Appendix I to the CALL FOR TENDERS

2021AO69

FOR THE PROVISION OF IT SERVICES: DEVELOPMENT AND SETTING UP OF THE MANAGEMENT INFORMATION SYSTEM

BUSINESS AND TECHNICAL REQUIREMENTS

Contents

1. BACKGROUND

1.1. Introduction

With the adoption of the "Law on Probation" in May 2016, Probation service was established with the aim to support offenders in their rehabilitation while protecting the public. Probation service, under the Ministry of Justice supervises offenders in the community and in custody. Through tools of supervision, sanctions alternatives to imprisonment and close partnership with them, the service directly manages the beneficiaries of the service in the community, as well as before and after release as they reintegrate into society.

Armenia has a rapidly growing infrastructure for e-government. The concept of the e-probation system and its technical specifications will be based on e-government building blocks already implemented in Armenia.

One of the core solutions is the flexible and secure information exchange system: Government Interoperability Platform (GIP), which allows fast data exchange between various public agencies' main state registers.

Base state registers are already made available for sharing via APIs. The systems such as Population and Civil acts registers are able to provide detailed information about Armenian citizens, their marital status and identify family members. Real estate property and cars registers contain information about citizens' belongings (cars and real estate). Register of driving licences can provide the type and status of citizens' permits for driving. Databases of conviction statuses, fines for traffic violations, unpaid duties processed by compulsory enforcement, are indicators of a person's social behavior.

Another core solution is the Mulberry document management system that is used at almost all governmental bodies and allows fast and secured electronic document exchange between different entities without wasting precious time for physical delivery and further processing of paper documents. Probation service currently receives the resolutions of the court (the actual start of each case) via Mulberry.

The country has established a digital identification and signature system since 2011 and now all citizens holding a National ID card have reliable electronic means of identification and signature for accessing public services, login and sign documents at their workplaces (mostly used by accountants, civil servants and doctors). It should be noted that about 1.2 million ID cards were issued during the last nine years, which means that approximately half of Armenian population has a completely free of charge e-identification possibility, and a signing solution for 5 euro annual price.

The above-mentioned systems, registers, identification and signing means can be considered as important building blocks for the public sector digitization, creation of new electronic services with citizens at the center approach. For public entities these blocks allow to improve current information management systems used for daily activities and revise, re-engineer and automate a number of business processes.

For the State Probation Service, all described opportunities and developments may create a solid ground for implementation of an easy to use and secured Probation Management Information System (PMIS) which promises to enhance efficiency and effectiveness, transparency and accountability of the Service and substantially contribute to the further development of the probation institute in Armenia.

1.2. Purpose of the document

Steps have already been made towards digitization of several processes in probation service, however, most of the functions are executed in paper form. Following websites are already available:

- **www.probation.am** website provides information about probation service, highlights main achievements and activities toward re-socialization, local and international legislation, announcements, information on partners etc.
- **user.probation.am** is the risk and needs assessment tool that can be considered as the first step toward probation system automation, dedicated solely for inner use. The tool makes it possible to assess the risk of recidivism and formulates advice on special conditions.

As already mentioned above, most of the functions of Probation Service are in paper form, which usually impedes the effectiveness of the service. The aim of this document is to describe a comprehensive electronic platform of data collection, verification, analysis, sharing and workflow management processes, including the whole cycle of probation service for each individual case in order to achieve automated and paperless management system.

The platform should be constructed with the possibility of further extension of its functionality due to introduction of new regulations and new services delegated to the State Probation Service (SPS) as well as technological advancements (e.g. tracking the beneficiary with bracelets). Taking into account the huge amount of data requested from various state entities, and underuse of the potential of reuse of already collected data, it is essential for the system to be integrated to the

Government Interoperability Platform. Also, a probation beneficiary requires regular appearance in SPS for supervision, which is currently recorded manually, so the designated system should allow monitoring of each case proceedings in a comprehensive manner. The demand for supervision of beneficiaries' appearance with GPS tracked fingerprint verification tools and web cameras are also addressed in the document.

1.3. Project reference

The Project "Support the scaling-up of the probation service in Armenia" Action Plan for Armenia 2019 – 2022 aims at assisting the national authorities to fully endorse the concept of probation in practice through providing the necessary legislative, institutional and operational framework. It is implemented by the Council of Europe in cooperation with the main partners, namely the Ministry of Justice of Armenia and the State Probation Service.

The project, in line with other activities, envisages creation of new working tools and working methodologies to contribute to a fair criminal justice process as well as to public safety by preventing and reducing the occurrence of offences and facilitating re-integration of offenders into the society.

1.4. Objectives and key results

One of the main objectives of the project is to create a digital infrastructure required for enhancing and speeding up the decision-making possibilities for SPS based on relevant, actual and constantly updated data and information, with aim to provide better conditions for qualified probation services both for the state and the actual beneficiaries.

As the main objective is broad, for better understanding it is divided into following smaller goals and results that are expected to be achieved.

The implementation of the project should assure that:

a. PMIS is developed to execute functions of SPS in a paperless environment.

b. The system is integrated to GIP to receive and provide real time data from core state registries.

c. The system is implemented in the headquarter and regional offices

d. Staff of SPS is trained to work with the system

e. System is tested and fully operational

f. The flexibility of the system to legislative changes is ensured

g. The flexibility of the system for integration with other information systems is ensured.

1.5. Main legal acts

The Supplier should get acquainted with the legal framework in this document. The following existing regulations should serve as a guide for the system development:

- The relations connected with probation are regulated by the Constitution of the Republic of Armenia, international treaties, the constitutional laws, the Criminal Code, the Criminal Procedure Code, the Penitentiary Code, the Law "On civil service", the Law “On Probation service” and implementing acts.
- Government Decree N 404-N, dated 20.04.2017 establishing measures for resocialization programs.
- Government Decree N 1176-N, dated 18.11.2016, which defines the procedure for collecting and processing the information included in the Probation Service database.
- Government Decree N 1093-N, dated 31.08.2015 “On defining the general technical requirements for security and interoperability of electronic systems used by state and local governments for provision of electronic services”.
- Government Decree N 1849-N, dated 19.12.2019 “On exchange of personal data between state entities”.
- Government Decree N 1521-N, dated 26.12.2013 “On minimum requirements for official web pages of the state entities”.
- Government Decree N 395-N, dated 05.04.2018, “On adopting the internal Rules of the SPS”.
- Government Decree N 1440-N, dated 09.11.2017, “On order of utilization the electronic monitoring means”.
- Government Decree N 1019-N, dated 17.08.2017 “On approving the rules and conditions for involving in public works”.
- Government Degree N 1221-N, dated 18.10.2007 “On approving the procedure for exercising control over servicemen in case of conditional non-application of the sentence”.

- Order of the Ministry of Justice N336-L, dated 12.07.2018, “Order on providing reports by the penitentiary service and the SPS on early release from prison”.
- Order of the Ministry of Justice N98-A dated 28.03.2019 “On approving the sample of the risk and needs assessment of the Probation Beneficiaries”.

1.6. Acronyms Used in These Technical Requirements

Term	Explanation
SPS	State Probation Service of the Republic Armenia
PMIS	Probation Management Information System
GIP	Government Interoperability Platform
RDMS	Relational Database Management System
API	Application Programming Interface
PO	Probation officer
EKENG	e-Governance Infrastructure Implementation Agency
PSN	Public services number
eID	Electronic identification using national ID card with a card reader
mID	Mobile identification with uSIM cards

2. BUSINESS FUNCTIONS AND PERFORMANCE REQUIREMENTS

2.1. PMIS overview

The purpose of the PMIS is to create completely paperless digital infrastructure and environment for conducting SPS’s activities and operations in an efficient, effective, transparent and accountable way and to provide probation beneficiaries with opportunities to know better their responsibilities and rights, to communicate with SPS through digital channels when it is possible and allowed by the Armenian legislation.

The PMIS should ensure the effective and completely paperless use of the information and data collected during the creation and processing of probation beneficiaries’ personal cases in order to provide a solid ground for on-time, weighted, information and data-based decisions made by SPS staff and officials.

Simultaneously, the system should provide guidance for probation beneficiaries, inform them about their rights, responsibilities and possible limitations, present time schedules for main

activities and send reminder notifications about important deadlines, make it possible to submit digitally signed applications and declarations online.

The system should be properly integrated with a few state registers through the GIP in order to securely receive and provide information required for creation and processing of personal cases.

All the information and data required for the PMIS's smooth operation should be inserted, generated and kept solely in electronic and digital formats through the automatic and manual data and files input, scanning, recording and video recording when necessary.

