecture

In this activity, the IA shall be required to develop the SPDP solution architecture specifying functional, infrastructure, data, deployment, network and security architecture for the proposed application.

The guidelines to be followed for developing the architecture are as follows:

1. Solution components should be based on open standards and should be provided with necessary support.

2. The solution design should be based on open industry standards and protocols.

3. The solution should be centrally deployed and globally accessed.

4. The solution should provide interoperability across cloud and on-premise platforms.

5. The solution should preferably follow design driven architecture.

6. The solution will use Micro service-based Container Architecture.

7. The solution should be modular, scalable and flexible as a true on-premise deployable solution.

8. Mobility services should be a key solution component i.e. all the user interfaces can be accessed over mobile.

7.5 Platform Components Development

The solution has to be developed for the following components of SPDP. The expected features and functionalities of each module have been described in detail below. All the platform components mentioned can be developed afresh or can be part of a solution developed on open standards:

I. Front-end Application Components -
1. Beneficiary Management
2. Grievance Management
3. MIS/ Analytics

II. Information Exchange Components -
1. Internal Services
2. External Services

III. Integrated Social Registry Components -
1. Registry Management
2. Attribute Manager
3. Key Management

IV. Scheme Workflow Creation.

V. PFMS/ iFMS Fund Management and Payment Reconciliation.

7.5.1 Front-end Application Components

1. **Beneficiary Management -** This application would manage all functions related to the registration and update of beneficiary data in SPDP. This application can be provisioned via the web and mobile platforms and used by SPDP registration staff. The field-verification staff also use this application during the initial SPDP registry creation stage. Additionally, this can also be provided to beneficiaries as a "self-registration" application (via a Web or Mobile platform). A high-level view of various features that this component can accommodate is outlined in the table below:

Table 3: Beneficiary Management

Features	Functionality
Registration in SPDP	Provision to add beneficiary information to the SPDP registry, during the registration of beneficiaries. This will also have a provision to scan/upload supporting documents provided by beneficiaries. Beneficiary 'consent' can also be captured in this module, during the registration process.
Registration for Offline Schemes	Provision to register for offline schemes in SPDP platform. This will also be followed by record matching and de-duplication. Digital signature based authorised approval will be required during scheme registration.

Features	Functionality
Composite Application Form	Provision to apply for different schemes through a Composite Application Form (CAF). The CAF should have as much as data from Beneficiary registry and split to Schemes and Data will be auto populated in Schemes.
Beneficiary and Scheme Passivation	Provision for Passivation and Archival of beneficiary details in SPDP registry when a beneficiary gets deceased. This should be done by authorised personnel only. Beneficiary Passivation data can be retrieved as an when required. Also, there should be provision for passivation and archival of scheme details in SPDP registry when the schemes get obsolete, withdrawn or temporarily closed. This should be done by authorised personnel only. Scheme passivation data can be retrieved as an when required.
Data Update	Provision to update beneficiary data/information. The update may happen in one of the following ways: • Update by beneficiary in an established SPDP touchpoint • Update by scheme owners (directly) from their own access points This will also have a provision to scan/upload supporting documents provided by beneficiaries.
Search	Provision for authorized SPDP system users to search/view beneficiary data from the SPDP registry, based on input parameters (e.g. search by 'attribute')

2. **Grievance Management -** This application should manage all functions required to automate the grievance/complaint management lifecycle for SPDP users (i.e. operational users of various schemes). A high-level view of various features that this module can accommodate is outlined in the table below:

Table 4: Grievance Management

Features	Functionality
Ticket Management	Provision for technical helpdesk staff to raise complaints (initiated by both 'beneficiaries', 'SPDP system users' and 'program partner's) and to track their status for them. Examples of technical tickets that could be managed through this module include: • Issue #1 – "Unable to view reports" • Issue #2 – "Beneficiary authentication service has failed"
Feedback Management	Provision to manage feedback (e.g. collect feedback on issue resolution/feedback on issue escalation) provided by the SPDP system users
Schemes verification by Beneficiaries	Provision for report creation on beneficiaries availing benefits from multiple schemes, which will be published at the GP level for verification by beneficiaries with respect to inclusion or exclusion errors.

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3. **MIS/Analytics** – SPDP should provide MIS reporting and analytical tools to support ongoing monitoring efforts by SPDP stakeholders, as well as the participating scheme owners. This will help them conduct fair and transparent evaluations of an individual scheme's impact, as well as assist them in planning and budget allocation purposes. These insights can help the Government in supporting the various Departments around efforts to increase adoption and proactive design-changes of their social welfare schemes. Measurable and traceable indicators can be defined for each program/scheme and then monitored on a regular basis. A high-level view of various features that this module can accommodate is outlined in the table below:

Table 5: MIS/Analytics

Functions	Description
MIS reports	Provision to support program monitoring requirements via: • Scheduled reports - which are generated at pre-defined time intervals and shared with respective stakeholders. • On-demand reports - which are generated as per the need of stakeholder(s) in real time. • Some possible examples can include: i. Report on potential beneficiaries who did not enrol with possible reasons [this can be used by SPDP admin users] ii. Report on type of grievances with handling time and feedback from the users *Note: Several reporting indicators to assess the efficiency and effectiveness of social protection programs (individually and as a whole), can be defined in this SPDP component.*
Analytics Dashboard	Provision for stakeholders (both SPDP operational users as well as Scheme owners) to track metrics/key data points, perform trend analysis, view simplified insights of complex data-comparisons etc. *Note: SPDP can support the participating scheme owners in M&E needs of their individual schemes, via this component. A platform consideration could be inclusion of big-data based analytics component; comprising of an enterprise data lake, open-standard based data access layer and custom data marts to support self-service visualization dashboards for SPDP admin users/participating scheme owners.*

A SAS analytical tool is currently being used for analysing statistical data under the Odisha State Dashboard project and SPDP platform may leverage the tool for data analytics and reporting purposes. The operational modules/ functionalities of existing SAS tool are as follows:

i. SAS Visual Analytics (Used for data analytics & reporting)
ii. SAS Text Analytics (Used from analysing text from various sources of data)
iii. SAS Data Management Standard
iv. SAS Job flow Scheduler
v. SAS Visual Investigator
vi. SAS Data Management Standard
vii. SAS Add-on- SAS/Access

7.5.2 Information Exchange Components

All data exchanges between SPDP (including both front-end application modules and the back-end registry) and external partner systems will be facilitated via a standards-based data exchange layer. This component will use a set of mutually agreed messaging formats and data vocabularies, for these information exchanges between SPDP and these external systems. Few architectural considerations that can be adopted in the technical design of this component include:

1. Data sourcing and extraction methods: Can be addressed via 'Pull/Push' methods between SPDP and relevant external systems/databases
2. Exchange frequency: Periodic (asynchronous), Real-Time (synchronous)
3. Data exchange formats: Open APIs, XML, CSV, delimited file formats

Key components of the SPDP information exchange, include:

Table 6: External Services

Sub-components	Functionality
Internal Services	
Individual-ID Generator	SPDP should have the capability to generate an individual social protection ID for all beneficiaries registered in the platform. This ID should be unique for an individual beneficiary and can also have linkages to all schemes that he/she is registered for. Once a beneficiary is registered with a scheme for the first time in SPDP, a social protection ID can be generated (and which is also linked to his/her other attributes such as Aadhaar number and individual scheme IDs). The same social protection ID will be used irrespective of how many schemes he/she then registers for. To support such a vision, it is important that SPDP has a social protection ID generator utility as a key component. This ID can have a nomenclature, as defined by the Government. This unique social protection ID will also be a useful tool for the Government stakeholders to view and analyse relevant information around beneficiary participation in the many Government schemes, for policymaking and research purposes.
Rule Engine	This will be a centralized rule engine that outlines all logic/conditions pertaining to various features in SPDP. These rules can then be applied to specific module features and will keep the functional modules less focused on data entry and centralize rule-definition to a single point/single set of users. Having such predefined rules will enable these modules to operate efficiently, by reducing dependency on data entry.

<table>
<tr><th>Sub-components</th><th>Functionality</th></tr>
<tr><td>Role Manager Service</td><td>This service will allow SPDP admin users to manage the role-based privileges and permissions for various authorized users of the platform and associated services. A high-level view of features that this service can accommodate is outlined below:
<table>
<tr><th>User</th><th>Key Roles</th></tr>
<tr><td>Admin (e.g. Dept. of Finance SPOC)</td><td>• Assigns roles and access privileges to the users
• Approval of registering users
• Primary data management (e.g. define standardized format)
• Beneficiary/Scheme Analytics</td></tr>
<tr><td>Scheme Owners</td><td>• Uploading of scheme information
• Authentication and registration of beneficiaries
• Disbursement/payment initiation for the beneficiaries</td></tr>
<tr><td>Beneficiaries</td><td>• Registration for scheme(s)
• View scheme/payment/other status information</td></tr>
</table></td></tr>
<tr><td>Audit Log</td><td>This is a service to manage an audit trail of all the transactions occurring on the information exchange layer, on a day-to-day basis</td></tr>
<tr><td>Data Dictionary Service</td><td>This is a collection of descriptions of the data objects for those who need to refer to them (e.g. Data type, format, structure)</td></tr>
<tr><td>Event Handler</td><td>This service can be used to handle different messaging events on the SPDP Exchange</td></tr>
<tr><td>Orchestration Service</td><td>This service can be used by SPDP administrative users to automate key SLA-based processes (e.g. auto-assignment of tasks in the grievance process, providing scheduled reports to designated users in their task queues for action)</td></tr>
<tr><td>Deduplication service</td><td>This service provides the ability to schemes to view duplicate entries in their databases, which they can address basis their discretion</td></tr>
<tr><td>Record Matching Service</td><td>This service provides the ability to identify where records are located based upon criteria such as an ID and/or record data type, as well as providing functionality for the ongoing maintenance of this location information.</td></tr>
</table>

Table 7: Internal Services

Sub-components	Functionality
External Services	
“Publish” Service	This is a service provided to participating external systems (e.g. systems of participating Scheme owners) so that they can share data updates (could be bulk or granular record updates) that needs to be persisted in the SPDP registry
“Subscribe” Service	This is a service provided to participating external systems (e.g. systems of participating Scheme owners), so that they can subscribe to updates (broadcast from SPDP) that they wish to be notified about.

Sub-components	Functionality
"Consent" Service	This service will allow SPDP admin users to manage the consent privileges for the registered beneficiaries in the SPDP registry. Based on a beneficiary's preferences for operations permitted on his/her data in SPDP (i.e. permissions to view profile, permissions to share profile with another user), system users can use this module to update his/her profile accordingly. Via this service, end beneficiaries can create electronic consent(s) to determine which information they would be willing to permit for sharing with other schemes and under what conditions. The SPDP consent manager service shall operate at an attribute and scheme level. A few considerations that can be accommodated in the design of this service include: • Approved Beneficiary Information = What data is being collected/stored/used/shared? • Approved Administrators = Who has the permissions to manage (collect/store) the beneficiary data collected? • Approved Users: Who has the permissions to transact with a specific beneficiary data set (e.g. scheme owners have access to view beneficiary eligibility)? • Approved Use: What can the beneficiary data be used for (e.g. for sharing beneficiary details in a payment file for benefit disbursements)?
Query Builder Service	This service will enable the departmental users to analyse operational trends (e.g. fraud patterns) based on the data available in the SPDP registry.
Transliteration Service	This service can be used by SPDP users to convert system inputs (text-form) from the source script/language to another script/language. This is an important component for SPDP, since a few State schemes capture/store scheme & beneficiary-related information in Odia language, within their databases. Hence, there is a need to support data transliteration (e.g. convert to English), when onboarding such schemes and storing the required data in the SPDP registry.
Alert/Notification Service	This service can be used to provide timely information to stakeholders on specific status updates (via various channels – e.g. Email/SMS)

Linkages with Public Utilities

The SPDP platform can also interface with public utilities for fulfilling specific transactions (as outlined below) via APIs provided in this 'Information Exchange' layer.

Note: The listing below is only an indicative set of external public utilities that can be accommodated for integration with SPDP. A more comprehensive set of external public utilities can be finalized by SPDP's institutional authority and its appointed implementation partners.

1. **Aadhaar**: The backbone of any successful service delivery platform is the 'authentication' process used to accurately *identify* beneficiaries prior to providing services to them. A key 'new beneficiary' registration step in SPDP, is the process for independently verifying the beneficiary (at an 'individual' and ''household' level). Only upon successful completion of these verification steps, would they be registered in the SPDP registry. In the Indian context, Aadhaar is often used to uniquely identify individuals in many Government social protection programs. Hence, a SPDP - Aadhaar integration can be used to execute the 'individual verification' step, where each beneficiary is uniquely authenticated (either demographically or biometrically or both) against the Aadhaar CIDR using the publicly available Aadhaar APIs.

2. **Digital Signature and e-Sign:** SPDP will provide "Digital Signature" and "e-Sign" service to department users for *certifying* documents. To enable this, SPDP can provide an API-based interface with authorized digital signature service provider(s), which can then provision the use of Digital Signature Certificates (DSC) by the requesting users for certifying their documents. SPDP will also have to adhere by with consent policies and rules defined in the program to ensure that the access provisions are adequately defined for all potential users of this SPDP service.

3. **Digi Locker:** Digi Locker (a 'Digital India' initiative) is a platform for digitally storing and verifying documents in a seamless manner, thereby eliminating the use of physical documents. It provides a secure cloud-based platform for storage, consent-based sharing and verification of documents. In Odisha's context, a SPDP – Digi Locker interface can help departmental users to store, access and share relevant documents for fulfilling specific use cases (e.g. if schemes need access to beneficiary documents stored in his/her Digi Locker account as a 'valid proof', before issuing a specific public service to him/her).