The system should provide possibilities for further development including integration of self-registration terminals with camera, GPS sensor and fingerprint reader; GPS tracker bracelets system; video calls to the secured and GPS trackable devices and other technological novelties required for SPS's effective and efficient operation.

2.2. PMIS general requirements

The system should be a web-based application that can be used without installing any additional software on client computers except standard web browsers. The system needs to support at least two of the most used web browsing software's, that are available on multiple platforms (Windows, Linux).

The hosting environment of PMIS must be based on at least one open-source operating system.

The system should be provided as an installation package that can be installed independently of the vendor. All following upgrades and/or modifications should be available for automatic or manual installation without vendor interference.

The system should be multilingual, enabling at least 3 languages (Armenian, Russian and English). All forms, data and other information should be available in 3 languages. All data entry interfaces should have relevant design and appearance for multilingual information entry.

The database engine of PMIS should be a well-known and supported by Relational Database Management System (RDBMS) that is a hosting platform independent (PostgreSQL, MySQL, MariaDB, Oracle, Microsoft SQL Server) and able to be migrated from one hosting provider to another without requirement for re-coding. If the license is required for running the database engine it should be provided for at least five years' usage rights.

The latest long-term support version of the chosen RDBMS at the time of development must be used. The system should be based on the highly available database for the transactions and data warehouse for reporting and visualization.

Selection of the database (RDBMS Edition) must be based on the following criteria:

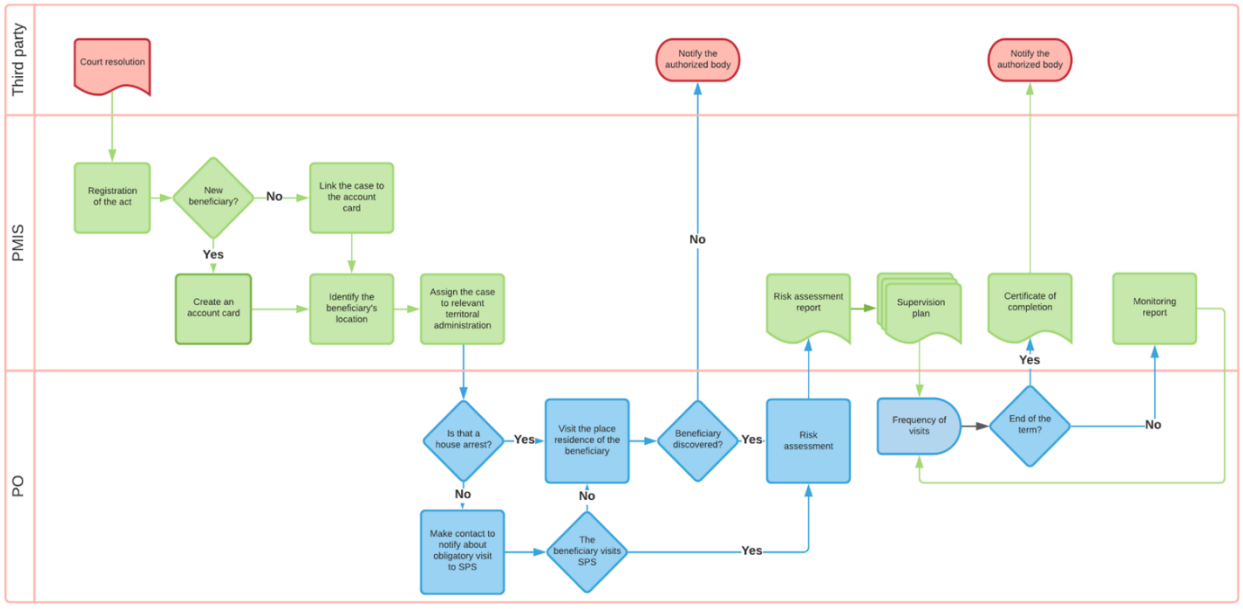
- Database must have an installation package for the recommended operating system;
- Must offer query optimization features, either out of the box or through third party products;
- Must offer triggers, stored procedures, table and scalar functions;
- Must offer automated and regular database backup, database optimization and reorganization and rebuilding indexes; and
- Must support Unicode encoding.

The system should be built as part of interconnected information systems for which the E-justice Portal serves as a focal point. The developers shall work closely with consultants creating E-Justice Portal to ensure that the E-Justice shared components are considered during development of PMIS.

The PMIS system should support two-way data exchange, providing the data to other systems and consuming data from other systems. Data exchange and interoperability shall be organized through the GIP managed by the EKENG. The system should implement a secure Application Programming Interface (API) allowing secure data interchange with external systems, according to the rules and requirements of the Government Decree N 1093-N of August 31, 2015.

2.3. Overview of the business cycle of SPS

The diagram below presents the main processes of SPS after the receipt of the Court resolution, which serves as the main trigger of starting probation procedure. The large version of the diagram is presented in Annex 1.



The following types of probation services are defined by Armenian legislation:

- Non-custodial sentence
  - Execution of the fine
  - Execution of public works
  - Execution of prohibition to hold certain posts or practice certain professions
- Supervision
  - Early conditional release and replacement with less severe punishment type
  - Home arrest in case of execution of alternative measures of restraint
  - Suspension of sentence
  - Supervision over persons who are on probation in case of conditional non-application of the sentence or whose sentence has been postponed, who are released from serving the sentence
- Execution of mediation
- Security measures
  - Ban on visiting certain places
  - Receipt of psychological support
  - Specific control upon behavior
  - Family control
  - Transfer to educational specific organization
  - Participation in educational, cultural, sport and other events.

It should be noted that the probation service is relatively new in Armenia, thus legislation and overall business process organization may be changed frequently. The system should be able to easily change, remove and add more processes when needed.

In order to conduct its business processes, following groups of officials and employees have defined functions, rights and responsibilities:

- Higher management that can view statistics, reports and performance measurement and has access to all of the cases (actual and archived).
- General management of SPS that besides viewing statistics, reports and performance measurement, can approve, reject or ask modifications for the reports.
- Heads of units that besides viewing statistics, reports and performance measurement, approve, reject or ask modifications for the reports, plan and distribute workload between PO.
- Probation service employees that do mostly the case work as PO, such as registering the beneficiaries, opening the cases, analyzing data, meeting with beneficiaries, creating supervision plans, monitoring the case, producing reports, sending letters, preparing draft of letters, etc.
- Ancillary workers – General department employees, that organize the information and do the initially data entry in the system, as well as manage the archives. In scope of the project financial department employees track the payments of beneficiaries' liabilities.

2.4. PMIS functional requirements

The cycle of the process for any type of probation service starts with the receipt of a court resolution. The system must be able to receive and register the act sent from the courts via the Mulberry system, as well as other information systems used by the courts.

Document exchange protocol is presented in Annex 2.

2.4.1. Registration of the court resolution

The registered resolution should reach to the responsible PO as a task assigned (reassigned) by the vertical supervisors to create a probation case (see Workflows).

The system should have a form constructor for resolution registration, the fields of which should be customizable for SPS. The following are the minimum fields for registration:

- Resolution number
- Resolution date
- Name of the Court
- Date and time of receipt of the resolution
- Name of the Beneficiary

- Date and time of registration
- Comments
- Upload of resolution file (in case if it is not directly received from the Mulberry system)

It should be noted that the legislation can envisage both individuals and legal persons (organizations) as probation service beneficiaries. Thus it should be possible to define business processes for cases for both: individuals and organizations.

2.4.2. Registration card

Each beneficiary of Probation service should be registered in the system. Registration occurs once a resolution is received and a task to create a Probation case is assigned.

Fields of the registration card should be customizable by SPS. The system should allow automatic fill-in of required fields, based on the beneficiary's unique identifier (PSN), if the information is already kept in other state registries (via GIP). Since GIP is constantly developing and the number of integrated registers and available data increases, the Supplier should discuss and agree the integration possibilities with EKENG.

The system should provide tools for manual inputs and editing of filled data. It should be possible to attach documents to the registration card.

The beneficiary card contains at least the following information:

- Photo of the Beneficiary
- Name, Surname, Middle name
- Date of birth
- Citizenship
- Registration address
- Actual address
- Identity document data
- Social services number
- Marital status
- Workplace

- Pensioner (if applicable)
- Disabilities (if applicable)
- Fingerprints (optional)
- Link(s) to probation case(s)
- Risk score

The access to registration cards should be customizable, based on the roles' rights assigned to the users of the system.