4. **E-Taal:** Electronic Transaction Aggregation & Analysis Layer (E-Taal) is a public service to measure the impact of various e-Governance initiatives at national and state levels. The dashboard also facilitates quick analysis of transaction data in tabular and graphical forms enabling users to drill down to lowest level without compromising on privacy, security or integrity of the application software. E-Taal can be considered as a part of linkage to external utility for SPDP platform, where the real-time transactions will be captured.

7.5.3 Integrated Social Registry Component

The SPDP registry can be envisioned to consolidate and organize relevant metadata (demographic and socio-economic attributes) pertaining to all registered beneficiaries.

Box 2: Understanding the Different 'Social Registry' Models

Various social registry models are used globally. The variations seen in such models often depend on the digital maturity of a country's public service delivery system, their associated operations and institutional arrangements. Two critical aspects of social registry are (1) number of onboarded programs and (2) method of capturing beneficiary data. Social registries serving as common gateway for multiple programs are referred to as integrated registries.

A key feature of Social Registries is whether they allow for "dynamic inclusion" – where any individual can be registered (or have their existing records updated) into a social registry at any point of time and not in 'prescribed registration periods'. In other words, a 'dynamic inclusion process' would ensure that access to registration is open and continuous – usually with an on-demand application window for citizen interface – so that people can register when in need or update their records if their situations change. *The concept of dynamic inclusion in social registries is closely related to the progressive realization of universality and the implementation of the human rights agenda (which is also in compliance with Sustainable Development Goals (SDGs) to support the implementation of social protection systems and measures for all, with expanding coverage of the poor and vulnerable by (SDG Goal 1.3)).* Around half of the countries use on-demand methods of different forms which allows for regular updates of personal information by citizens in the registry. In the most advanced cases (such as Chile), the personal information of any individual is further updated on a regular basis via authorised public data sources [such as civil, land and vehicle registries]. The social registries of these countries can be described as "dynamic" in nature.

Despite the significance of "dynamic inclusion" as a core registry principle, many countries operate registries with fixed lists of beneficiaries. These countries continue to use periodic (often every 3-5 years) large-scale survey sweeps. These registries are generally described as "static", as there are usually no updates to personal information in between surveys. Such systems are very common in developing countries - *where* the social protection programs are rather new, *or* the coverage is small, *or* where the fiscal space constrained, *and* where the administrative capacity is limited. Although such large survey-based mass registration exercises often work well to begin with, the *risk of errors of exclusion and inclusion* increases with the passage of time. This is because information pertaining to beneficiaries can become out-of-date, and thereby resulting in exclusion of households/beneficiaries. Moreover, the risk of exclusion is multiplied when these "fixed list" static systems serve multiple programs, as they could be denying numerous benefits and services to potentially eligible individuals or households.

For Odisha, the beneficiary information collected via SPDP is not a "source-from-scratch" exercise, as there are comprehensive programs (e.g. KALIA, PDS) which already have significant population coverage in the state. Additionally, SPDP services are not envisioned to be limited to any one program but serve multiple programs (which will progressively increase over time as well) instead. It is recommended that the SPDP registry be designed as an integrated registry based on the principle of 'dynamic inclusion'- i.e. where the registry is dynamically updated and hence serves to provide the most accurate information.

A high-level view of features that the SPDP registry can accommodate is outlined below:

Table 8: High Level Features of Registry

Sub-components	Functionality
Registry Management	Provision to define/manage information on beneficiaries registered in SPDP, with the social protection programmes within different sectors. Information defined by the authorized system users in the 'beneficiary management' application; will be persisted into this registry. Information on individual beneficiaries can be accessed from the registry, via the 'search' function in the beneficiary management application. Provision for collection of user information and documentation to register

Sub-components	Functionality
	the intended population for the different scheme/s Collect beneficiary metadata, for e.g. • Demographic attributes • Socio-economic attributes Validate details like Aadhaar, Scheme eligibility etc. with the respective source systems
Attribute Manager	Provision to define/amend data attributes (e.g. demographic, socio-economic).
Key Management	Provision to manage the data sets that are shared between the scheme owners and the SPDP platform using a public private key combination.

7.5.4 Scheme Workflow Creation

As multiple schemes are rolled out over SPDP, there are multiple levels of approvals required from the various actors associated with rolling out of the scheme. They could be spread across Departments, Directorates, Districts, Blocks, Gram Panchayats to even the Village or cities level. There should be a workflow engine which should allow user management of entire ecosystem involved in rolling out of the scheme. This component should allow workflows to be created dynamically for offline schemes based on the guidelines from scheme implementing department.

Also, there has to be provision to create newly designed schemes in the SPDP platform, as when declared by Government through e-Forms or web forms and workflows. The new scheme created should have provision to populate Beneficiary lists as per filters.

7.5.5 PFMS/ iFMS Fund Management and Payment Reconciliation

The SPDP platform shall be used to do basic fund management. The beneficiaries who have been identified for a scheme, benefit amount, bank account details, etc. shall be made available on SPDP. These details need to be approved and sent to the corresponding agencies for payment to the beneficiaries.

Major State Government funds are paid through the iFMS system. iFMS, in turn, interacts with RBI's e-Kuber system to make payments into the beneficiaries' accounts. However, e-Kuber system does not interact with any external systems and all interactions are through iFMS. The IA shall be responsible for the integration of iFMS with the SPDP platform through data exchange layer. iFMS will return a scroll with the sender's bank, receiver's bank and RBI's details which need to be reconciled on SPDP.

Major Central Government funds are paid through the PFMS system. The PFMS system needs to be integrated with SPDP platform through the data exchange layer. PFMS system shall consume the APIs exposed by the data exchange platform. PFMS reconciles the transaction and sends an affirmation report to SPDP.

7.6 Toolkit Components Development

The Toolkit components list given below is only indicative in nature. However, the IA shall be responsible for identifying any other toolkit components that may be necessary for the platform. All the

toolkit components mentioned can be developed afresh or can be part of a solution developed on open standards:

7.6.1 Vaulting

Aadhaar is not allowed to be directly seeded into any registry. Aadhaar shall be vaulted on the SPDP platform. This vaulted Aadhaar shall be used to randomly generate a Social Protection ID (SPID) for every beneficiary. The Aadhaar and the SPID shall be mapped on the platform. Aadhaar data vault is already present in the Odisha SRDH application, which will be leveraged for this purpose.

The Vaulting of Aadhaar numbers of beneficiaries on the platform shall be done by IA. The IA team shall study the Aadhaar Act, Supreme Court of India guidelines and any other guidelines issued by UIDAI to study the Aadhaar Vaulting procedures and accordingly undertake vaulting the Aadhaar.

7.6.2 Authentication

Users of the scheme need to be authenticated in order to be part of the workflow, approve applications, check eligibility, verify details, etc. Authentication shall be provided as a toolkit service to all the users of a scheme. The IA shall conceptualize and develop the Authentication toolkit.

7.6.3 Auto-Fetch

When scheme application forms or other data are displayed, most part of the data may be available with the platform/ scheme owner departments. These data sets need to be automatically fetched and pre-filled into the form. Where data is already available with the platform/ scheme owner departments, the users shall not be asked to fill again but should be auto fetched and pre-filled. This feature needs to be developed as a toolkit.

7.6.4 Single Sign-On

When a user is signed on to the SPDP platform, the user shall not be asked to sign-in again for any other services. The single sign-on feature shall be enabled as a toolkit. The administrator shall be able to enable the single sign-on for the set of services that he shall deem appropriate for a particular user and configure the same. This feature can be similarly enabled for all users.

7.6.5 Analytics

Every scheme shall need a different set of analytics based on the prescribed rules. These analytics can be developed as a toolkit so that SPDP users can use those analytics to improve processes and beneficiary targeting. This shall be provided as a toolkit component. These in the form of dashboards shall be made available, based on the roles of users accessing the platform.

7.6.6 Eligibility Check through Rule Engine

The critical function of every scheme implementation is the eligibility check of prospective beneficiaries for a particular scheme. An “eligibility check” engine is needed to run a beneficiary’s credentials on it and determine the schemes he or she is eligible for. A Rules Engine shall be proposed by the bidder for the same. The eligibility check engine shall be provided as a toolkit component for SPDP.

7.6.7 Erase (Right to Forget)

The ‘Right to forget’ is an important privacy feature that needs to be enforced on the platform. Every prospective beneficiary who requests an “erase” function shall be made available of those features. No

other scheme owner departments or other stakeholders shall be privy to that data. This shall be provided as a toolkit component.

The IA shall design and develop components/ functionalities that are required to address the requirements of SPDP as mentioned above. The IA shall develop the solution in their own test environment. The IA shall supply the following documents along with the developed components:

i. Business Process Manual
ii. Data Model Descriptions
iii. User Manual
iv. Operational Manual
v. Configuration Manual
vi. API Documentation
vii. Frequently Asked Question (FAQ) guides
viii. Any other documentation as required for usage

7.7 Integration of Scheme Management Systems using data unification strategies and API development

SPDP's information exchange component will house an ESB-API Gateway to manage the various microservices and enable API based collaboration with scheme systems, as well as authorized public utilities viz. Digital Signature, e-Taal and Digi Locker. It should adhere to universal standards like WSDL, UDDI, WSIL, SOAP and WS-I.

The IA shall enable this integration with scheme systems and external public utilities. The system should support both push and pull of data from systems proposed to be integrated. The IA will have to co-ordinate with stakeholder departments for facilitating this integration process. The SI is expected to conduct due diligence of the existing schemes applications and submit their report to OCAC, before integrating them with SPDP. The SPDP solution should be designed in such a manner that any future integration does not require any changes to system.

7.8 Integration of SPDP with Odisha SDG Framework

SPDP will facilitate beneficiaries availing benefits from social protection schemes dealing with poverty reduction, healthcare, education, women development & empowerment and scholarships to automatically enrol themselves in newly designed schemes, in order to avail cashless, paperless and faceless access to social benefits and services in a hassle-free and time bound manner. This is going to help the State towards improving those SDG goals, where state-index score has been lower than the national index score (e.g. Goal 1: No Poverty, Goal 3: Good Health and Well-being).

In order to achieve and monitor the same, IA has to undertake a detailed study of the Odisha SDG Indicator Framework developed by Planning and Convergence Department, Govt. of Odisha and define certain KPIs which will be integrated with the State's SDG framework.

7.9 Integration of SPDP with Odisha One Service Delivery Portal

Odisha One is a unified service delivery portal developed by OCAC, to better integrate G2C services and improve quality of service delivery with enriched citizen experience. The portal is aimed to achieve transparent and responsive governance for all, through a fully automated, streamlined self and assisted mode service delivery (through Mo Seba Kendra Centres) capabilities. Odisha One is a front-end interface for all e-Governance Applications of various Departments. The portal framework is designed in such a manner that various applications can utilize this framework irrespective of their level of automation.

IA has to undertake a detailed study of the Odisha One framework and integrate SPDP with the framework.

7.10 Solution Testing

The IA shall design the testing strategy including test cases and conduct testing of various components of the solution configured/ customized. The solution testing shall at least include Conference Room Pilot, Unit Testing, System Integration Testing, Security Testing, Performance Testing and User Acceptance Testing (UAT).

The SI is responsible to identify and inform OCAC regarding testing requirements and impacts. IA shall work in a manner to satisfy all the testing requirements and adhere to the testing strategy outlined. SI must ensure deployment of necessary resources, tools, staging servers and related logistics during the testing phases. The IA shall perform testing of solution based on the approved test plan, document the results and fix bugs found during testing. SI shall ensure that each module and feature developed as part of scope is tested as per the latest version of the IEEE 730 (Software Quality Assurance Processes) standards and shall comply with Guidelines for Indian Govt. Websites (GIGW - https://web.guidelines.gov.in/).

After completion of development work for SPDP application, OCAC will conduct reviews of development work performed by the IA as UAT. As part of this, the IA shall be responsible for:

i. Preparation and submission of test strategy, test cases and test results
ii. Demonstration of module-wise functionalities/ features before OCAC in staging environment
iii. Support OCAC and its designated authorities for conducting the testing and provide access of systems as required by them
iv. Rectification in the new application for any issues/ bugs/ improvements/ enhancements/ up-gradations suggested (if any) during the UAT, without any additional cost

After achieving following numbers of transactions, UAT shall deemed to be declared:

i. 100% of beneficiary data records imported from identified source databases to the unverified database.
ii. 3 lac SPIDs created.
iii. 24 no. of identified phase 1 schemes successfully integrated with SPDP.
iv. 480 no. of user registrations.

NB: The bidder shall ensure that each module & features developed for SPDP is tested as per the latest version of IEEE 730 standards

7.11 Third Party Audit

The SI needs to ensure that the solution is in compliance with CERT-In security policy and guidelines. IA shall appoint CERT-In empanelled auditor who shall be responsible for performing security audit of the solution, once in every six months.

The cost of audit and rectification of non-compliances shall be borne by IA. IA shall carryout security audit before go-live of application and obtain the safe-to-host certification. The audit shall be performed on below mentioned aspects, at a minimum:

- Functional Testing
- Accessibility Testing
- Application Security Audit
- Vulnerability Testing

7.12 SSL Certification

The IA shall carry out SSL certification and ensure the following:

i. Secure connection between Client and Server through secure protocol HTTPS
ii. Encryption of data during transmission from server to browser and vice versa
iii. Encryption key assigned by Certification Authority (CA) in the form of a Certificate
iv. SSL security in the application server

7.13 Infrastructure Support

The SPDP solution is proposed to be hosted in Odisha State Data Centre (OSDC). The SI shall deploy the application over hardware infrastructure to be provided by OCAC. IA shall be responsible for end-to-end management of configuration, installation, deployment and hosting of the application.

Post award of contract, IA shall share the details of hardware sizing, deployment architecture and any other required information. OCAC would validate, procure and commission the infrastructure. SI shall ensure that deployment of application is as per the DR policy of OSDC.

Study and Feasibility Assessment

The IA shall perform detailed assessment of envisaged solution requirements and assess the infrastructure requirements including Servers, Storage and Security, etc. for operationalization of the SPDP solution. The existing infrastructure of OSDC shall be leveraged for the project to avoid any additional cost to the project. IA will access existing SDC infrastructure and prepare a gap analysis report for hardware/software which needs to be procured as well provide detailed specifications of hardware to be procured.

Infrastructure Installation

The IA will assist OCAC in overseeing the working of the infrastructure vendor, if any. The IA shall deploy the solution at the Data Centre and Disaster Recovery of OCAC as per the procurement cycle and shall ensure that the application software services are made accessible to the relevant SPDP stakeholders. The IA shall ensure that the production operations of the application stack is tested from DR on a periodic basis, once the DR is being made operational.

Implementing System Software and Tools

The IA shall design, implement/customize the solution and shall develop any additional tools required to monitor performance indicators. The observations of the audit shall be addressed and same shall be tested and verified again before go-live.

Business Continuity Planning (BCP)

DC and DR integration for all modules and components should be such that it is possible to operate any module from DR in case of any disruption at DC site. The IA may suggest a better methodology for optimal usage and cost benefits. IA will provide a BCP and DR plan as part of business continuity plan.

NB: The proposed DC site will be Odisha State Data Center (OSDC), located at OCAC Building, BCP site will be at IT Center, Odisha Secretariat and OSDC's DR site is at National Data Center, New Delhi

Documentation

The IA shall undertake preparation of documents including that of infrastructure solution design and architecture, configuration files of the infrastructures, user manuals, Standard Operating Procedures, Information Security Management procedures as per acceptable standards. The IA shall take sign-off on the documents/ deliverables from OCAC and shall make necessary changes before submitting the final version.

7.14 Training

The IA should build a proactive approach to capacity building and training management focussing on following aspects:

Content Curation

This involves assessment of how much training related content is already available, readily usable and estimation of training content which needs to be either developed or procured to match training requirements for SPDP. This phase needs to be repeated at a pre-determined frequency to check gaps in training management. Training requirements may be divided in the following manner:

- Project sensitization and IT processes training
- Database schema and administration training
- Training on individual SPDP modules

On the basis of findings in this phase, additional training requirements may also emerge which would be approved via consultation with OCAC.

Design and Develop Curriculum

This aspect involves detailed discussion with OCAC, scheme stakeholders and the Consultant to chalk out a training curriculum customized as per target audience. Once a training curriculum is finalized, all resource mobilization, logistics arrangements and printing of training materials would be finalized as per discussion with stakeholders. Training curriculum would include the following:

- Identification of Training Areas
- Training Content Creation
- Training Calendar
- Training Roll Out Plan

Once all the training requirements are discussed and deliberated with respective stakeholders, a detailed training curriculum with training content, training calendar and training roll out plan would be prepared and shared with concerned stakeholders. It is also proposed that training contents/ user manuals shall be made available by the SI to target audience in a downloadable format, so that they may refer/ download it for personal reference, as and when needed.

Learning Model

Based on comfort level and liking of target audience along with magnitude of training requirements, adequate mix of online and classroom training model will be designed by the IA.

User Adoption and Awareness

This aspect would focus on the evaluation of training effectiveness and user participation via various online and offline tools by the IA. The trends in adoption and feedback of training material and methodology would act as a basis for future enhancements in change management methodology. Since the mode of training would include both online and offline channels, channel specific metrics will have to be captured by IA to gauge user adoption and awareness of training programs and curriculum among participants.

Technology Component

Since, the mode of training will have to be a mix of both offline and online channel, technology aspects pertaining to training in areas of bandwidth requirement, enterprise grade conference software and hardware solutions, creation of omni-channel content and replication of offline training content into online using technology will be crucial for the IA for creating a robust training management strategy.

The implementation approach for training to be adopted by IA would primarily consist of following steps:

Where we are

- Study the existing capacities at all critical levels of operation, monitoring and implementation of initiative to identify action areas
- Study existing skill level of employees deployed at various levels within the scheme departments
- Conduct a dip-stick survey of personnel in the locations most affected due to process changes. The survey responses will provide IA with data to identify gaps between desired and expected skill levels. This will involve an understanding of strategic priorities of computerization initiative and expectations from the new/re-engineered process

Where we want to be

- Based on the above current state assessment, IA has to develop a comprehensive training strategy in consultation with stakeholders, to build capacity across the various levels of the process
- Identify the priority training areas and programs in consultation with stakeholders
- Programs designed will be aimed to serve immediate objectives of scheme departments and be accordingly scheduled ahead of other programs
- Identify training needs for the scheme department's workforce.

How to get there

- SI will develop the training schedule along with organizational and level/role-wise assessment of training needs, in consultation with OCAC and Consultant
- SI shall define training targets and timeframe over which trainings have to be imparted and has to be in sync with the rollout of various applications/ modules of SPDP
- SI has to monitor and evaluate capacity development strategies by periodically reviewing progress indicators, in association with the Consultant.

The training programs are proposed to be conducted in a decentralized manner across all districts of the State, to be arranged in clusters. The indicative training plan for phase I roll out (with 24 schemes) is provided below:

CLUSTER	DISTRICT	VENUE	NO. OF TRAINEES	CURRICULUM
Cluster 1	Cuttack	Cuttack	24	i. Introduction to SPDP ii. Vision of SPDP iii. Key objectives of SPDP iv. Functional scope of
	Khordha	Bhubaneswar	24	
	Puri	Puri	24	
Cluster 2	Jagatsinghpur	Jagatsinghpur	24	

	Kendrapara	Kendrapara	24	SPDP v. Approach for building SPDP Registry from source databases v. Platform Components vi. Use Cases for Scheme Departments and Beneficiaries vii. Operational Guidelines for SPDP - Guidelines on Security & Privacy, IEC, Grievance Management, Process SOPs
	Jajpur	Jajpur	24	
Cluster 3	Bhadrak	Bhadrak	24	
	Balasore	Balasore	24	
	Mayurbhanj	Baripada	24	
Cluster 4	Nayagarh	Nayagarh	24	
	Ganjam	Chhatrapur	24	
	Kandhamal	Phulbani	24	
Cluster 5	Gajapati	Gajapati	24	
	Rayagada	Rayagada	24	
	Kalahandi	Kalahandi	24	
Cluster 6	Malkangiri	Malkangiri	24	
	Koraput	Koraput	24	
	Nabrangpur	Nabrangpur	24	
Cluster 7	Dhenkanal	Dhenkanal	24	
	Anugul	Anugul	24	
	Keonjhar	Keonjhar	24	
Cluster 8	Deogarh	Deogarh	24	
	Sambalpur	Sambalpur	24	
	Sundargarh	Sundargarh	24	
Cluster 9	Jharsuguda	Jharsuguda	24	
	Baragarh	Baragarh	24	
	Nuapada	Nuapada	24	
Cluster 10	Bolangir	Bolangir	24	
	Subarnapur	Subarnapur	24	
	Boudh	Boudh	24	
HQ	Bhubaneswar		24	
TOTAL			**744**	

7.15 Operation & Maintenance

A) Application Support and Maintenance

Application support includes, but not limited to, production monitoring, troubleshooting and addressing the functionality, availability and performance issues, implementing the system change requests etc. The IA shall keep the application software in good working order; perform changes and upgrades to applications as requested by OCAC. Key activities to be performed by IA in the application support and maintenance phase are as follows:

On-boarding of Social Protection schemes in phases - A scheme can be said to be on-boarded if it uses all the different components of SPDP for its scheme operations. The activities required to be undertaken by IA for on-boarding are as follows -

- Provide technical support for user creation
- Provide support with web-services or API based configuration.
- Provide support in data quality and database related issues.
- Provide technical support in UI/UX related issues.
- Provide support in reporting, analysis and dashboard creation.
- Provide training, documentation and troubleshooting support to ensure 100% user adoption.

As mentioned in earlier section of this RFP, there are 58 Centrally Sponsored Schemes and approximately 432 State Sponsored schemes currently operational in the State. All these schemes have to be onboarded in SPDP in a phased manner. Also, required training and capacity building programs need to be conducted in phases by IA for the scheme stakeholders.

Annual Technology Support - The SI shall be responsible for arranging annual technology support of SPDP for the OEM products during the entire O&M phase. It is mandatory for the IA to take enterprise level annual support over the entire contract duration at minimum for the software(s) mentioned below:

- RDBMS
- Data warehouse (if any)
- AI tools
- Analytical tool (if separately deployed)
- Deployed third party products/ engines

Application Software Maintenance - The IA shall provide unlimited support through Telephone/ Email/ Video Conferencing/ Installation Visit as required. The IA shall address all errors/ bugs/ gaps in functionality in the solution implemented vis-à-vis the signed off FRS and SRS, at no additional cost during support phase. All patches and upgrades from OEMs (if any) shall be implemented by the IA ensuring customization done in the solution as per OCAC requirements are applied. Technical upgrade of the installation to new version, as and when required, shall be done by the IA. Any changes/upgrades to the software performed during the support phase shall subject to the comprehensive and integrated testing by IA to ensure that the changes implemented in the system meets specified requirements and does not impact any other function of the system. IA shall perform tuning of products, applications, databases, third party software and any other components provided as part of the solution software, including reconfiguration of system in the event of any hardware/ network failures/ if any hardware/ network components have to be replaced, shall be the responsibility of the IA. Issue log for errors and bugs identified in the solution and any change done in the solution shall be maintained by IA and periodically submitted to OCAC.

The IA will inform OCAC, at least on a monthly basis, about any new updates/upgrades available for all software components of the solution along with a detailed action report. In case of critical security patches/alerts, the IA shall inform OCAC immediately along with any relevant recommendations. The report shall also contain the IA's recommendations on update/upgrade, benefits, impact analysis etc. The IA needs to execute updates/upgrades though a formal change management process and subsequently update all documentations and knowledge databases etc. The IA will carry out all required updates/upgrades by following defined processes at no additional cost.

Problem Identification and Resolution - Errors and bugs that persist for a long time, impact a wider range of users and are difficult to resolve in turn lead to application hindrances. The IA shall resolve all the application problems through implementation of the identified solution (e.g. system malfunctions, performance problems and data corruption etc). Monthly reports on problems identified and resolved would be submitted to OCAC team along with recommended solutions.

Software License Management - The SI shall provide for software license management and control. IA shall maintain data regarding entitlement for software upgrades, enhancements, refreshes, replacements, and maintenance. OEM should perform periodic audits to measure license compliance against the number of valid End User software licenses consistent with the terms and conditions of site license agreements, volume purchase agreements, and other mutually agreed upon licensed software terms and conditions. IA shall be responsible for any exceptions or breach of the terms and conditions.

B) Master Data Maintenance

IA shall be responsible for maintaining all the master data for SPDP, that would include the following:

i. Departments and Schemes

ii. Social Registry

iii. Location Directory

iv. Beneficiary data

v. Users and access rights

C) Change and Version Control

All planned changes to application systems and hardware shall be coordinated within established change control processes to ensure that appropriate communication on change required has taken place, proper approvals have been received and schedules have been adjusted to minimize impact on the production environment. The IA needs to follow all such change control processes based on industry ITSM framework at all times. The IA shall define the Software Change Management and Version control process. For any changes to the solution, IA has to prepare detailed documentation including proposed changes, impact to the system in terms of functional outcomes/additional features added to the system etc. IA shall maintain version control and configuration information for application software and any system documentation. IA shall maintain and update documentation of the software system ensuring that source code is documented, functional specifications are documented, application documentation is updated to reflect on-going maintenance and enhancements including FRS and SRS, in accordance with the defined standards, user manuals and training manuals are updated to reflect on-going changes/ enhancements and standard practices are adopted and followed in respect of version control and management.

D) System/ Infra Support

As part of system/ infra support, SI shall provide the following services:

- Integration and user support on all supported servers, data storage systems, etc.
- Installation and re-installation of the database.
- Application load balancing and database clustering.
- Network configuration.
- Perform database, event and system log analysis.
- Database log management.
- Database and file back-up as per the policy of OSDC.
- Patch update.
- System administration and troubleshooting.
- Application and system software administration, including performance tuning.
- Application and database level performance tuning.
- Database administration, optimization and troubleshooting.

E) User Profile and Account Management

The IA shall undertake routine functional changes that include user and access management, creating new report formats, and configuration of reports. IA shall provide user support in case of technical difficulties in use of the software, answering procedural questions, providing recovery and backup information, and any other requirement that may be incidental/ancillary to the complete usage of the application. IA shall perform user ID and group management services. The user-id naming and protocol shall be designed and implemented for all the user ids. Such naming convention and protocol shall be signed-off with OCAC.

The IA shall maintain access controls to protect and limit access to the authorized end users of OCAC.

IA shall render administrative support for user registration, creating and maintaining user profiles, granting user access and authorization, providing ongoing user password support, announcing and providing networking services for users and providing administrative support related to SPDP.

IA shall also undertake system administration tasks such as managing the access control system, creating and managing users, disaster recovery mechanism etc.