The system should allow regular automatic updates of the data received from state registers via the GIP and alert the assigned users in case of changes in data inside the registration card (got divorced, changed address, changed the name, registered a business, changed the workplace etc.).

The registration card should have its own unique number, creation and last modification dates.

It is planned that in 2022 the probation institute will be available also for legal entities, thus the system should also support creation and processing of registration cards based on the entity's TaxID, and the data from the Register of Legal Entities should automatically be filled in (the details of required fields should be discussed with SPS).

2.4.3. Probation case

Probation case specifies which measure should be taken by SPS. See Section 2.3 for possible options.

The case should have the following fields at minimum:

- Link to registration card (some information of the registration card should be visible in the case as well, e.g. name, date of birth, photo etc.)
- Type of the measure to be taken by SPS
- Case creation date
- Case number
- Probation start and end dates
- Link to supervision plan

- Pre-sentence/social history
- Link to progress reports
- Health summaries.
- Psychological summaries.
- Discharge reports.
- Etc.

Data required for each type of case should be agreed with SPS during the initial implementation.

Each case is linked to a relevant registration card of the beneficiary. One registration card may be linked to a few cases (ongoing or archived). The cases have unique numbers, creation and modification dates. It should be possible to attach documents to the case.

The system should provide a toolkit for creating different types of personal cases based on court decision's content and associate with them appropriate workflows and actions.

Each type of probation service case should have its customizable workflow. The authorized personnel should be able to construct the workflows, define available statuses, actions, and templates to be used in each of the cases. (See Section 3.1)

It should be possible to generate documents inside the case based on defined templates. It should also be possible to upload documents and attach them to case. The system should allow signing of the generated documents remotely, without the need to download and upload.

If the case envisages execution of fines, the system should automatically create a payment schedule based on the conditions defined in the resolution.

The system should be integrated with the Treasury system of the Ministry of Finance. The payments made in the scope of Fine execution should be recorded in the system. After each payment, the system should calculate the remaining amount of liabilities and update the payment schedule. The system should automatically link the payments to cases. In case the linkage is impossible and the system cannot identify the Beneficiary and the case, the system should allow linking the payments to cases manually by PO.

The case should have a special section for re-socialization activities organized by SPS.

2.4.4. Supervision plan

After creation of the case, based on risk and needs assessment, a supervision plan should be created.

The plan contains the following aspects, which should be able to be assessed by the PO:

- Education, employment, financial conditions
- Family relations
- Environment
- Dependencies
- Emotional state
- Position towards the circumstances
- Values

The supervision plan with its obligatory and optional fields should be fully customizable.

The system should allow giving risk weights to each of the above-mentioned aspects, propose risk mitigation measures (choosing from the list), set timetable for each of the measures using calendar, define expected results and appoint responsible for each activity.

The system should keep track of the activities. After completion of the supervision plan, the activities with the schedule become available for the beneficiary (on his personal page) and the responsible.

POs should have calendars with activities of all cases under their responsibility. The calendar should have the functionality of reminders and alerts on due activities.

The supervision plan should be editable by the PO responsible for the case.

2.4.5. Fingerprint collection and web cameras

SPS, in cases prescribed by law and implementing acts, monitors the Beneficiary's appearance in Probation service departments. The Beneficiaries are obliged to visit SPS regularly. The system should support the fingerprint readers and web cameras for securely collecting and storing beneficiaries' fingerprints and face photos, in order to assure that the visit was conducted by the beneficiary him/herself and for further automated verification. The computers (terminals) where fingerprint readers are installed in order to assure that the visit was conducted at the actual geographical location (checkpoint) should be equipped with GPS sensors as well.

The supplier should deliver the required devices for fingerprint reading, photo taking and GPS tracking according to the list presented in Annex 3.

In some cases the fingerprint check may be requested also for PO. The system should allow recording the fingerprints, GPS coordinates for “check-ins”of POs. For example, for at-home visits PS management may require the POs to “check-in” at the beneficiary's address in order to prove that the visit was actually made as required.

2.4.6. Risk and needs assessment tool

The system should have a separate module for risk and needs assessment.

As already described in Section 1.2, a separate risk and needs assessment tool is already developed, which allows to evaluate the risk of recidivism of each of the Beneficiary of the service. The tool represents a comprehensive questionnaire with which every Beneficiary should be interviewed and recorded.

The supplier should consider the options of integrating the existing tool to the system or developing it from scratch in the system. The proposal with relevant justifications should be submitted to SPS for approval.

The system shall ensure that the results of the risk and needs assessment are linked to the beneficiaries and available through personal pages of beneficiaries (See Section 2.4.6).

The risk and needs assessment tool should be customizable: with possibility to change the scope of questions and evaluation methods (weights of each of the questions, calculation principles, etc.).

The data required for the assessment tool that is already available in other state registers should be obtained via GIP.

The tool should have possibility for manual inputs by POs in case there is additional information that was obtained during the interview or other sources and should be recorded.

Migration of already collected data should be ensured.

2.4.7. Case monitoring

The system should allow the PO to monitor the case and to define regularly checked variables for each type of case (payment schedule/actually paid liabilities, changes in marital status, employment, transactions with real estate, etc.)

The system should regularly check the Police registers for traffic violation fines which might indicate for example that a person who is prohibited to drive a car, has violated the restriction. The system should alert the PO of such circumstances and changes in Cases.

The system should regularly check the database of the State Revenue Committee in order to monitor job changes of selected beneficiaries who have restrictions to hold some specific positions and jobs.

The system should check the Civil Acts register in order to monitor the changes in marital status, birth of children, possible deaths of family members and beneficiaries as well. These changes can impact the content of the supervision plan and whole case as well, thus the system should alert the PO on any change in the data.

The system should check the databases of police and penitentiary in order to determine if any type of law violation has been registered on behalf of the beneficiaries.

Other monitoring requirements can be formulated by SPS during project implementation and further operation.

2.4.8. Beneficiaries personal page

Personal page should be accessible for the beneficiaries with the following functionality:

- Cases: The Beneficiary should be able to view and track the status of all cases linked to his/her registration card.
- Calendar: The Beneficiary should have a calendar with all activities (including payment liabilities) envisaged in the supervision plans of cases. The calendar should have reminders (in-page, email, or SMS). The time, frequency of reminders should be configurable.
- Information on rights and responsibilities, procedures of types of probation services applied to the beneficiary.
- Reporting: In cases prescribed by law, the beneficiary should be able to submit reports, documents to the case through the personal page. The system should also provide pre-filled forms, templates of declarations, reports and other documents for download. The system should allow editing the templates, signing in the personal page and submitting the signed document. The system should allow remote digital signing without the need to download and upload documents.
- The system should allow the online payment of the liabilities of the beneficiary through the personal page. The payment schedule for each case should be available for the beneficiary. The beneficiary should also be able to see the payment history, overdue payments.
- Work opportunities: The section should provide information on open vacancies for public works.

3. SOFTWARE SPECIFICATIONS

3.1. Workflow constructor

The system should have the workflow constructor to enable any business process for any type of probation case. The workflows are based on actions and statuses. The system should have two main predefined statuses: New and Finished.

3.1.1. Workflow statuses

The names of statuses are free user defined texts. In addition to Status description, the system should enable the Tracking info field which is proposed for sending meaningful information to external document tracking functions. The table below represents some examples of status name and tracking info.

Examples of status name and tracking info		
	Status Description	**Tracking info**
1.	New	
2.	Awaiting approval	Your document is being processed
3.	Awaiting signature	Your document is being processed
4.	Approved	Your request is satisfied, please see the signed document below.
5.	Finished	

Statuses cannot be deleted if they have been used in any action. Register of statuses should provide at least the following functionality

1. Search status by name
2. Editing status data
3. Deleting status (if never used)
4. Deactivating/activating status

3.1.2. Workflow actions

The minimum requirements for defining an action in the system are as following:

Minimum requirements for defining an action in the system	
Name	**Description**
Action Name	Text
Required Status	Selection from available statuses of particular workflow for which the action is defined.

Next Status	Selection from available statuses of particular workflow for which the action is defined.
For all statuses	Yes/No selector to enable showing a particular action for all statuses
Action is automatic	Yes/No selector to enable performing a particular action based on deadline or any other condition.
Require recipient	Yes/No selector to set an option whether the task is being forwarded to another recipient or can be performed without changing the holder of the task.
Require deadline	Yes/No selector to enable setting a deadline for the next recipient.
Action is automatic	Yes/No selector to set whether the action is automatic or should be performed only manually.
Visible to	System should allow limiting visibility of action to a particular role, group or anyone.
Edit fields	The system should allow editing particular metadata of the task before completing the action. (ex. updating the deadline, setting specific value to a field.)
Other programmed actions	The system should allow the development of custom software code during the action (generate a template, send an email etc.)