F) Periodic Reporting

The SPDP system shall provide a facility for generating and viewing online, real-time project, BI and MIS reports for services handled during a specified period, transaction density trends for any specified periodicity (hourly, daily, weekly, monthly) and any bottleneck situation creating dependency at any stage. The BI and MIS reporting system shall be an integrated system which shall provide user-friendly reporting for points of access like - OCAC and/or Designated monitoring office. The IA shall provide complete access to the service levels reporting system including the manner in which configuration of the system has been done, SRS and system manuals. Full access to generate reports from the systems to OCAC officials or scheme officials.

Also, in addition to the reports that are identified in the RFP, it must be appreciated that so far as a particular data is available in the system it should be possible to get a report on that for the sake of helping OCAC or its designated agencies in analysis and/or decision making. The system shall provide BI and MIS reporting with multiple “Slice and Dice” options to generate reports in flexible formats based on user specific needs. The MIS reporting requirements can be stated from the following perspectives:

From the OCAC system perspective, the reports should present historical, statistical and predictive views in addition to the daily/weekly/monthly views. In regard to the above, IA shall submit the following period reports (but not limited to) to OCAC:

a. Updation of documentation on successful completion of O&M operations for each quarter.

b. Regular updation of all policies designed by IA for OCAC.

c. Updated system design documents, specifications.

d. Latest source code, application deployment files, configuration files for entire solution software change logs etc.

e. Corrective Action report in response to the any audit findings/ other concerns as identified by OCAC.

f. SLA Monitoring Reports.

8 Deliverables and Timelines

S. #	Milestone	Timeline (Months)
1	Submission and acceptance of System Requirement Specifications (SRS) report	T+2
2	Submission and acceptance of Design Report for SPDP	T+2
3	Finalization of solution architecture	T+2.5
4	Data standardization and localization with respect to LGD	T+2.5
5	Development of platform components and toolkit components	T+3.5
6	Integration of SPDP with Odisha SDG framework and Odisha One framework	T+3.5
7	Completion of integration of scheme management systems of identified Phase-I schemes (24 nos.) with SPDP	T+4
8	Completion of User Acceptance Test (UAT) for Phase I schemes (24 nos.)	T+4.5
9	SSL certification	T+5
10	Third party Security Audit and obtain safe to host certification	T+5.5

11	Completion and acceptance of training and capacity building program for stakeholders from departments and field offices of Phase-I schemes (24 nos.).	T+5.5
12	Completion and acceptance of SPDP use cases roll out with Phase 1 pilot schemes (3 nos.) in all the districts.	T+6
13	Completion and acceptance of SPDP use cases roll out with Phase-I remaining schemes (21 nos.) in all the districts.	T+8
14	Quarterly Operations and Maintenance Reports for 5 years (20 Quarters).	T+8-68

9 Proposed Team and Deployment Plan

S. #	Proposed Role	No. of Resources	Qualification	Experience	Deployment
Key Experts					
1	Project Manager	1	**Base Qualification & Exp:** B.E/ B.Tech/ MCA with MBA **Preference:** PMP/ PRINCE2 certification ITIL/ Relevant IT certification	Minimum 10 years' in large-scale software projects in Govt. and as Project Manager in at least 3 projects.	Bidder to propose in FORM TECH-6. Technical manpower proposed shall be deployed at Bhubaneswar from start of the project and shall continue at least till 6 months post Go-live.
2	Lead Business Analyst	2	**Base Qualification & Exp:** B.E/ B.Tech/ MCA/ MBA **Preference:** PMP/ PRINCE2 certification	Minimum 7 years. At least 5 years' experience in large-scale software projects as a Business Analyst.	
3	Solution Architect	1	**Base Qualification & Exp:** B.E/ B.Tech/ MCA **Preference:** TOGAF**/** ITIL/ Relevant IT certification	Minimum 10 Years. At least 8 years' experience in large-scale software projects as a Solution Architect.	
4	IT Application Lead	1	**Base Qualification & Exp:** B.E/ B.Tech/ MCA **Preference:** ITIL/ Relevant IT certification	Minimum 7 years. At least 5 years' experience in large-scale software projects as Application Lead.	
5	QA Lead	1	**Base Qualification & Exp:** B.E/ B.Tech/ MCA **Preference:** ITIL/ Relevant IT certification	Minimum 7 years. At least 5 years' experience in large-scale software projects as a QA Lead.	
6	DBA	2	**Base Qualification & Exp:** B.E/ B.Tech/ MCA **Preference:** ITIL/ Relevant IT certification	Minimum 7 years. At least 5 years' experience in large-scale software projects as DBA.	
Non-Key Experts (Bidder to finalize as per its proposed work plan. Indicative requirements are provided below).					
7	Security Specialists	Bidder to propose in FORM TECH-6	B.E./ B.Tech/ MCA	Minimum 3 Years	Bidder to propose in FORM TECH-6.

8	Business Analysts	Bidder to propose in FORM TECH-6	B.E./ B.Tech/ MCA/ MBA		Technical manpower proposed shall be deployed at Bhubaneswar from start of the project and shall continue at least till 6 months post Go-live.
9	IT Applications Developers	Bidder to propose in FORM TECH-6	B.E./ B.Tech/ MCA		
10	Database Developers	Bidder to propose in FORM TECH-6	B.E./ B.Tech/ MCA		
11	QA Testers	Bidder to propose in FORM TECH-6	B.E./ B.Tech/ MCA		
12	Capacity Building Experts	Bidder to propose in FORM TECH-6	B.Sc/ BCA/ BBA/ Equivalent		
13	Application Support Leads	Bidder to propose in FORM TECH-6	B.Sc/ BCA/ Equivalent		

10 Adherence to Standards

The SPDP platform shall comply with relevant defined industry standards, wherever applicable. This will apply to all the aspects of solution including but not limited to its design, development, security, installation, and testing. The suggested architecture must be scalable and flexible for modular expansion. It should ensure ease of integration with software/applications developed using common industry standards, since the solution may be linked and connected to other sources (websites, contents, portals, etc.) as well as there may be loose/tight integration with backend system of other schemes depending on individual service processes.

A reference list of minimum industry standards which the system components should adhere to is mentioned below:

S. #	Components	Standards
1	Information Access/ Transfer Protocols	SOAP, HTTP/ HTTPS
2	Interoperability	Web Services, Open Standards
3	Portal Development	W3C Specifications
4	Document Encryption	PKCS Encryption
5	Information Security	ISO 27001 certified system
6	IT Infrastructure Management	ITIL/ EITM
7	Operation	ISO 9001 Certified
8	Service Management	ISO 20000 specifications or latest
9	Project Documentation	IEEE/ ISO/ CMMi specifications for

		documentation
10	Data Standards	All-important data entities should be in line with standards published by DeiTY
11	Architecture	The application architecture should be n-tiered and must include all necessary software components. Architecture shall allow for future scalability and scope addition by way of defining new services.
12	Interface	The system should provide multilingual interface/labels in English and Odia.
13	Browser Compatibility	The system should run on multiple browsers (IE 8.0 and above, MS Edge, Firefox, Safari and Google Chrome).

11 Exit Plan and Transition Management

The selected bidder will provide a systematic transition management/ exit plan and conduct proper knowledge transfer exercise to handover operations at the end of the project duration, to OCAC's technical team at least 6 months before project closure. The technical team will work closely with resource persons of IA at test, staging and production environment during knowledge transfer phase. All knowledge transfer should be documented and possibly recorded.

Also, the SI will ensure capacity building of the IT resource persons of OCAC on maintenance of software and infrastructure.

During the exit management process following key activities (indicative list of activities) shall be required to be performed by IA:

1. Transfer of Assets - The IA ensure transfer of assets to OCAC before six months from the date of expiry of contract / termination of contract.

2. Co-operation and Provision of Information - During the exit management period, IA shall allow OCAC access to information reasonably required to define the then current mode of operation associated with the provision of services to enable the client to assess existing services being delivered.

3. Confidential Information, Security and Data - The IA will promptly on commencement of the exit management period, supply to OCAC the following:

- Information relating to the current services rendered and performance data relating to the performance of the services; documentation relating to project, Project's Intellectual Property Rights; any other data and confidential information related to project; all current and updated components.
- Project data as is reasonably required for purposes of the project or for transitioning of the services to IA in a readily available format.
- At any time during the exit management period, IA will be obliged to provide access of information to OCAC and/ or any replacing IA in order to make an inventory of assets (mainly from software and applications point of view), layouts, diagrams, schematics, documentations, manuals, catalogue, archive data, IP addressing, live data, policy documents or any other material related to the project.
- All other information (including but not limited to documents, records and agreements) related to the services reasonably necessary to enable OCAC, or its replacing IA to carry out due diligence in order to transition the provision of services to OCAC, or its replacing IA (as the case may be).

4. Exit Management Plan - IA shall provide OCAC with a recommended exit management plan which shall deal with at least the following aspects of exit management and in relation to project implementation, operations and management and scope of work definition:

- A detailed program of the transfer process that could be used in conjunction with OCAC /replacement IA including details of the means to be used to ensure continuing provision of the services throughout the transfer process or until the cessation of the services and of the management structure to be used during the transfer.
- Plans for communication with such IA, OEM, and any related third party as are necessary to avoid any material detrimental impact on SPDP project's operations as a result of undertaking the transfer.
- Plans for provision of contingent support to SPDP and OCAC/ replacement IA for a reasonable period (minimum one month) after transfer. IA shall redraft the Exit Management Plan annually thereafter to ensure that it is kept relevant and up to date.
- The Exit Management Plan presented by IA shall be approved by OCAC.
- DC/DR document along with updated software documentation and asset registers, and operational documents will be provided by IA to OCAC.
- Exit Management plan shall be furnished in writing to OCAC within 15 days from the receipt of notice of termination or three months prior to the expiry of Agreement.
- The IA needs to ensure that the strategic control of entire solution is transferred to OCAC or its nominated agency.

The Intellectual Property Rights (IPR) of all software code, data, algorithms, documentation, manuals, digitized documents etc. generated as a part of implementation and O&M of the SPDP platform shall solely vest with OCAC. The IA will not have any right to share, use or disclose above mentioned components/ artifacts. The IPR and source code generated as a part of the project will have to be submitted to OCAC by the IA, as part of its exit management process.

12 Service Levels and Penalty

12.1 Service Level Definition

Service levels specify the expected levels of service to be provided by IA to various stakeholders of the project. The following points clarify the manner in which SLA metrics operate:

i. A set of parameters have been identified to ensure desired performance level of SPDP system.
ii. The tables below list out the performance levels, method of measurement and how penalties shall be levied.
iii. All payments to IA shall be made after deduction of penalties as per the SLA metrics.

Following section outlines the service level objectives and key service level requirements for SPDP, which needs to be ensured by the IA during implementation and operations & maintenance phases. These performance requirements may be imposed, and Consultant/ Third party auditor may certify the performance of IA against target performance metrics as outlined in this RFP. The SLA monitoring shall be performed on a daily/weekly/monthly/quarterly basis, as per the individual SLA parameter requirements. During the contract period, it is envisaged that there could be changes to the SLA, in terms of addition, alteration or deletion of certain parameters, based on mutual consent of both the parties i.e. OCAC and the IA.

The IA has to procure and maintain an open source EMS tool for monitoring of SLAs. The cost for same will have to be included in the total project cost to be quoted by bidders.

12.2 Service Level Objectives

The following Service Level Objectives have been identified for governing the SLAs in SPDP project:

i. System should be available to the users at all times.
ii. System should be easy to use.
iii. System should be responsive enough for the user to work without time delays/ interruptions.
iv. Users should be able to easily store and retrieve the data from system.
v. Users should always get the right support as and when it is required to perform their business.

12.3 Service Level Requirements (SLR)

12.3.1 SLR until “Go-live”

The charges to be levied on IA for non-compliance to SLR until “Go-live” are referred to as Liquidated Damages. The charges levied on IA on account of Liquidated Damages shall be the sum of 0.5% of Work Order price of the delayed/undelivered services as specified in the contract for every week of delay or part of a week, subject to the maximum value of Liquidated Damages being not higher than 10% of the value of delayed services.

12.3.2 SLR during “O & M Phase”

The charges to be levied on IA for non-compliance to SLR during the O & M phase are referred to as Penalties. During O&M phase, penalties which can be levied on IA each quarter will be capped at 10% of the total O&M cost per quarter.

12.3.3 SLA Metrics

The Service Level metrics that define Service Levels, the method of measurement of each SLA and penalties for IA for not meeting SLAs are specified in table below.

Service Level Management (SLM) is the process of ensuring that IT services are properly linked to business processes and objectives. This is ensured by placing a set of well-defined service objectives and by monitoring and managing the service levels.

The following table presents the required service level management framework for the IT application to be proposed by IA. The IA shall consider following metrics while architecting the systems. Penalty will not be imposed if the delay is not attributable to the IA.

S. No.	Service Parameter	Service level	Measurement Metrics	Penalty		
A) Project Implementation SLAs						
1	Timely delivery	All the milestones defined in the Section 7 of this RFP should be implemented on time (with no delay).	To be measured (with reference to the approved timelines), in number of weeks of delay from the target date as defined in the implementation schedule	**Type**	**Metric**	**Penalty**
				Baseline	Achieving of the Milestone as per the timeline	None
				Lower performance	Per week delay in achieving the milestone	0.5% per week of the contract price of delayed/undelivered services
					More than 4 weeks of delay in achieving the milestone	0.75% per week of the contract price of delayed/undelivered services
				Breach	More than 3 months delay in achieving the milestone	1% per week of the contract price of the delayed/undelivered stores/services
				Note: 1. The maximum value of the Liquidated Damages being not higher than 10% of the value of delayed stores/services		
2	Quality of training	In each of the training imparted by SI to the users, the feedback given by the trainees on the trainer should be 6 or more (on a scale of 10)	a) Baseline: Feedback greater than or equal to 6 b) Lower performance: Feedback equal to 5 c) Breach: Feedback less than 5	**Type**	**Metric**	**Penalty**
				Baseline	Average feedback >= 6	None
				Lower performance	Average feedback = 5	2% of that particular session cost
				Breach	Average feedback less than 5	5% of that particular session cost and repeat the session
				Note:		

<table>
<tr><td></td><td></td><td></td><td></td><td>The feedback shall be received by OCAC after each training session. IA shall repeat the training if average feedback rating from participants is less than 5 for a particular training program and repeat that training till the average feedback rating is >=6.</td></tr>
<tr><td colspan="5">B) Operation Level SLAs</td></tr>
<tr><td colspan="5">During O&M phase, penalties which can be levied on IA each quarter will be capped at 10% of the total O&M per quarter. For the purpose of calculation of penalties, a quarter starts from the day the Operations & Maintenance (O&M) phase starts and ends after 3 months from the start of the O&M phase.</td></tr>
<tr><td>1</td><td>Application / Web page load time</td><td>Page loading time = Less than or equal to 5 seconds during business hours averaged on a quarterly basis</td><td>a) Baseline: Page loading time: Less than or equal to 5 seconds
b) Lower performance: Page loading time: Between 6- and 8-seconds
c) Breach: Page loading time: More than 8 seconds</td><td>Type | Metric | Penalty
Baseline | Page loading time: Less than or equal to 5 seconds | None
Lower performance | Page loading time: Between 6 and 10 seconds | 1% of the Quarterly payment
Breach | Page loading time: More than 10 seconds | 3% of the Quarterly payment
Note: The page selected to test the “page loading time” shall necessarily pass through web, application and database servers.
) The request - response time (as recorded in entry point of the server infrastructure) for loading a page will be taken as input for computing the time taken for page loading.</td></tr>
<tr><td>2</td><td>Application Availability</td><td>SPDP application over internet should be greater than 98% during business hours</td><td>a) Baseline: Greater than 98% during business hours
b) Lower performance: 95% - 98% during business hours
c) Breach: Less than 95% during business hours</td><td>Type | Metric | Penalty
Baseline | Greater than 98% during business hours | None
Lower performance | 95% - 98% during business hours | 3% of the Quarterly payment
Breach | Less than 95% during business hours | 5% of the Quarterly payment
Note:
1) The extent of availability will be computed on a quarterly basis.
2) Definition of business hours is 0600 hours - 2200 hours on all working days of the client.</td></tr>
</table>

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<tr>
<td>3</td>
<td>Reestablishment of application in case of failure</td>
<td>IA shall reestablish the complete application is reported within 5 business hours of receipt of the request</td>
<td>a) Baseline: Resolved within 5 business hours of receipt of the request
b) Lower performance: Resolved within 5-7 business hours of receipt of the request
c) Breach: resolved beyond 7 business hours of receipt of the request</td>
<td>
<table>
<tr><th>Type</th><th>Metric</th><th>Penalty</th></tr>
<tr><td>Baseline</td><td>Resolved within 5 business hours of receipt of the request</td><td>None</td></tr>
<tr><td>Lower performance</td><td>Resolved between 5 - 7 working hours of receipt of the request</td><td>1.25% of the Quarterly payment per fault</td></tr>
<tr><td>Breach</td><td>Resolved in more than 7 business hours of receipt of the request</td><td>2.5% of the Quarterly payment per fault</td></tr>
</table>
Note:
1) Business hours taken for this SLA computation is 0600 hours - 2200 hours on all working days of client.
2) A fault which had occurred in the system can be reported by one or many users. If root cause of issues reported by many users at a point in time remains the same, such will be considered as single fault for SLA computation purposes.
3) IA is required to give a monthly report on all the issues and their resolution time.
4) Penalties will be calculated on a per fault basis. Hence, IA can be penalized for bad performance for more than one critical fault in a quarter.
</td>
</tr>
<tr>
<td>4</td>
<td>Quality of training</td>
<td>In each of the training imparted by SI to the users, the feedback given by trainees on the trainer should be 6 or more (on a scale of 10)</td>
<td>a) Baseline: Feedback greater than or equal to 6
b) Lower performance: Feedback equal to 5
c) Breach: Feedback less than 5</td>
<td>
<table>
<tr><th>Type</th><th>Metric</th><th>Penalty</th></tr>
<tr><td>Baseline</td><td>Average feedback >= 6</td><td>None</td></tr>
<tr><td>Lower performance</td><td>Average feedback = 5</td><td>2% of that session cost</td></tr>
<tr><td>Breach</td><td>Average feedback less than 5</td><td>5% of that session cost and repeat the session till average feedback >=6</td></tr>
</table>
Note:
1. The feedback shall be received by OCAC officials after each training session.
</td>
</tr>
</table>

				2. IA shall repeat the training if average feedback rating from the participants is less than 5 for a particular training program and repeat that training till the average feedback rating is >=6.

13 Annexure

13.1 Functional Requirements

1. Functional Architecture

The proposed SPDP Functional Architecture of Odisha SPDP will be made up of following components

- Schemes
- Beneficiary
- Scheme Owner Departments Stakeholders
- Associated Databases

The success of SPDP depends upon the mutual interaction of above components in seamless interaction mechanism.

2. Registry

Registry is a common centralized system having an updated database of citizens/beneficiaries and schemes. It will consist of selected field which are important for identification of a beneficiary and establish its eligibility for any social welfare scheme. These fields will be finalized and shared with IA during requirement gathering phase It would be used for data update in the databases of line departments and Schemes. It will also be linked to multiple touchpoints which can enable different source of update for the social registry.

The Social Registry would also ensure that it collects only necessary information without any additional or unnecessary data. Also, since it would act as a nodal hub, it becomes important that no one gets access to it to maintain privacy and security of citizen data.

The initial Social Registry of the citizen will be created by selecting beneficiary from Participating data bases and Schemes. Necessary tools and AI system will be utilized to find uniqueness of Beneficiary and Random Beneficiary Social Registry ID will be created by the System.

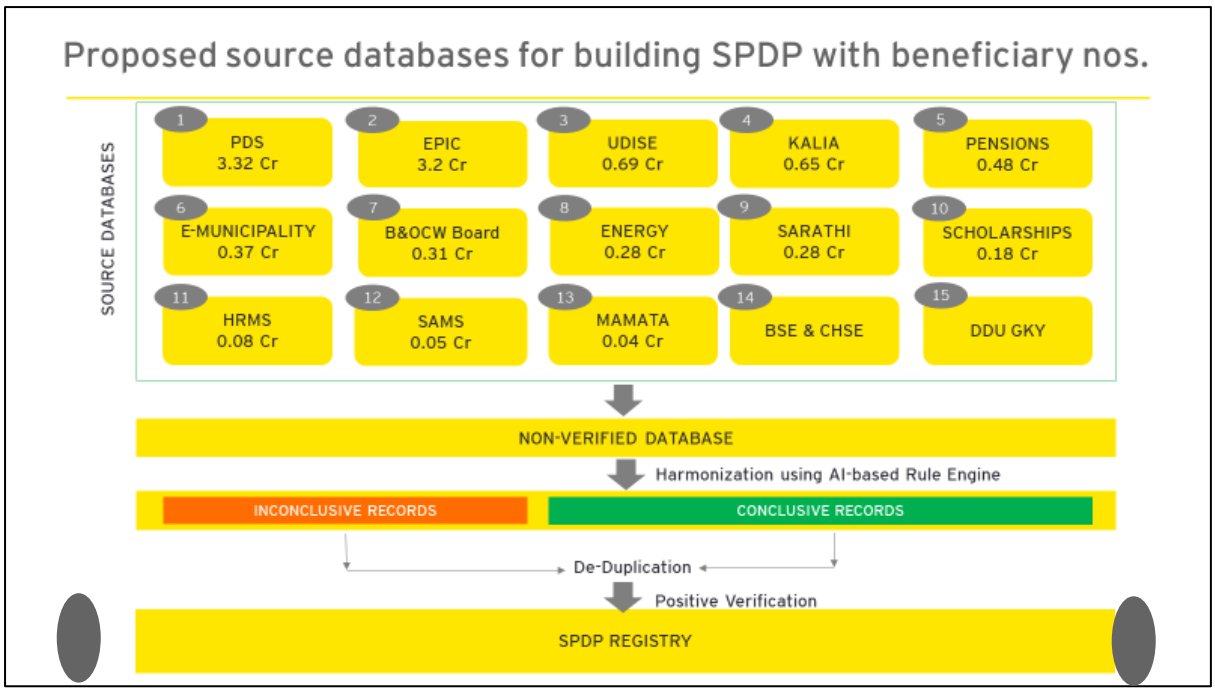
Also, any citizen able to create its Social Registry ID directly in the system being not a member of any scheme.

The List of Registry provided below is indicative only. The IA can suggest different registry during Final System Design

2.1. Beneficiary Registry

The SPDP system should allow Create, Read, Update and Passivation/ Archival facility for Beneficiary. The beneficiary registry will consist of basic data of the beneficiaries primarily imported from the Participating scheme/department Data Bases.

a) It is envisaged that Registry of Beneficiary can be created primarily by importing of databases from scheme departments and other linked owner databases. The registry of Beneficiary shall contain Basic Core attributes, Socio Economics attributes and Some Auxiliary attributes and Scheme Information. Also, Beneficiary Registry will be linked with Household ID if available or Create a new Household ID, if the person is First person/Head of the House.
b) The system should do Harmonization of the Databases through AI based rule engine algorithm, which match the attributes across the schemes establish the uniqueness and create the Social Registry of the Beneficiary.



c) Any beneficiary / Citizen who is not a part of the beneficiary registry or left out after data harmonizing process, may register their details through Aadhaar Authentication through the beneficiary interaction portal of SPDP Or, they may register themselves through Mo-Seba Kendra' through Aadhaar Authentication.

d) It is also necessary that Platform should seed LGD codes to Beneficiary Data and update the information of beneficiary as per LGD code.

e) Some of the Offline schemes maintained their scheme information and beneficiary information in Excel format or any other formats and Local Databases. The SPDP should have the functionality to export those information in the SPDP portal for new Beneficiary registry creation, which might include eradication of duplicate record, Record matching and other verification mechanism to create SPDP Registry of beneficiary if not existed and update the same if existed.

N.B: 1) The IA shall use different AI tool or Rule engine for creation of Beneficiary registry which might include Conclusive record* or In-Conclusive record** of Beneficiary. The IA supposed to provide the solution for Beneficiary Registry creation for In-Conclusive records of Beneficiary obtained during sourcing the Data from different linked Databases and how to perform De-Duplication and Record matching process.

* Conclusive Record: Records that can establish uniqueness of Beneficiary

**In-Conclusive Record: Duplicate records where establishing uniqueness of Beneficiary is difficult.

2) The bidder can propose any alternative approach for creation of Beneficiary registry which is subject to approval of competent authority during project execution phase.

2.2. Beneficiary Registry Functionality

The registry of beneficiary should be updated in real time basis. Any changes in associated attributes will be updated against the Beneficiary record in real time basis. The common functionality of Beneficiary registry is listed below. The IA is supposed to suggest adding more functionality if required during the course of implementation.

2.2.1. Exploration of Schemes

The SPDP registry should have the capability to display the schemes availed by the beneficiary and his/her eligibility for other schemes. Also, beneficiary can search for schemes in the SPDP portal by selecting certain parameters The Beneficiary can apply for the scheme or schemes directly through

Composite Application Form (CAF). The functionality CAF provided in later section. Once Beneficiary logs into the SPDP system through Aadhaar and he/she not a new beneficiary then system have the capability to populate the schemes he/she is availing and schemes he/she eligible for.

2.2.2. Beneficiary Data Update

The SPDP platform only allow data updation of Beneficiary from Source Data Base for Auxiliary attributes. The core attributes like Address, Mobile Number etc will be updated through Scheme. The overall functionality of data update through Scheme provided in later section.

2.2.3. Beneficiary Passivation

Beneficiary passivation or beneficiary registry archival is required when he/she deceases. The authorized users shall have the ability to passivize or archive a beneficiary registry. The authorised user might be Department Nodal officer or SPDP Central team user, which will be decided during Implementation. The IA should provide such functionality in SPDP Platform.

2.3. Scheme Registry

The platform shall create and maintain the registry of the all the participating schemes of SPDP. The system should provide create, read / view, Update and Scheme Passivation and Merger Functionality in SPDP Platform. Utmost measure should be taken to maintain Uniformity across all schemes w.r.t. Structure, Fields, Information, Etc.

To maintain the uniformity across the schemes a Scheme Definer may be created. The SPDP Platform should able to create Forms which will capture scheme Data and creation of a new scheme through a standard web-browser based user interface for Authorised Officials

2.3.1. Offline schemes / Partial Online schemes to Online platform

As explained above, in the State of Odisha some of the schemes are running in offline mode or partial online mode where all the processes i.e. scheme application to Fund disbursement all are in Offline Mode or Some part of processes are automated.

For the complete offline schemes where all process is offline, then SPDP system should have the capability to create such schemes in SPDP platform without any additional efforts. The scheme beneficiary records should be matched with existing Beneficiary record and updated accordingly

For the Partial online schemes, the IA shall study which part to be linked with SPDP for Beneficiary Registry creation or do the complete automation of scheme in the SPDP portal. All the Functionality like Record matching and De-Duplication etc should be followed. Also, complete Scheme workflow will be designed in SPDP, i.e. From Beneficiary identification, new beneficiary registration, different approval stages and final fund disbursement to beneficiary account.

The process of Scheme automation should be approved by Authorised official of Department before go-live. The approval should be Digital Signature based and system should capture the Time Stamp and IP Address. Log in should be provided to Department officials with role access to perform scheme related functions in SPDP Platform.