3.1.3. Workload calculation

The system would provide an opportunity for the supervisors while assigning the tasks to estimate the time required for task completion (hours, days, etc). The system should be able to calculate the workload of the employees and suggest the SPS's managers to assign tasks to the less loaded subordinates and prohibit task assignment to those employees whose load is more than e.g. 8 hours per day (the latter condition should be discussed with PSP).

The system should allow the creation of calendar events for POs with further reporting possibilities. E.g. PO before visiting the beneficiary home should create an appropriate event (also available in the supervision plan) linked to the case and after the visit should be able to close the event with notes on visit details (obligatory and optional fields to be defined by PS) such as time spent, succeeded or not, etc.

3.1.4. Visualization

The system would provide a tool for a visualization of workflows in a form of block-schemes.

3.2. Posts and roles

3.2.1. Roles and organizational tree

- Role based access control approach should be used in the system.
- The system should have a tool to create a hierarchical tree of organizational posts. A set of predefined posts shall be included based on the organizational chart of the SPS.
- The system should allow configuring roles with relevant functions, including/excluding permissions.
- Each role should have a specific set of permissions to access data, performing actions.
- Users are appointed to posts and have relevant roles with relevant functions assigned to the post.
- Users can be assigned and withdrawn from designated posts.
- Only one user can be appointed to a particular post at a time.
- When a user is appointed to the post it receives a full history of completed and ongoing tasks and accesses associated with the post.

The supplier should discuss with the SPS to define initial roles with relevant access rights and functionality.

3.2.2. Post registration tool

Post register section should have at least the following functionalities:

- Creating a post, assign hierarchy
- Searching, sorting and filtering by all fields of the post
- Sorting and filtering by all fields of the post
- Editing the post
- Activating/deactivating the post

3.3. Users of the PMIS

The system should support two types of users - internal and external. The internal users are officials and employees of SPS, while the external users for the system are registered probation beneficiaries.

3.3.1. System requirements for internal users

- The system should initially have a built-in user associated with administrator post
- Internal users are created by the post with permission to create internal users (often HR department employees)

- Internal users are appointed to and are withdrawn from posts by the user with appropriate permissions
- The unique identifier of internal user is the username
- The internal user record should contain at least the following information
    - User Name and Surname
    - E-mail
    - PSN (optional)
    - Office phone number (optional)
    - Extension number (optional)
    - Office address (optional)
    - Mobile phone number (optional)
    - Photo (optional)

The internal users should have access to change their profile information and passwords.

3.3.2. System requirements for external users

- External users are created automatically just after creation of beneficiaries' registration cards
- The identifier of the external user is solely beneficiary's PSN

3.3.3. Functionalities of user register section

User register section of the system should have at least the following functionalities:

- Search by all fields used during registration of users
- Sorting and filtering by all users, active users, suspended users
- Authorized users should be able to define the columns by which the list of users is demonstrated. The selection should be based on all fields used during registration of users
- Editing user data
- Changing or resetting password
- Deactivating and activating a user

3.3.4. User login options

3.3.4.1. Internal users

Internal users should enter the system with their usernames and passwords with a combination of one-time password sent to their emails or mobile phones. When the user's PSN is registered the system should allow entering with eID or mID without second authorization factor requirement.

3.3.4.2. External users

Taking into account the sensitive data, external users should be able to log in to their personal pages using solely strict identification means (currently the possible ways are the e-ID and m-ID) prescribed by regulations. By the final deployment of the system, the supplier should provide access with all possible strict identification means defined in Armenian regulations. The supplier should note that currently GovID solution (based on smartphone application) is under development and should be integrated into the system as well.

3.4. Libraries management

For the purposes of the classification, the system shall keep the minimum possible of the text information. The system should enable creating and maintenance of custom libraries such as regions, communities, regional departments of SPS, types of services, possible measures for risk mitigations, etc. Library management component should enable importing and exporting libraries from one IS to another. In addition, the system should enable exporting/importing libraries from one of the standard formats such as CSV, .XLSX, etc. Libraries should be accessible from forms as source for values of different field types.

As an example of a library, the address book is described below.

The system should have the ability to collect and store information about external organizations' contacts.

Address register should have at least the following functionalities

- Search,
- Sorting/filtering by all contacts, active contacts, suspended contacts
- The authorized personnel should be able to define the columns by which the list of contacts is demonstrated. The selection will be based on all fields used during registration of roles.
- Editing contact data
- Deactivating/activating a contact

The minimum required information for collection and storing of data is as following:

Field named	**Description**

Name	Text Organization name
Country	List of ISO countries
Region	List of Armenian regions
Community	List of Armenian Communities
Residence	List of Armenian residences
Street	Text Street name
House type/ Number	Text
Organization Code	Text, proposed for coding the address book entries

3.5. Document templates

The system should enable generation of multi format (xml, pdf) templates from data available in any task/document records. System should provide tools to develop document templates and attach them to probation service types. Same template can be used for more than one workflow and action.

The system should provide possibility for remotely signing of PDF templates with means of electronic digital signature and signing them with signing pads as well.

In the course of probation service, the beneficiaries are required to sign various forms of declarations, reports and notes. Currently the signature procedure is fully paper based and the beneficiaries visit the Probation offices to sign them by hand. It is envisaged that probation officers will have a signature pad plugged into their computers and the system should allow signing the documents generated by the system without leaving the workspace, using electronic signing pads or other means of digital signature.

3.6. Search

The system should provide integrated sorting, filtering, keyword and file content searching by any combination of variables. Data will be searchable and filterable in whatever state according to different selection criteria.

The lists should have a drill-down functionality to view the details.

Only authorized users should be able to perform full content searches, while others are allowed just to see the information related under their access and assigned tasks.

3.7. Notifications

The system should have built in notifications functionality in order to send alerts to all types of the users, when:

- There has been change in data of the Beneficiary in the state registries integrated to the system via the GIP and other sources (e.g. the beneficiary got married/divorced, employed/left the post, obtained a driving license, etc.)
- The scheduled activities defined by the supervision plan are close to their deadline or are due.
- New documents are added to the Case (reports, references, declarations, etc.)
- Any other event that might require special attention.
- Violations have been registered (supervision plan schedules, law, etc)
- Reminders

The system should have tools to configure the settings for notifications types. It should be possible to define alerts and reminders for all actions and events.

The notifications should be received through the system. Alternative methods for receiving notifications, can be any of the following (more than 1 channel can be selected):

- Personal email address
- Text messages (SMS)
- Official notification

The system should thus be integrated with a mail.e-gov.am system for sending emails, all required credentials and network settings will be provided by EKENG.

For sending SMS the system should be integrated to the appropriate operator's system via APIs. The selection of SMS operators is made on an annual basis through the state procurement tender, thus the system should be ready for new API integrations. The description of APIs of two major SMS operators will be provided during the project implementation.

The system of official notifications (e-notify) is currently in the development stage, thus the integration instructions will be provided by EKENG during the project implementation (in January, 2022).

3.8. Reports and Dashboards

The PMIS system should ensure an ability to create various reports based on all possible data collected at the PMIS databases - summarized, detailed, numeric etc. The list and the description of content of the initially required reports will be provided by SPS during implementation (in Armenian language).

The following minimum functionality should be provided:

- Predefined and free-form reports can be generated.

- The authorized users should be able to generate the predefined reports selecting from the list. Access rights to predefined reports should be configurable. The preliminary list of predefined reports should be agreed with SPS.
- The users should have a tool (constructor) to form customized reports based on all available variables. In case of free-form reports, the data should be accessible only to users that have access to the data requested in the report.
- A dashboard with filtering and drill-down functionality should be available targeted for different users. The content of dashboards should be discussed with the SPS.
- An interactive map showing the locations of all Beneficiaries to whom electronic monitoring was applied as a measure of constraint.
- If the complexity of the required report does not allow it to be constructed using standard constructor tools the Supplier should create it manually during at most 10 business days after receiving the request from SPS.

3.9. Interoperability

3.9.1. Receiving data through Government Interoperability Platform

For execution of its functions, the SPS receives information from different state entities. Currently, in order to obtain information from the state entities, the SPS staff prepares official letters requesting information on the beneficiary (e.g. registration address, convictions, driving licenses, marital status, family member, information on border crossing, real property, etc.). The process of getting the answer from state entities takes several days and may sometimes become obsolete or outdated.