2.3.2. New Scheme Creation declared by Government

It is obvious that Govt. of Odisha declare the new schemes for the Citizens and the requirement of Schemes varies from one to another w.r.t. eligibility, processes, benefit etc. The SPDP Platform should have the analytics tools where an Authorised department owner can do the Fund analysis, Beneficiary Analysis, eligibility criteria analysis etc also if required they can design the scheme in the platform through Forms and Web Browser. If some more analytics feature required for creation of scheme, then same should be the responsibility of IA to provide such feasible facility. Also, role-based log in should be provided to Department officials for performing scheme related activities like scheme creations by selecting available parameters, Beneficiary identification, new beneficiary registration, different approval stages and final fund disbursement to beneficiary account. Proper approval must be obtained from Department for making scheme go-live in SPDP Platform. The approval should be Digital Signature based and system should capture the Time Stamp and IP Address.

The IA needs to develop these scheme specific application forms as e-forms or web forms and Department officials are able to create web forms by themselves. These forms shall be accessed by the platform microservices to service the platform stakeholders and others. During the creation of new scheme, it is obvious that some more scheme specific parameters should be required to capture other information, so those information fields should be created without any additional effort.

Also, after creation of Scheme the system will auto populate the Beneficiary list with minimum attribute to the scheme owner. The scheme owner may approve or reject the beneficiary list with proper authorisation. Also scheme owner can view the beneficiary list District wise, Tahasil wise, GP wise or some other search criteria stored in the beneficiary attributes.

2.4. Functionality of Scheme Registry

2.4.1. Scheme Discovery by Citizen / Beneficiary

Scheme running in the Odisha have different eligibility criteria, fees, processes, benefits, etc. So, exploring schemes is a challenging process. So, it is proposed to create one standardize Scheme repository for all the running schemes of Odisha, so that beneficiary can explore schemes by selecting parameters. The scheme information should be stored in a such way that parameters and attributes shall be compared to each other and lead to a result.

2.4.2. Direct Apply for Scheme Beneficiary at Scheme Portal

After exploring the schemes, the SPDP portal should redirect the citizen to apply to become a scheme beneficiary where all the process of Schemes is automated and linked with SPDP. Also, citizen can apply to scheme those are newly created in SPDP platform or automated in SPDP platform. It is obvious that some process modification required at scheme portal level which are fully online outside SPDP Platform but linked with SPDP through API, so Standard Operating Procedure (SOP) will be created by SPDP PMU, which will be circulated to all Online scheme departments to adhere.

2.4.3. Beneficiary Data Update through Scheme

During the course of time demographic information of citizen might change i.e Address, Mobile number etc, which might take some time to reflect the Beneficiary Registry from parent database. In this case a Beneficiary may update its information in scheme portal as per document submitted by Beneficiary accordingly last updated information updated in Beneficiary Registry. Once updated information received from Parent database same may be updated against the Beneficiary registry. It's the responsibility of IA to maintain proper Audit Trail for the all the activities performed or happened in Beneficiary Registry, Scheme Registry and User level.

2.4.4. Scheme Passivation / Archival

At certain interval some scheme got obsolete, withdrawn or temporarily stopped. The IA shall make provisions to allow passivizing / archiving the scheme through proper workflow-based authorization.

2.4.5. Scheme Merger

It is obvious that in future some scheme may be merged to each other. In that case scheme registry and beneficiary registry should be updated accordingly without affecting data integrity.

3. Composite Application Form (CAF)

To ease the Scheme Application process, the IA to develop CAF. The SPDP platform should have the facility where beneficiary can select multiple schemes and apply without applying scheme individually. The CAF should be single composite form which contain as much data as possible from Beneficiary Registry. The CAF should verify with scheme registry if any additional information needs to fill up or not. The additional information filled up by Beneficiary may have the provision for auto verification from Parent database. After submission of CAF the CAF will be split into the specific schemes and data will be auto populated in the Scheme portal. The processing of new application received through CAF will be the part of SOP for Scheme department process modification.

4. Fund Management

The schemes directly operated through SPDP Registry need to be integrated with iFMS and PFMS. Also, it might be sometimes required to integrated with Other Payment gateways for Disbursement of fund to Beneficiaries. The Platform should have the Analytics for Fund Management Section where authorised department officials should view fund Availability, Fund Allocation, Fund Disbursement, etc. The Platform should have the capability to reconcile Scroll Numbers in the system against the Payment.

5. Data Exchange between SPDP Registry, Schemes and Departments.

API based system should be developed between seamless data interaction between Scheme portal, Department Portal and SPDP Registry. Schemes can fetch information stored in SPDP registry which will be Realtime basis and data attributes of SPDP will be updated in Real time basis as per update made by departments in Beneficiary data.

The Aadhaar Act, Data Sharing guidelines, IT Act, and similar regulations and guidelines would be adhered with in order to enable sharing of data among departments removing duplication of efforts but at same time catering to privacy concerns of the citizen.

Different department databases would interact with each other and the Social Registry acting as the nodal hub in order to validate/update beneficiary data. Automatic seeding of beneficiaries in schemes where he or she is eligible, without the additional need to apply on their own. Also, self-seeding initiated by the citizen would also entail the automatic seeding of the citizen in all the schemes where they are eligible.

To Achieve the objective of SPDP mentioned above certain functional modules need to be developed for SPDP. Also, some additional functional modules need to be developed to utilize full benefit of SPDP Application.

SPDP is envisioned as a “three-tier” design and involves the following layers.
1. A back-end integrated social registry for master-data management purposes. This registry will manage information about the beneficiaries and their various linked schemes. For e.g., this registry will include a “beneficiary database” that carries a beneficiary’s demographic and socio-economic information.
2. Front-end application modules to manage specific functions (e.g. registering beneficiaries, managing customer grievances).
3. All interfaces between SPDP and the external systems (e.g. Scheme systems, State/National systems) will be handled through a standards-based information exchange layer.

The following functional components can be provided (across the 3 layers) in SPDP.
Note: This is only an indicative set of components that can be accommodated in the SPDP architecture. A more comprehensive set of platform components can be finalized by SPDP’s institutional authority and its anointed implementation partners.

A. <u>Front-end Application Modules</u>

1. <u>Beneficiary Management –</u>

This application would manage all functions related to the registration and update of beneficiary data in SPDP by Scheme. This application can be provisioned via the web and mobile platforms and used by SPDP registration staff. Additionally, this can also be provided to beneficiaries as a “self-registration” application (via a Web or Mobile platform). A high-level view of various features that this component can accommodate is outlined in the table below:

Feature	Functionality
Registration	a. Provision to add beneficiary information to the SPDP registry, during the registration of beneficiaries by Schemes.

Feature	Functionality
	b. Provision to Self-Registration of Beneficiary in the SPDP Portal through different Registration mechanism i.e Mobile number, email and OTP.
Data Update	Provision to update beneficiary data/information. The update may happen in one of the following ways: • Update by beneficiary in an established SPDP touchpoint • Update by scheme owners (directly) from their own access points This will also have a provision to scan/upload supporting documents provided by beneficiaries
Scheme Analysis by Beneficiary/ Citizen	Beneficiary can search Schemes he/she can available as per search parameters selected by Beneficiary/ Citizen. And Application should directly navigate to Online schemes portal for apply. For offline schemes detailed application process will be displayed.
Beneficiary Analysis by Department	Provision for authorized SPDP system users to search/view beneficiary data from the SPDP registry, based on input parameters (e.g. search by 'attribute'). Information of beneficiary can be drilled down to State, District, Tahasil, Village level etc, as per requirement of Department.

2. Grievance Management

This application should manage all functions required to automate the grievance/complaint management lifecycle for SPDP users (i.e. operational users of various schemes). A high-level view of various features that this module can accommodate is outlined in the table below

Feature	Functionality
Ticket Management	Provision for technical helpdesk staff to raise complaints (initiated by both 'beneficiaries', 'SPDP system users' and 'program partner's) and to track their status for them. Examples of technical tickets that could be managed through this module include (not limited to) • Issue #1 – "Unable to view reports" • Issue #2 – "Beneficiary authentication service has failed"
Feedback Management	Provision to manage feedback (e.g. collect feedback on issue resolution/feedback on issue escalation) provided by the SPDP system users
Report Generation	Provision for report creation on beneficiaries availing benefits from multiple schemes, which will be published at the GP level for verification by beneficiaries with respect to inclusion or exclusion Errors.

3. MIS/Analytic

SPDP should provide MIS reporting and analytical tools to support ongoing monitoring efforts by SPDP stakeholders, as well as the participating scheme owners. This will help them conduct fair and transparent evaluations of an individual scheme's impact, as well as assist them

in planning and budget allocation purposes. These insights can help the Government in supporting the various Departments around efforts to increase adoption and proactive design-changes of their social welfare schemes. Measurable and traceable indicators can be defined for each program/scheme and then monitored on a regular basis. A high-level view of various features that this module can accommodate is outlined in the table below

Feature	Functionality
MIS reports	Provision to support program monitoring requirements via: • Scheduled reports - which are generated at pre-defined time intervals and shared with respective stakeholders. • On-demand reports - which are generated as per the need of stakeholder(s) in real time. Some possible examples can include: I. Report on potential beneficiaries who did not enroll with possible reasons [this can be used by SPDP admin users] II. Report on type of grievances with handling time and feedback from the users Note: Several reporting indicators to assess the efficiency and effectiveness of social protection programs (individually and as a whole), can be defined in this SPDP component.
Analytics Dashboard	Provision for stakeholders (both SPDP operational users as well as Scheme owners) to track metrics/key data points, perform trend analysis, view simplified insights of complex data-comparisons etc. Note: SPDP can support the participating scheme owners in M&E needs of their individual schemes, via this component. A platform consideration could be inclusion of bigdata based analytics component; comprising of an enterprise data lake, data access layer and custom data marts to support self-service visualization dashboards for SPDP admin users/participating scheme owners.

B. <u>Information Exchange</u>

All data exchanges between SPDP (including both front-end application modules and the back-end registry) and external partner systems will be facilitated via a standards-based data exchange layer. This component will use a set of mutually agreed messaging formats and data vocabularies, for these information exchanges between SPDP and these external systems. Few architectural considerations that can be adopted in the technical design of this component include:

1. Data sourcing and extraction methods: Can be addressed via 'Pull/Push' methods between SPDP and relevant external systems/databases
2. Exchange frequency: Periodic (asynchronous), Real-Time (synchronous)
3. Data exchange formats: Open APIs, XML, CSV, delimited file formats

Sub-Components	Functionality
	Internal Services
Individual-ID / Household ID Generator	SPDP should have the capability to generate an individual social protection ID for all beneficiaries registered in the platform. This ID should be unique for an individual beneficiary and can also have linkages to all schemes that he/she is registered for. Once a beneficiary is registered with a scheme for the first time in SPDP, a social protection ID can be

Sub-Components	Functionality
	generated (and which is also linked to his/her other attributes such as Aadhaar number and individual scheme IDs). The same social protection ID will be used irrespective of how many schemes he/she then registers for. This ID can have a nomenclature, as defined by the Government. This unique social protection ID will also be a useful tool for the Government stakeholders to view and analyze relevant information around beneficiary participation in the many Government schemes, for policymaking and research purposes
Rule Engine	This will be a centralized rule engine that outlines all logic/conditions pertaining to various features in SPDP. These rules can then be applied to specific module features; for e.g. 'auto-assignment of ticket management' across an escalation ladder in the 'Grievance management' application. This rule engine will keep the functional modules less focused on data entry and centralize rule-definition to a single point/single set of users. Having such predefined rules will enable these modules to operate efficiently, by reducing dependency on data entry
Role Manager Service	This service will allow SPDP admin users to manage the role-based privileges and permissions for various authorized users of the platform and associated services. A high-level view of features that this service can accommodate is outlined below: User — Key Roles Admin (e.g. Dept. of Finance SPOC): • Assigns roles and access privileges to the users • Approval of registering users • Primary data management (e.g. define standardized format) • Beneficiary/Scheme Analytics Scheme Owners: • Uploading of scheme information • Authentication and registration of beneficiaries • Disbursement/payment initiation for the beneficiaries Beneficiaries: • Registration for scheme(s) • View scheme/other status information • Apply for Scheme Mo Seba Kendra's Operator: • Registration for scheme(s) • View scheme/other status information • Apply for Scheme
Audit Log	This is a service to manage an audit trail of all the transactions occurring on the information exchange layer, on a day-to-day basis
Data Dictionary Service	This is a collection of descriptions of the data objects for those who need to refer to them (e.g. Data type, format, structure)

Sub-Components	Functionality
Event Handler	This service can be used to handle different messaging events on the SPDP Exchange
Orchestration Service	This service can be used by SPDP administrative users to automate key SLA-based processes (e.g. auto-assignment of tasks in the grievance process, providing scheduled reports to designated users in their task queues for action)
Deduplication service	This service provides the ability to schemes to view duplicate entries in their databases, which they can address basis their discretion
Record Matching Service	This service provides the ability to identify where records are located based upon criteria such as an ID and/or record data type, as well as providing functionality for the ongoing maintenance of this location information.
	External Services
"Publish" Service	This is a service provided to participating external systems (e.g. systems of participating Scheme owners) so that they can share data updates (could be bulk or granular record updates) that needs to be persisted in the SPDP registry
"Subscribe" Service	This is a service provided to participating external systems (e.g. systems of participating Scheme owners), so that they can subscribe to updates (broadcast from SPDP) that they wish to be notified about.
"Consent" Service	This service will allow SPDP admin users to manage the consent privileges for the registered beneficiaries in the SPDP registry. Based on a beneficiary's preferences for operations permitted on his/her data in SPDP (i.e. permissions to view profile, permissions to share profile with another user), system users can use this module to update his/her profile accordingly. Via this service, end beneficiaries can create electronic consent(s) to determine which information they would be willing to permit for sharing with other schemes and under what conditions. The SPDP consent manager service shall operate at an attribute and scheme level. A few considerations that can be accommodated in the design of this service include: • Approved Beneficiary Information = What data is being collected/stored/used/shared? • Approved Administrators = Who has the permissions to manage (collect/store) the beneficiary data collected? • Approved Users: Who has the permissions to transact with a specific beneficiary data set (e.g. scheme owners have access to view beneficiary eligibility)? • Approved Use: What can the beneficiary data be used for (e.g. for sharing beneficiary details in a payment file for benefit disbursements)?
Query Builder Service	This service will enable the departmental users to analyse operational trends (e.g. fraud patterns) based on the data available in the SPDP registry.

Sub-Components	Functionality
Transliteration Service	This service can be used by SPDP users to convert system inputs (text-form) from the source script/language to another script/language. This is an important component for SPDP, since a few State schemes capture/store scheme & beneficiary-related information in Odia language, within their databases. Hence, there is a need to support data transliteration (e.g. convert to English), when onboarding such schemes and storing the required data in the SPDP registry.
Alert/Notification Service	This service can be used to provide timely information to stakeholders on specific status updates (via various channels – e.g. Email/SMS)
Linkage with Public Utilities	The SPDP platform can also interface with public utilities for fulfilling specific transactions (as outlined below) via APIs provided in this 'Information Exchange' layer. Note: The listing below is only an indicative set of external public utilities that can be accommodated for integration with SPDP. A more comprehensive set of external public utilities can be finalized by SPDP's institutional authority and its appointed implementation partners. 1. Aadhaar: Aadhaar integration can be used to execute the 'individual verification' step, where each beneficiary is uniquely authenticated (either demographically or biometrically or both) against the Aadhaar CIDR using the publicly available Aadhaar APIs. 2. Digital Signature and e-Sign: SPDP will provide "Digital Signature" service to department users for Approval purpose. SPDP can provide an API-based interface with authorized digital signature service provider(s), which can then provision the use of Digital Signature Certificates (DSC) by the requesting users. 3. Digi Locker :- In Odisha's context, a SPDP – Digi Locker interface can help departmental users to store, access and share relevant documents for fulfilling specific use cases (e.g. if schemes need access to beneficiary documents stored in his/her Digi Locker account as a 'valid proof', before issuing a specific public service to him/her). 4. E-Taal: Electronic Transaction Aggregation & Analysis Layer (E-Taal) is a public service to measure the impact of various e-Governance initiatives at national and state levels. The dashboard also facilitates quick analysis of transaction data in tabular and graphical forms enabling users to drill down to lowest level without compromising on privacy, security or integrity of the application software. E-Taal can be considered as a part of linkage to external utility for SPDP platform, where the real-time transactions will be captured.

C. <u>Integrated Social Registry</u>

The SPDP registry can be envisioned to consolidate and organize relevant metadata (demographic and socio-economic attributes) pertaining to all registered beneficiaries.

For Odisha, the beneficiary information collected via SPDP is not a "source-from-scratch" exercise, as there are comprehensive programs (e.g. KALIA, PDS) which already have significant population coverage in the state. Additionally, SPDP services are not envisioned to be limited to any one program but serve multiple programs (which will progressively increase over time as well) instead. It is recommended that
the SPDP registry be designed as an integrated registry based on the principle of 'dynamic inclusion'- i.e. where the registry is dynamically updated and hence serves to provide the most accurate information

Components	Functionality
Registry Management	Provision to define/manage information on beneficiaries registered in SPDP, with the social protection programmes within different sectors. Information defined by the authorized system users in the 'beneficiary management' application; will be persisted into this registry. Information on individual beneficiaries can be accessed from the registry, via the 'search' function in the beneficiary management application. Provision for collection of user information and documentation to register the intended population for the different scheme/s Collect beneficiary metadata, for e.g. • Demographic attributes • Socio-economic attributes Validate details like Aadhaar, KALIA eligibility etc. with the respective source systems
Attribute Manager	Provision to define/amend data attributes (e.g. demographic, socio-economic), whenever source system gets updated linked with SPDP on real time basis.
Key Management	Provision to manage the data sets that are shared between the scheme owners and the SPDP platform using a public private key combination.

D. Primary Users of SPDP and Role Management

SPDP platform will be used by different users for availing different services of SPDP i.e. registration of new beneficiaries, data updates, grievance redressal along with services like deduplication, transliteration and record matching etc.

All the users able to login to the system as per login credentials or reset the password if forgot by same. The illustrative list of users and their role and Functionality mentioned below. Which supposed to be augmented at the course of implementation. The platform should able to create user and assign roles to user seamlessly.

Users	Role & Functionality
Beneficiary / Citizen	This role is aimed at all the State's residents, who will be registered on the platform, so that they can avail benefits from the various ongoing and new Government social welfare subsidies, cash and In-Kind benefits etc. They can also Check eligibility, Information etc

Mo Seba Kendra's Operator	This role is providing assistance to citizen / beneficiary those unable to avail service through SPDP portal by Own.
Scheme Owner Department Users	1. Administrator: This role is meant for authorized administrative users from various departments in SPDP. 2. Data Entry Operator (DEO): This user will be the first point of contact for beneficiaries. The DEOs will complete the "enrolment" requests in SPDP, and submit these transactions to an approving authority, before persisting these 'entries' into the SPDP registry. 3. Approving Authority: This user will be made responsible for reviewing and approving "enrolment" and "update" transactions performed by the DEOs. Apart from that users can authorize schemes, Explore Beneficiary, Scheme Monitoring, Implementation etc.
SPDP Support staff	Mostly resolve Technical issues / General issues raised by Department and Beneficiaries. Like Beneficiary registration issue, Ticket Management etc.
SPDP Technical / Developer	It's the Internal user of SPDP IA. The users can develop components, Forms and other functions.
SPDP Platform Admin user	The role of the Admin user to overall monitoring of SPDP Platform. User Management, Authorization, Password Management, MIS report generation, Analysis etc.

E. General Functional Requirement Specification

1. Information Dissemination Component

Sl	Functionality
1	System should able to display the Schemes as per search criteria selected by User
2	System should display beneficiary list as per search criteria selected by Department.
3	The system should provide detailed information on the following to the user: ▪ Schemes availing ▪ Eligibility Criteria for other schemes ▪ Forms and documents required
4	The system should be accessible to citizens, department officials, other government officials, Mo Seba Kendra Operators
5	The system should not allow any unauthorized user to upload information besides authorized user(s)
6	The system should notify the concerned officials once the information is updated over the application
7	The system should notify the authorized user(s) both in case of acceptance or rejection of the information update
8	The system should have a counter at the bottom of the page to record the number of people hitting the website, this would prove beneficial in capturing the usefulness of information
9	The system should capture time stamp and IP address of the user accessing the system
10	The system should have technology for printing information and where the print was taken will be printed on the printing document.
11	The application should compatible for different browsers like chrome, Firefox, Microsoft Edge, IE etc. Also support mobile browsers also

2. Forms availably components

Sl	Functionality
1	The system should able to display scheme application forms as per search criteria of Beneficiary
2	The system should route the application to Scheme registration page where online registration of scheme is available
3	The scheme should also display the Scheme requirement for Schemes where no online process is available
4	The Application shall provide Easy-to-use step-by-step guidance to search schemes and Beneficiary details for both Beneficiary and Department
5	The system should be able to export forms in multiple formats so as to ensure compatibility of forms
6	The system should support multi-lingual interface (minimum Hindi, Odiya and English) as per localization and language technology standards for National e-Governance plan.

3. Monitoring Component

Sl	Functionality
1	The application Should allow the Application to retrieve various information from the individual databases and aggregate it for authorised user
2	The application should support the monitoring in both the occurrence, when an event or time driven activity is triggered.
3	Should able to generate SLA Report on regular time interval
4	Monitoring of Grievance
5	Should provide a printer – friendly version automatically for all pages.

4. Login Component

Sl	Functionality
1	Should allow only the authentic users to login to the system through user id and password
2	Should display the login page as the first page when the user enters the application
3	Beneficiary can access the application to explore schemes without log in to Application.
4	Should not create duplicate user ids or passwords
5	Login should be made by Beneficiary by Mobile number and OTP and user ID of the Beneficiary will be Mobile Number and do Aadhaar Authentication in the System to see Schemes availing or eligible for.
6	Should not allow the user to have the same password for more than 30 days
7	Should generate alerts for password expiry from two days of actual expiry
8	Should give a welcome message once the user is able to successfully login to the application.
9	Should give an error message once the user provides wrong login information and ask the user to re log in.
10	Should block the user to enter into the application if he puts in wrong login info continuously thrice.

Sl	Functionality
11	User can user forgot password option to reset password or other password reset mechanism to reset the password for already registered users.
12	Department user log in ID will be created as per information provided by Department and uniformity will be maintained for Departments while creating Department specific user Ids
13	Administrator of Department can reset the password of Department users and invoke/grant access to user.

5.Configuration Guidelines

The key features of the configuration guidelines of SPDP are as follows:

a) All the workflows for SPDP system shall be configurable
b) All the roles shall be configurable
c) All the processes designed on the platform shall be configurable
d) All the schemes related data shall be configurable
e) All other entities that are part of the platform shall be configurable

6. Microservices

Every service that is developed, either for internal use of the platform or for external use by other stakeholders, shall be developed as a Microservice. These smaller Microservices can be re-bundled to make it a higher level Microservice. As the platform becomes larger and the number of Microservices is developed, they become highly re-usable. Subsequent developmental efforts for newer services become much easier and faster. These Microservices can be either exposed or consumed internally or externally. These Microservices shall be able to be bundled, unbundled, re-bundled as necessary for both extensibility and re-usability.

7. User Access Channel

Access channels are the means through which information and services related to the SPDP application will be available to the users

a) Desktop / Laptops
b) Mobiles / Tablets

The SPDP Platform should be compatible with all latest browsers for Desktop, Laptops, Mobiles and Tablets i.e. Chrome, Edge, Mozilla, IE etc

13.2 Non-Functional Requirements

S. #	REQUIREMENT DESCRIPTION
1	To ensure integration into a wide variety of environments and to minimize risks of relying upon specific third-party products, the MDM software's architecture must be standards-based and easily portable across third-party platforms, databases, operating solutions and middleware solutions.
2	The solution will be designed and developed to support a 24/7 production environment and reporting solution.
3	Single Sign On (SSO) facilities to be provided for SPDP solution.
4	Solution should have feasibility to perform operations such as Statistical Methods (operations like mean, standard deviation, range, or clustering algorithms to find erroneous data), which are used to remove the Outliers (Observations that are unexpectedly different from the majority in the sample.
5	The solution should be able to support clustering, load balancing, high availability and failover mechanism both vertically and horizontally.
6	Capable of business process-based orchestration.
7	Supports integration with SMTP for email integration for sending real time emails linked to business processes and integration with SMS gateway (Short Messaging Service) to send SMSs.
8	The solution should maintain a detailed audit trail of all changes made.
9	Audit trails must be readily available for Users and Auditors inspection, review and copying both in electronic and paper format (in human readable form).
10	The solution will inform the user of errors based on validations performed.
11	The solution will contain a "help" function on each screen as needed to provide users with instructions on how to perform functions, descriptions of data elements and/or other information.
12	The solution should provide Role Based Access for duplicate resolution and other activities.
13	The solution should provide point-in-time views of data.
14	The solution should support Provide Role Based Access
15	IA shall be responsible for all integration and associated testing/quality assurance of all Products, including but not limited to - Data/API/Connectivity/Database integration and testing; Software configuration, installation, integration and testing; Uptime testing and diagnostics.
16	The solution's interfaces will secure and protect the data and the associated infrastructure from a confidentiality, Integrity and availability perspective.
17	The solution's interface infrastructure shall continue to operate despite failure or unavailability of individual technology components such as a server platform or network connection.
18	The solution's interfaces must be scalable to accommodate changes in scale including changes in user population, transaction volume and throughput. The solution will be capable of making any changes to the interface data elements/layouts easily, and to test those changes.
19	The solution should support standardized solution programming interfaces (API's) or web services to augment the product and integrate with custom Solutions and/or interface with external solutions in a secure manner.
20	The solution will provide the capability to perform source to destination file integrity checks for exchange of data and alert appropriate parties with issues.
21	Solution components will be committed to an advanced approach to interoperability using web services and Service Oriented Architecture (SOA).
22	Solutions will provide the ability to publish services and related data to be used by different types and classes of external and internal solutions.