To address this and with the aim of utilizing the whole potential of data already stored in different state databases, it is vital for the new system to be connected to GIP. All questions related to GIP should be addressed to EKENG, the operator of GOSSIP interoperability platform (info@ekeng.am, +37460 464501). The GIP provides APIs for data exchange. Examples of web services available through the GIP are presented in Annex 4.

In order to avoid the risks arising from current practice of collecting data, the system should allow real time data receipt from state registers via government interoperability platform. The registers of the following state entities should at least be integrated into the system:

1. Police Population Register
2. Police Driving Licenses Register
3. Police Traffic Rules Violation Register
4. Police Vehicles Register
5. Police weapons Register

6. Pensions register of the Ministry of Labor and Social Affairs
7. Register of people with disabilities of the Ministry of Labor and Social Affairs
8. Civil acts register of Ministry of Justice
9. Register of Legal Entities of Ministry of Justice
10. Register of compulsory enforcement cases
11. National Border Crossing system of NSS
12. Tax Payer's System - Incomes, employment, occupation
13. Property Register of the Cadastre committee
14. e-penitentiary system
15. e-health system of the Ministry of Health
16. Treasury system of the MInistry of Finance

The scope of the data currently received by the SPS from different entities is presented in the Annex 5.

3.9.2. Providing data to other state entities

SPS itself is also a data provider in cases prescribed by law. The system should allow data provision and sending official notices to other information systems through GIP and Mulberry system:

- Notify the State Revenue Committee and Ministry of Labor and Social Affairs (via GIP) that the person has limitations for holding some positions and working in some types of organizations (e.g. he or she is not allowed to work as a teacher at school, can't run for elections for local self-government bodies, etc.)
- Notify the Road Police (via GIP) that person is not allowed to drive a car
- Upon registration of a new Beneficiary, the Probation service informs the relevant territorial Police station.
- In case of any violation of the service conditions, the SPS informs the Police and the body conducting criminal proceedings.
- By the end of the supervision period, SPS notifies the court and the police.

For all above mentioned cases the system should provide the possibility to generate an official letters' customizable templates with prefilled beneficiary's name and other required information and possibility to select addressee from the address book.

The system should be constructed in such a way that it is possible to request data from the system with a person's PSN. Examples of such requests are the following:

- With the request of PSN it should be possible to get the response if the corresponding person is a Probation service beneficiary or not
- With the request of PSN it should be possible to get the response on applied limitations if there are any (ban on visiting certain places, prohibition to hold certain posts, prohibition to drive, etc.)
- With the request of PSN and code of the taken measure get the response if the measure is applied to the person (true, false)
- Push PSN, specific code, register
- With the request of the code of the taken measure it should be possible to receive all PSNs towards which the measure is applied, as well as dates of the measure in force.

Full list of web services to be developed will be provided by SPS based on other state entities' demands.

3.9.3. Integration with other functional systems

The system should be integrated with whole-of government information systems. Following systems should be considered for integration:

- E-Verify: All documents provided by the state (including SPS) should have a unique number and QR code. With the help of the QR code or by entering the unique number it will be possible to check the validity of the document. The PMIS should be integrated with the system and all documents generated in the system should have the possibility to be checked via the e-verify platform.
- E-Notify (notifications): The system is currently under development and will be deployed by 2022. The system will allow sending notifications to citizens' official emails. The PMIS should be integrated to e-notify and process notifications through the platform.
- E-payments: The system allows to pay taxes, duties, fees, fines to state entities. The system should be integrated with the e-payments system. The integration of PMIS to the e-payments system will make it possible to automatically link the payments to cases and calculate liabilities without human intervention.

3.10. User Interface

The supplier should present and agree detailed user experience (UX) design with the SPS based on interviews with SPS staff. When the UX design is approved the UI should be presented and submitted for approval by SPS. The requirements defined in Government Decree N 1521-N, dated 26.12.2013 "On minimum requirements for official web pages of the state entities" should be followed.

The system should provide a web-based, modern, aesthetically appealing user interface based on "look and feel" approach. The interface should be in Armenian for inner use and Armenian,

Russian and English for the external part. The interface should be adapted to be accessible for people with disabilities as well.

3.11. Security requirements

Following security related minimum requirements should be implemented.

- System interaction protocol: HTTPS protocol (TLS 1.3) should be used for all communication and interactions with the system and other information environments
- Authentication: Multi factor authentication mechanisms should be enforced using a combination the following:
    - e-ID
    - mID
    - Username and password
    - One Time Password (OTP)
    - Other identification means prescribed by Armenian regulations.
- Authorization: System should implement Role Based Access Control (RBAC) ensuring actions are restricted unless they are explicitly assigned to the user. Users shall be able to change/reset password.
- The system should have defined rules on setting passwords, change of passwords and prompt the users to set strong passwords.
- Protection of sensitive data: The system should assure the protection of personal data in accordance with applicable rules and the requirements of the RA Law on Protection of Personal Data.
- Personal data exchange should be compliant with the Government Decree N 1093-N, dated 31.08.2015.
- Logs: System should support different logging levels for all nodes and components which should be stored in a database. Any unauthorized attempt to edit data shall be logged with further possibility to be subjected to audit. The logs should at least contain:
    - User identifier
    - Actions
        - Actions related to tasks and assignments
        - Searches

        - Viewed cases
        - Viewed documents
        - Edited documents
        - Edited fields
        - Uploaded documents
        - Downloaded documents
    - Date and time
    - IP from where the system was accessed

- User session: Minimum and maximum session duration must be set in minutes and shall be modifiable. All login/logout sessions should be logged, keeping the IPs and date and time.
- The system should alert in case of logins from unusual IPs. Alerts should be sent to:
    - User's email or SMS
    - System administrator's email or SMS
- The system administrator should be able to enable/disable users accounts. The user account should be automatically disabled in case of a prescribed number of failed attempts to login.
- Data entered into the system may not be edited, damaged or deleted without authorization.
- Availability: The system should guarantee full data storage on predefined, configurable periods which shall not exceed Recovery Point Objective (RPO) and Recovery Time Objective (RTO) defined by the SPS.

3.12. Database Backup

The system should support the mechanism of regular automatic database backup. The possibility of periodic, configurable database backup with off-site storage should be provided as well.

The system should allow full, incremental, differential types of backing up. The authorised user should have a toolkit to set the frequency of backup and backup retention.

3.13. Training and training materials

The aim of the training is to provide training and capacity building support, comprehensive information about the general operation of the system, structure, knowledge and skills.

3.13.1. Training Plan and Training Approaches

- Before training courses or preparing the training staff, the Supplier should prepare a training plan, especially while preparing various infrastructure components during installation.
- The training shall be conducted in Armenian language. English may be used during technical courses.
- The Supplier shall prepare the training plan before developing the training course or training the staff.
- The Supplier should assess the training needs associated with the use of the system before it is fully operational. The training methods may, without limitation, include presentations for the trainees, intensive classroom activities during which manuals and other technical literature will be handed over, briefings and orientation classes, seminars as well as on-site workshops.
- The Supplier should organize training on system use for around 200 users.
- The supplier should envisage separate training for administrators. During this training, the Supplier shall perform a one-day training course for the administrators. The topics of this training shall include the installation, operation, and maintenance of the system.
- As part of the training, a copy of the source code with code explanations should be provided.

3.13.2. Content of the training course

The Supplier shall prepare manuals for system use, system management as well as video materials. All the training materials shall be approved by SPS.

3.14. Technical support and warranty

3.14.1. Technical support

After the official handover of the system to SPS, the Supplier should provide **36-months** of technical support. Within this support, system upgrades and releases should be submitted to correct the errors and bugs of the system.

The Supplier must have a full-time resource, who can be onsite when needed, to provide technical support and maintenance, as well as warranty services for the PSP. Throughout all phases of system implementation, the Supplier should work closely with SPS project personnel.

Once the SPS receives information about a defect or error in the system, the Supplier should help on the phone. If the problem is impossible to solve on the phone, the defect or error will be

transferred to the second level of service. The time to respond and solve the problem, depending on the complexity of the problem, is described below:

- 1st level of complexity: the system does not operate; no function can be used; response time - 1 hour; to find a solution within 8 hours or to offer a workaround solution.
- 2nd level of complexity: basic functions do not operate smoothly/ are not available; response time - 2 hours; to find a solution within 12 hours or to offer a workaround solution.
- 3rd level of complexity: medium-priority functions do not operate smoothly/ are not available; response time - 4 hours; to find a solution within 2 days or to offer a workaround solution.
- 4th level of complexity: medium-priority functions do not operate smoothly/ are not available, impact on the overall system performance is minimal; response time - 1 day, to find a solution within the day or to offer a workaround solution.

In case of detecting incompliance in the system and its subsystems, they should be eliminated by the Supplier and at the Supplier's expense. The Supplier will take into account that during this time period the SPS may request changes in the system for up to **15 (fifteen) percent** of the total scope of works.

3.14.2. Warranty

The supplier should provide warranty services that will cover any defects or malfunctions that are observed by SPS during operation of the software. All works completed under warranty services **will not be included in 15 (fifteen) percent of the total scope of works**.

Warranty terms need to be considered during the servicing periods and include errors which are software defects that cause incorrect functions of the system. The types of errors described including but not limited to:

- The system is not accessible.
- The system performance is too slow, which is not connected with the internet speed.
- The response is not processing logical requests resulting in performance issues, not connected with the database operations.
- Not all entered data is saved in the system or saved correctly.
- Reports/documents/webpages do not display the expected results; and
- The system generates messages of unsolvable problems and shows errors to the users.

3.15. Implementation, deliverables, documentation

3.15.1. Preliminary project plan

The Supplier should prepare a Preliminary Project Plan, agree with SPS and follow it in order to employ it in the design, management, coordination, and execution of all its responsibilities.

The Project Plan should address at least the following topics and points:

- Project Organization and Management Plan

  It should be ensured that on operational level Agile methodology or combination with other approaches will apply during the project implementation.

- Communication Plan
- Task, Time, and Resource Schedules
- Delivery and Installation Plan
- System Integration Plan
- Training Plan
- Pre-commissioning and Appraisal Plan
- Operational Acceptance and Testing Plan
- Warranty Service Plan
- Technical Support Plan
- Other plans and documents as determined necessary by the Supplier.

The system should be able to perform all the functionalities described in this document, with the possibility of adjustment.

3.15.2. Deliverables

The Supplier must provide the following deliverables:

- System platform specification for deployment of the system taking into consideration guidelines and performance, availability, scalability requirements
- PMIS detailed functional specification, solution design, security policy and suggested implementation plan (submitted for approval to the beneficiary at the end of Phase 1)

- The architecture and technologies of the proposed solution(s)
- All software components and subsystems for PMIS
- All listed hardware specified in Annex 3
- Development toolkits for software components
- Installation and deployment packages for all software components and subsystems
- Source codes for the whole system and its subsystems
- Guidelines followed for utilizing software tools and utilities
- Installation and Deployment guides
- Test Strategy, acceptance test plans, automated tests
- System Administration and Development Guides
- Training for all target groups specified by SPS
- Training materials
- Implementation of PMIS at the SPS headquarter and regional offices.

3.15.3. Control

The Supplier will closely collaborate with SPS's coordination and IT-related groups. SPS will create a working group to make policy decisions.

For successful installation and stability of the introduced system it is necessary that the Supplier transfers its knowledge and skills to the Purchaser's experts during implementation of the project.

The Supplier will report to SPS. The Supplier will submit the following documents and summary reports on the progress of the project:

- Narrative Phase reports on progress achieved, issues identified, and solutions proposed accompanied by the relevant documentation(s);
- Interim reports on phase deliverables.

3.15.4. Source codes and intellectual rights

The Supplier, within fifteen (15) days of Operational Acceptance conveys to SPS the Source Code of the software and all relevant documents relating to PMIS. During the warranty period, the Supplier should supply to SPS, within fifteen (15) days of any changes in the production release, the Source Code and related documents which are complete, accurate and up to date

corresponding to the current production release. The Source Code shall contain all information in human readable form necessary to enable a reasonably skilled programmer or analyst to maintain and/or enhance PMIS. The Source Code and related documentation shall contain all listings of programmers' comments, data and process models, logic manuals, and flowcharts.

The Supplier should convey to the Purchaser a permanent, irrevocable license for the use of the PMIS by SPS. This license should entitle the SPS to modify, extend, duplicate, and prepare derivative software or materials for use by the SPS. On the respective date when the PMIS relevant Source Codes vest in SPS, the latter should become the exclusive holder of all the corresponding economic rights on PMIS.

3.16. Testing of the system and acceptance

3.16.1. Testing

Testing of PMIS is the responsibility of the Supplier; however, the SPS may assign it to another specialized party to obtain a second opinion or to conduct an expert examination.

The Supplier should prepare a testing and acceptance plan. SPS should approve the fact that the plan is acceptable. The Supplier’s testing plan must include:

- Testing strategy
- Testing specification
- Testing scenarios
- Test performance environment,
- Procedures,
- Assignment and responsibilities
- Planning
- Third party expert examination and audit.

Only after successfully completed tests the SPS will issue a note that the system can be installed and rolled out.

4. REQUIREMENTS TRACEABILITY MATRIX

The requirements traceability matrix does not supersede the rest of the Technical Requirements. If a requirement is not mentioned in the matrix, that does not relieve the Supplier from the responsibility of fulfilling all the requirements mentioned in the technical requirements.

N	Requirement description	Mandatory (M) /Preferable (P)
1.	The system ensures full paperless workflow of documents in SPS	M
2.	The system should ensure integration to the GIP	M
3.	The system should have a separate module for risk assessment	M
4.	Role based access control should be ensured in the system	M
5.	The system should have a workflow constructor	M
6.	The system should enable creation and maintenance of custom libraries	M
7.	The system should support fingerprint readers for secure collection and storage of beneficiaries' biometric data	M
8.	The system should enable generation of multi format (xml, pdf) template documents	M
9.	The system should provide a web-based user interface	M
10.	The system should have possibility for online payments	M
11.	The system should provide possibility for remote signing of the documents with digital electronic signature	M

	and signing with signing pads.	
12.	The system should have built in notifications functionality	M
13.	The system should ensure creation of various reports and charts based on all possible data collected	M
14.	The system should have integrated filtering, sorting, keyword and file content searching by all possible combinations	M
15.	The system should be tested before the acceptance	M
16.	Business processes for each type of probation service should be configured in the system	M
17.	The system should be fully integrated with e-verify, e-notify and e-payments systems	M
18.	The system should be integrated with Police Population Register	M
19.	The system should be integrated with Police Driving Licenses Register	M
20.	The system should be integrated with Police Traffic Rules Violation Register	M
21.	The system should be integrated with Police Vehicles Register	M
22.	The system should be integrated with Police weapons Register	M
23.	The system should be integrated with Pensions register of the Ministry of Labor and Social Affairs	M
24.	The system should be integrated with Register of people with disabilities of the Ministry of Labor and Social Affairs	M
25.	The system should be integrated with Civil act register of Ministry of Justice	M
26.	The system should be integrated with Register of compulsory enforcement cases	M

27.	The system should be integrated with National Border Crossing system of NSS	P
28.	The system should be integrated with Taxpayer's System - Incomes, employment, occupation	M
29.	The system should be integrated with Property Register of the Cadaster committee	M
30.	The system should be integrated with e-Penitentiary system	M
31.	The system should be integrated with e-Health system of the Ministry of Health	M
32.	The system should provide guidance for integration with GPS tracker bracelets system	P
33.	The system should be able to make voice (video) calls with possibility to record and store voice (video) files	P
34.	The system should ensure all security requirements that are addressed in the technical requirements.	M
35.	The system should ensure availability of configurable plans for incremental and differential database backup	M
36.	The system should be installed and configured in the GoAM datacenter	M
37.	The system should allow recording the fingerprints, GPS coordinates for "check-ins"of POs and beneficiaries.	M
38.	The system should allow the PO to monitor the case and to define regularly checked variables for each type of case (payment schedule/actually paid liabilities, changes in marital status, employment, transactions with real estate, etc.)	M
39.	The system should be integrated with the legal entities register of the Ministry of Justice	M

40.	The Supplier, within fifteen days of Operational Acceptance should conveys to SPS the Source Code of the software and all relevant documents relating to PMIS	M

5. IMPLEMENTATION SCHEDULE

Inception stage (7 weeks) Activity		W 1	W 2	W 3	W 4	W 5	W 6	W 7
1.	Mobilize team and establish project office							
2.	Meet beneficiaries and contact persons for Beneficiary and Probation service							
3.	Establish Project Steering Committee							
4.	Confirm project vision and objectives							
5.	Analyze core activities, systems and procedures, data exchange needs and other input data relevant to develop the system							
6.	Prepare finalized technical specification of system a SPS document, that will comprehensively describe the entire system and its functionality, including integration with other systems							
7.	Identify and specify any requirements for achieving and maintaining adequate hardware, software, networking, licences and information security							
8.	Devise detailed work plan							