23	Solutions will provide the capabilities for a Real-Time (or near real-time) Integrated solutions where data is easily shared across solutions with appropriate adherence to security and privacy restrictions.
24	Message and data formats should be based on logical representations of business objects rather than native solution data structures.
25	The solution should support delayed message delivery in case of transmission failure. It shall support putting failed messages in redelivery queue for retransmission.
26	The Solution should provide for Integrated workflow scheduling, automatic load balancing and grid computing support.
27	The solution should have security model to facilitate restricting access to read and change individual hierarchies.
28	The solution must use firewalls to enforce segmentation between trusted and untrusted networks.
29	Solution should use strong encryption to protect confidential information in transit.
30	In case of using non-production solutions for testing, solution must ensure prohibiting the storage and use of production data on those non-production (e.g., test and development) solutions.
31	Should provide reports to authorized users for end-to-end performance monitoring and control.
32	User should be able to generate data pertaining to all the service levels from this solution and take appropriate action.
33	The solution should have the ability to monitor in real-time all the activities and transactions of all the solution components.
34	The solution should have the ability to monitor and show status of the different infrastructure layers supporting SPDP.
35	The solution should have the ability to show recent faults and errors and be able to display recent error messages and exceptions handled.
36	The solution should support monitoring policies (runtime, security policies) and report alerts when necessary.
37	The IA shall ensure that any reporting functionality supports the ability to pull and use narrative descriptions of codes and abbreviations in addition to the codes and abbreviations themselves.
38	The solution shall provide routine and analytical reporting.
39	The solution shall provide for graphical presentation with gauges and other representations to highlight important events and alerts.
40	The mobile solution must be compatible with iOS, and Android solutions.
41	The solution should support configuration setting for all types of mobile devices, tablets etc.
42	Solution must support firewall and antivirus capability on mobile apps.
43	Solution must provide for administrative approval for updating and configuring mobile devices.
44	IA must ensure the secure configuration, data synchronization and sharing capabilities for mobile devices with authentication and authorization policy enforcement on document manipulation and solution access.
45	IA should have detailed documentation with regard to the following: Enterprise Security Policy, Security Incident Response Policy and Supporting Procedures, Change Control Policy and Supporting Procedures, Acceptable/Responsible Use Policy, Privacy Policy.
46	Solution should produce audit trails that will tie any solution activity back to an individual.
47	Solution should enforce strong authentication controls, including complex passwords and multifactor authentication.
48	Solution must securely configure solutions and devices using industry standard baselines. solutions and devices include: Clients, Servers, Databases, Network Devices.

49	Solution must maintain vulnerability management procedures that include identifying and remediating technical vulnerabilities.
50	Solution must maintain and monitor virus protection software security assessments.
51	Solution should conduct internal and external network and Solution penetration testing on periodic basis
52	The solution should provide customized access to users based upon their groups and user authorization level.
53	The solution should secure data access and update by source, attributes, or values, and support comprehensive auditing as well as privacy management.
54	The solution should support both role-based and data-level security. It should secure data access and update by source, attributes, or values, and support comprehensive auditing as well as privacy management.
55	The solution must support roles and views to both data and features/functionality based on those roles. Some roles will have access to all data and functionality while others will only have access to a subset of data and functionality.
56	Must provide capability to validate data via dictionary lookup, e.g. the Address ZIP code must be a valid one.
57	Must support custom dictionary to improve validations.
58	Must provide capability to validate data range checks, e.g. the date must be a valid date, the date range should be not more than 1 month from today, etc.
59	Must provide capability for double-blind entry, in which the data entered by 2 of the users would be compared and inconsistency would be highlighted.
60	The Solution should provide a Central Metadata Repository to manage the flow and traceability of data and structures.
61	The Solution should provide for multiple-user design environment and supports collaboration.
62	The Solution should be rich in the set of in-built transformations and functions that should include predefined table and column-level transformations.
63	The Solution should support targets which are normalized and denormalized.
64	The Solution should provision reusability of individual transformations.
65	The Solution should support surrogate key generation.
66	The Solution should have provision for creation of user-defined external transformation functions.
67	Support data quality measurement on an on-going basis embedded into batch, near-time, and real- time process
68	The Solution should support client requests via standard SOAP and JSON interfaces.
69	The Solution should provide for rules library to clean, standardize, match and enhance data as it moves into the master reference file and is reused for downstream processes.
70	The Solution should have the capability to enrich data from internal/ external/third party data sources data sources.
71	The Solution should have integrated, and customized design-time checks for early notification of potential problems as you build the process flow for a job.
72	The Solution should have the ability of process flow modification, reversal of changes, and maintain audit trail etc.
73	The Solution should have enhanced mapping features that includes intelligent handling of data type conversions, easy and selectable customizes mappings, and controlled propagation of changes to mappings.

74	The Solution should have status indicators that identify complete and incomplete transformations along with details in a job.
75	Solution should have transformations to perform analytical operations like Correlations, Distribution Analysis, Frequency and Summarization.
76	The OLAP building stored processes should be scheduled in a single seamless interface of ETL Jobs.
77	Solution shall contain the data, software, and processes needed to cleanse, consolidate and transform the data from their source solution format to the data warehouse format.
78	Solution shall be able to facilitate bulk data movement.
79	Solution shall be able to join data from multiple sources and support for concurrent processing of multiple source data streams, without writing procedural code
80	Solution shall be able to extract and transform information from multiple sources without any intermediate files.
81	Solution shall be able to check incoming data for quality, reliability, consistency and validity, and then transform as required.
82	Solution shall facilitate identification of user defined ‘events’ to trigger alerts (through email reports) to authorities.
83	Solution shall support In-memory data handling.
84	Solution shall allow high-performance movement and transformation of data between disparate solutions in batch mode.
85	Solution shall support batch mode data quality implementation.
86	Solution shall be able to generate notification alerts based on the occurrences of relevant knowledge items and as per pre-defined priority.
87	Solution shall have the capability to correct mistakes in spellings, inconsistencies, casings and abbreviations.
88	Solution shall support correction logic for Indian names, addresses, phone numbers, identification proof documents/numbers and demographic details.
89	Solution must allow changes to security attributes for groups or users (such as access rights, security level, privileges, password allocation and management) to be made only by super-user.
90	Device Agnostic Platform: The platform will be accessible through multiple devices such as desktop, laptop, mobile, tablet etc.

13.3 Attribute list of identified major source databases

PDS Attributes	Mandatory:	Optional:
	1. Aadhaar 2. Name 3. Father's Name 4. Spouse Name 5. Permanent Address 6. Village 7. GP/ Ward 8. Block/ ULB 9. District 10. 49Ration Card No. 11. Gender 12. Relationship with Head of Family 13. Mobile No. 14. EPIC No.	1. Electricity Consumer No. 2. LPG Consumer No. 3. Bank IFSC Code 4. Bank A/c No.
KALIA Attributes	Mandatory:	Optional:
	1. Aadhaar 2. Name 3. Father's Name 4. Mother's Name 5. Spouse Name 6. Address 7. Gender 8. Ration Card No. 9. Bank A/c No. 10. IFSC Code 11. Bank Name 12. Branch Name	1. Category 2. Mobile no. 3. Land Record Details
UDISE+ Attributes	Mandatory:	Optional:
	1. Student Name 2. Father's Name 3. Mother's Name 4. Date of Birth 5. Gender 6. Address 7. Unique Student ID 8. School UDISE Code 9. Class of Admission 10. Mobile No. 11. Bank A/c No. 12. IFSC Code 13. Prior status of the student 14. Date of Admission 15. Admission number 16. Session 17. Social Category 18. ST sub-Category 19. Type of Disability 20. Student/Habitation/Locality 21. Medium of instruction 22. Email Id 23. If taking Admission in Class 1, status of previous year	1. Aadhaar No. 2. TC Number 3. Class studied in the previous year 4. If Aadhaar not available, then please mention the reason of not having Aadhaar

	24. Section 25. Mother Tongue 26. Does the child belong to BPL 27. Is the Child homeless	
E-Municipality Attributes	Mandatory:	Optional:
	1. Father's Name 2. Mother's Name 3. Name 4. Date of Birth 5. Applicant Name 6. Applicant's Care of 7. Permanent Address 8. Mobile No. 9. Gender 10. Place of Birth 11. PoA 12. PoI 13. Date of Registration 14. Registration No. 15. Doctor's Affidavit 16. Affidavit from Local Magistrate	1. PIN Code 2. Email Id
Energy Attributes	Mandatory:	Optional:
	1. Name 2. Customer ID 3. Consumer No 4. Connection Type 5. Load Required (KW) 6. Address 7. Category of connection 8. Email Id 9. Mobile no. 10. Land Details	1. Aadhaar No. 2. Supply Address 3. Owner Current Address 4. Shop No. 5. Floor 6. Flat No. 7. Ownership of Applicant w.r.t premise 8. Owner Name 9. Nearest /Existing Consumer's No. 10. Name of Premises/ Firm 11. House No.
NSAP Pension Attributes	Mandatory:	Optional:
	1. Aadhaar 2. Name of pensioner 3. Name of the father 4. Age 5. Date of Birth 6. Spouse Name 7. Address 8. Village Locality 9. GP/Ward Name 10. Sub District/Block 11. District 12. Gender 13. Category 14. Bank/PO account details of Pensioner 15. Bank Name 16. Bank address/ Branch name 17. IFSC 18. Member ID no.	1. Father's Name 2. Mobile No. 3. EPIC No. 4. Name of the Mother 5. Ration card no 6. BPL Details - Year, Location, Family ID no. 7. In case of disabled person -Type of disability 8. Last pension month

	19. Pension effective date	
MBPY Oldage Pension (Madhu Babu Pension Yojana) Attributes	Mandatory:	Optional:
	1. Name 2. Father's Name/Spouse Name 3. Date of Birth 4. Age 5. Gender 6. Aadhaar No. 7. Upload Aadhaar Scan Copy 8. Address 9. Mobile No. 10. State 11. District 12. Sub-Division 13. Address Type: ULB Block 14. Block 15. GP 16. Village 17. House No/Plot No 18. Pin 19. Social Category 20. Upload Income Certificate/Ri Report/BPL Card 21. Upload thumb/Signature 22. Bank Account Type 23. Bank A/c No. 24. Bank Account Holder 25. IFSC Code	1. Upload Additional Document 2. Upload Age Proof
Driving License Attributes	Mandatory:	Optional:
	1. Name 2. Father/Mother/Spouse/Guardian 3. Date of Birth 4. Educational Qualification 5. Present Address o House/Door/Flat No o Street/Locality/Police Station o Village/Town o Sub district/Taluka/Mandal o District o State o Pin Code 6. Permanent Address 7. Gender	1. Email 2. Aadhaar Number

	8. Mobile No. 9. Blood Group	
HRMS Attributes	Mandatory:	Optional:
	1. Employee Full Name 2. Family Information 3. Permanent Address 4. Present Address 5. Gender 6. Marital Status 7. Category 8. GPF No. 9. Education 10. Mobile No. 11. Blood Group 12. Post Group 13. Domicile 14. Bank Name 15. Branch Name 16. Bank Account No. 17. Aadhaar No. 18. PAN 19. ID Mark 20. Date of entry in Govt. 21. Language 22. Account Type 23. HRMS ID	

13.4 List of applicable Centrally Sponsored Social Protection Schemes

Sl.	Name of the Scheme
1	Seed Production Incentive under BGREI
2	Pradhan Mantri Matsya Sampada Yojana (PMMSY)
3	NAARS INCENTIVE FUND-World Bank Performance-Based Incentive Grants
4	Green India Mission National Afforestation Programme
5	Development of Marine Fisheries, Infrastructure and Post-Harvest Operation
6	Development of Inland Fisheries and Aquaculture
7	National Scheme on Welfare of Fishermen
8	Project Tiger
9	Project Elephant
10	Biosphere Reserves
11	Integrated Development of Wild Life Habitats
12	DAY-NRLM
13	Deen Dayal Upadhyay Grameen Kaushalya Yojna
14	National AYUSH Mission - Medicines under AYUSH Services
15	Scheme for Adolescent Girls
16	Integrated Child Protection Scheme-Salary of staff
17	Protection and Empowerment of Women-Comprehensive Scheme for combating Trafficking of Women and Children-Ujjawla-Facilities to beneficiaries
18	Protection and Empowerment of Women-Comprehensive Scheme for combating Trafficking of Women and Children-Ujjawla- Salary
19	Protection and Empowerment of Women-Swadhar Greh-facilities to beneficiaries
20	Protection and Empowerment of Women-Swadhar Greh- Salary to staff
21	Anganwadi Services Training Program
22	Child Protection Services - Facilities to Beneficiaries (Sponsorship)
23	Livestock Health and Diseases Control
24	Stipend for Disabled girls under IEDSS component of Samagra Shiksha
25	Samagra Shiksha (interventions of uniform/text books)
26	Kind Benefit under IEDSS component of Samagra Shiksha
27	Pradhan Mantri Kaushal Vikas Yojana Component II
28	NIKSHAY - TB patient incentive for nutritional support
29	NIKSHAY - Tribal TB Patients
30	Anganwadi Services - Supplementary Nutrition Program
31	Anganwadi Services - Honorarium to AWW and AWH
32	NIKSHAY - TB Notification incentive for Private Sector
33	NIKSHAY - DOT Provider Honorarium
34	National Family Benefit Scheme
35	Indira Gandhi National Widow Pension Scheme-IGNWPS
36	Indira Gandhi National Old Age Pension Scheme- IGNOAPS
37	Indira Gandhi National Disability Pension Scheme-IGNDPS
38	RKVY-RAFTAAR
39	Post Matric Scholraship -EBC
40	Post Matric Scholraship -OBC

41	Mission on Integrated Development of Horticulture -subsidy to others
42	DAY NULM
43	State and UT grants under PMAY urban
44	Sub Mission on Agriculture Mechanization-Centrally Sponsored
45	Pradhan Mantri Krishi Sinchai Yojana
46	Mission for Integrated Development of Horticulture
47	ASHA incentives
48	Swachh Bharat Mission (Urban)
49	Swachh Bharat Mission (Gramin)
50	SEED-Rashtriya Krishi Vikas Yojana
51	RURAL HOUSING - PMAY
52	MGNREGS
53	SEED-NATIONAL FOOD SECURITY MISSION
54	POST- MATRIC SCHOLARSHIP FOR ST STUDENT
55	PRE- MATRIC SCHOLARSHIP FOR ST STUDENT
56	POST-MATRIC SCHOLARSHIP FOR SC STUDENT
57	PRE- MATRIC SCHOLARSHIP FOR SC STUDENT
58	Janani Suraksha Yojana