9.	Prepare inception report																	

Systems design and development stage (14 weeks) Activity		W 4	W 4	W 6	W7	W 8	W 9	W 10	W 11	W 12	W 13	W 14	W 15	W 16	W 17	W 18	W 19	W 20	W 21
1.	Design and development of the system,																		
2.	Development of design interfaces UI/UX																		
3.	Performance requirements testing																		
4.	UI/UX user acceptance testing																		
5.	Drafting systems administration and user documentation																		
6.	Design of system administrator and advanced user training																		
7.	Pilot installation on the test servers																		
8.	Prepare, submit, and gain client acceptance for developed system																		

System handover (5 weeks) Activity		W 22	W 23	W 24	W 25	W 26
1.	System is operational in beneficiary organization,					
2.	Publish systems administration, operations, and user manuals and documentation					
3.	Handover of online portal for citizens including source code					
4.	Handover of system including source code					
5.	Deliver systems administration and user final training					

6. CRITICAL CONSIDERATIONS

6.1. Assumptions

The following assumptions should be considered by the Supplier during project implementation:

- PS responsible officials will provide information and explanations required for setting up all business process and flows
- All POs have workplaces equipped with computer connected to the Internet
- PS staff has enough capability to learn and operate PMIS
- The server infrastructure required for PMIS's smooth operation will be provided by PS
- The web services required for data collection from other state registers via GIP are already in place and documentation is available
- EKENG will provide required guidance for the integration with GIP.

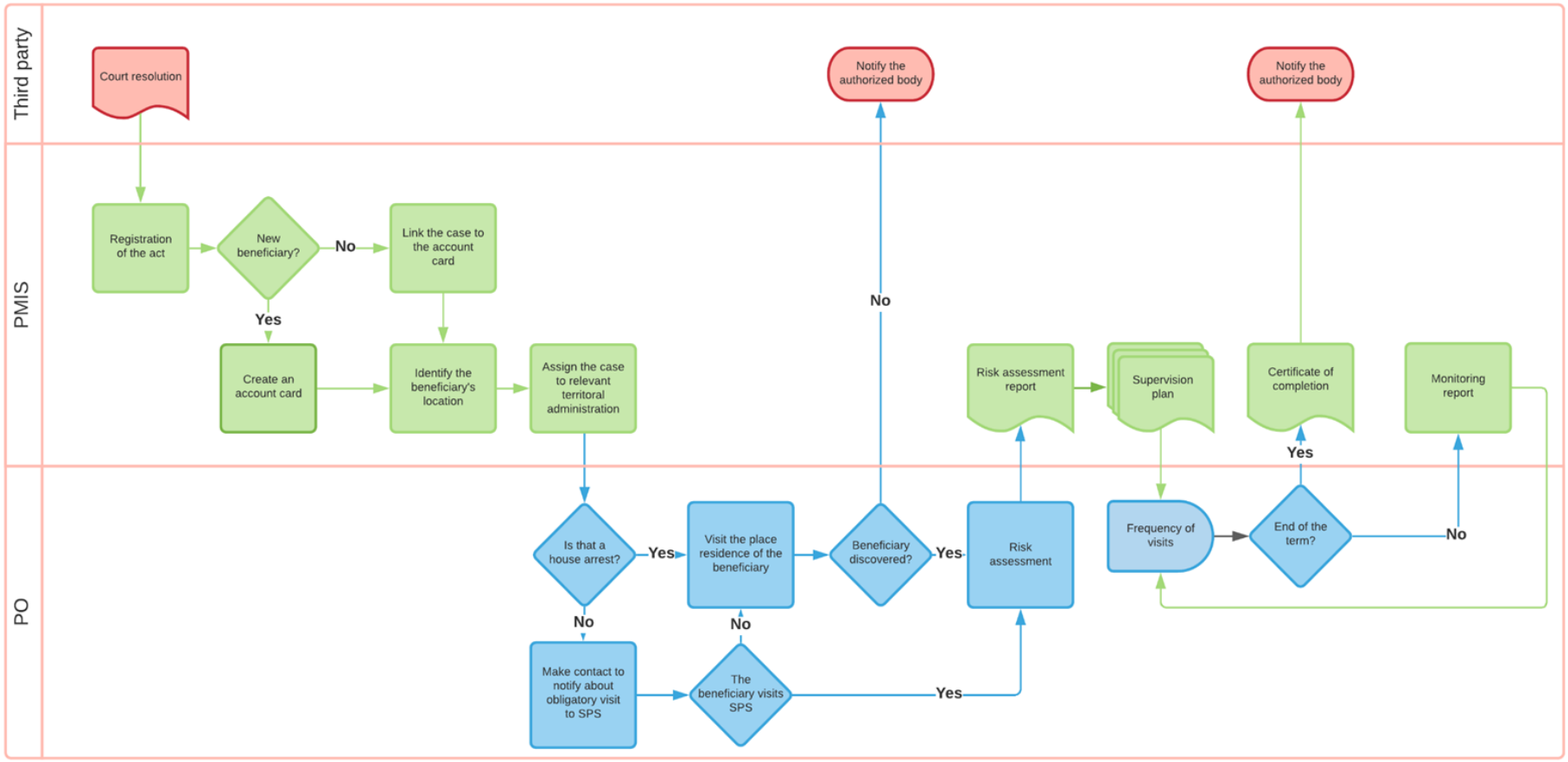
6.2. Constraints and Risks

The supplier should take into account that throughout the implementation of the project it can encounter several constraints and risks, some of which are the following.

- The risk assessment tool, which is already developed, should be fully integrated into the new system. Migration issues should be handled.
- Not all data which is stored in state and local databases is available for data exchange in electronic way. Some data still needs to be digitized, thus the manual input and editing of information should be allowed in all forms for authorized users.
- The server infrastructure is placed in the government datacenter and the Supplier will not have physical access to them and should provide a real IP address located in Armenia in order to receive remote access, which will be provided by EKENG by the request of PS.
- Resistance to change by the staff of SPS can be considered as a major risk for projects successful implementation. In this regard, the Supplier should ensure that by the end of the training the trained staff has clear and comprehensive understanding on the aim of the system and is motivated to use it.

- The PMIS should be integrated with at least three systems mentioned in the document (e-notify, e-verify and GovID) that are in the development stage and have not yet been rolled out. The planned date for the Final Acceptance of the systems by the government is February 2022, nevertheless there is a risk of delays, thus the integration with the latter should be scheduled to the end of project implementation.
- The legislation regulating probation service is relatively new and subject to change quite frequently. The supplier should take into account the possible changes throughout the development of the system.

ANNEX 1. OVERVIEW OF THE BUSINESS CYCLE



ANNEX 2. DOCUMENT EXCHANGE PROTOCOL

Mulberry2.0 JSON-RPC specification

Overview

Mulberry2.0 task tracking web-service is the JSON-RPC implementation based on JSON-RPC 2.0 Specification.

This document includes only descriptions for methods (procedures) which are implemented for document exchange between government systems. For implementation of the JSON-RPC calls, e.g. client, please refer to the JSON-RPC 2.0 Specification. All requests and responses SHOULD correspond to the specification of JSON as JSON-RPC based on JSON format (see http://www.json.org or RFC 4627).

JSON-RPC 2.0 Specification and nearly the same as in XML-RPC specification. Method related error codes are described in the "Web-Server Defined Error Codes" section of this document.

Conventions

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", RFC 2119.

All member names included in method descriptions SHOULD be considered to be case-sensitive. The terms function, method, and procedure can be assumed to be interchangeable.

All of the mechanisms and type definitions specified in this document are described in both prose and an augmented Backus-Naur Form (BNF) similar to that used by RFC5234. Implementer will need to be familiar with the notation in order to understand this specification.

Addition to ABNF core rules, in this document is added following rule(s):

UALPHA = %x0531-x0556 / %x0561-x0587 / %x0559-x055F / %x0589 / %x058A ; Ա-Ֆ / ա-ֆ / ՝ / : / -
TEXT = *UALPHA / *DIGIT ; any text in armenian or digits
NUMERIC = *DIGIT
DATE = 4DIGIT-2DIGIT-2DIGIT ; example "1969-12-31"
DATETIME = 4DIGIT-2DIGIT-2DIGIT 2DIGIT:2DIGIT:2DIGIT ; example "1969-12-31 11:59:59"
TIME = 2DIGIT:2DIGIT:2DIGIT ; example "11:59:59"
BOOLEAN = 0 / 1 ; 0 represents FALSE, 1 represents TRUE

Web-Server Defined Error Codes

code	message	Meaning
-32600	Invalid request	The request body is not well-formed JSON-RPC payload.
-32601	Method not found	You need to have permission for methods, In case of this error, please, contact our project manager.
-32602	Invalid params	Invalid parameters are specified for requested method.
-32603	Internal error [*message*]	The server encountered internal error.
-32700	Parse error	Invalid HTTP request.

ANNEX 3. DEVICES TO BE SUPPLIED

Devices to be provided by the Supplier.

	Device	Description	Quantity
1	USB fingerprint reader	Sensor type: Fingerprint Optical Sensor Pixel Resolution: at least 512 DPI Communication: USB Operating system: at least Windows 10 should be supported Warranty: 3 years	45
2	USB GPS module	Antenna: Built-In GPS Antenna Frequency: GPS/QZSS L1 C/A L1 Communication: USB Cable length: at least 1.8m + 3m extension Operating system: at least Windows 10 should be supported	45

		Warranty: 3 years	
3	Web camera	Video and photo capture resolution: 1920 x 1080 Communication: USB Cable length: at least 1.8m Operating system: at least Windows 10 should be supported Warranty: 1 year	45

ANNEX 4. WEB SERVICE DESCRIPTION

WebAPI AVV specification 0.1в

Overview

AVV WebAPI provides application programming interface to AVV system's internal functionality. This document includes only descriptions for functions which are implemented for AVV system.

Conventions

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in RFC 211 9.

All member names included in method descriptions SHOULD be considered to be case-sensitive.
The terms function, method, and procedure can be assumed to be interchangeable.
All of the mechanisms and type definitions specified in this document are described in both prose and an augmented Backus-Naur Form (BNF) similar to that used by RF C 5234. Implementers will need to be familiar with the notation in order to understand this specification.
Addition to ABNF core rules, in this document is added following rule(s):

UALPHA = %x0531-x0556 / %x0561-x0587 / %x0559-x055F / %x0589 / %x058A ; Ա-Ֆ / ա-֊ / ՟ / : / -
TEXT = *UALPHA / *DIGIT ; any text in armenian or digits
NUMERIC = *DIGIT
DATE = 4DIGIT-2DIGIT-2DIGIT ; example "1969-12-31"
DATETIME = 4DIGIT-2DIGIT-2DIGIT 2DIGIT:2DIGIT:2DIGIT ; example "1969-12-31 11:59:59"
BOOLEAN = 0 / 1 ; 0 represents FALSE, 1 represents TRUE
DATE_AVV = 2DIGIT/2DIGIT/4DIGIT ; example "20/05/2011"

Modules

Functions in WebAPI are grouped in modulus.

AVV module *avv*

.search General

params:

URL: /api/avv/search

HTTP method: POST

Content-type: application/x-www-form-urlencoded

Request:

[

psn: REQUIRED, addresses:
OPTIONAL,

] /

[

docnum: REQUIRED,
addresses: OPTIONAL,

] /

[

first_name: REQUIRED, last_name:
REQUIRED, middle_name: OPTIONAL,
birth_date: OPTIONAL, addresses:
OPTIONAL,

]

Response:

Request status: REQUIRED,

Info or error message: OPTIONAL,

Result object: OPTIONAL

Examples:

POST request:

[psn: TEXT ; ՀԾՀ

Addresses: "CURRENT" / "ALL" ; Հասցեն՝ տվյալ կամ բոլորը,
բացակայության դեպքում ընտրված է "CURRENT"

] /

[docnum: TEXT ; Փաստաթղթի համարը (անձնագիր կան նույն. քարտ)
Addresses: "CURRENT" / "ALL" ; Հասցեն՝ տվյալ կամ բոլորը,
բացակայության դեպքում ընտրված է "CURRENT"
] /

[first_name: TEXT ; Անուն last_name: TEXT ;
Ազգանուն middle_name: TEXT ;
Հայրանուն birth_date: DATE ; Ծննդյան
ամսաթիվ

addresses: "CURRENT" / "ALL" ; Հասցեն՝ տվյալ կամ բոլորը,
բացակայության դեպքում ընտրված է "CURRENT"
]

JSON result:

{

"status": "ok" / "failed",

"message": TEXT,

"result": [* <avv_persons>],

}

Composite Types

< avv_persons> = {

"PNum": TEXT ;

"PSN_Indicator": BOOLEAN ;

"Certificate_Number": TEXT ;

"IsDead": BOOLEAN ;

"DeathDate": DATE_AVV ;

"AVVDocuments": { "Document": [* <document>] } ;

"AVVAddresses": { "AVVAddress" : [* <avv_address>] } ;

"Citizenship_StoppedDate": DATE_AVV ;

}

< document> = {

“Photo_ID”: TEXT: “base64Binary” ;

“Document_Status”: “PRIMARY_VALID” / “VALID” / “INVALID” ;

“Document_Type”: TEXT: <document_types>;

“Document_Number”: TEXT ;

“Other_DocumentType”: TEXT ;

“Document_Department”: TEXT ;

“BasicDocument”: <basic_document> ;

“Person”: <person> ;

“PresidentOrder”: <president_order> ;

“PassportData”: <passport_data> ;

}

< document_types> =

“OTHER” /

“NON_BIOMETRIC_PASSPORT” /

“ID_CARD” /

“BIOMETRIC_PASSPORT” /

“TRAVEL_DOCUMENT” /

“BIRTH_CERTIFICATE” /

“FOREIGN_PASSPORT” /

“RESIDENCE_CARD”

< basic_document> = {

“Basic_Document_Code”: TEXT ;

“Basic_Document_Name”: TEXT;

“Basic_Document_Number”: TEXT ;

“Basic_Document_Country”: <country_types>;

}

< country_types> = {

“CountryName”: TEXT ;

“CountryCode”: TEXT ;

“CountryShortName”: TEXT ;

}

< person> = {

“Nationality”: <nationality_type> ;

“Citizenship” : { “Citizenship”: [* <country_types>] };

“Last_Name”: TEXT ;

“First_Name”: TEXT ;

“Patronymic_Name”: TEXT ;

“Birth_Date”: DATE_AVV ;

“Genus”: “N” / “F” / “M” ;

“English_Last_Name”: TEXT ;

“English_First_Name”: TEXT ;

“English_Patronymic_Name”: TEXT ;

“Birth_Country”: <country_types> ;

“Birth_Region”: TEXT ;

“Birth_Community”: TEXT ;

“Birth_Residence”: TEXT ;

“Birth_Address”: TEXT ;

}

< nationality_type> = {

“NationalityName”: TEXT ;

“NationalityCode”: TEXT ;

}

< president_order> = null / {

“President_Order”: TEXT ;

“President_Order_Date”: DATE_AVV ;

}

< passport_data> = {

“Passport_Type”: "N" / "C" / "S" / "Z";

“Passport_Issuance_Date”: DATE_AVV ;

“Passport_Validity_Date”: DATE_AVV ;

“Passport_Validity_Date_FC”: DATE_AVV ;

“Passport_Extension_Date”: DATE_AVV ;

“Passport_Extension_Department”: TEXT ;

“Related_Document_Number”: TEXT ;

“Related_Document_Date”: DATE_AVV ;

“Related_Document_Department”: TEXT ;

}

< avv_address> = {

“RegistrationAddress”: <registration_address_type> ;

“ResidenceDocument”: <residence_document_type> ;

“RegistrationData”: <registration_data_type> ;

}

< registration_address_type> = {

“LocationCode”: TEXT ;

“Region”: TEXT ;

“Community”: TEXT ;

“Residence”: TEXT / null ;

“Street”: TEXT ;

“Building”: TEXT ;

“Building_Type”: TEXT ;

“Apartment”: TEXT ;

}

< residence_document_type> = null /

{

“Residence_Document_Type”: TEXT ;

“Residence_Document_Number”: TEXT ;

“Residence_Document_Department”: TEXT ;

“Residence_Document_Date”: DATE_AVV ;

“Residence_Document_Validity_Date”: DATE_AVV ;

}

< registration_data_type> = {

“Registration_Department”: TEXT ;

“Registration_Date”: DATE_AVV ;

“Registration_Type”: “CURRENT” / “OLD”;

“Registration_Status”: “N” / ”P” / ”A” / ”T” ;

“Temporary_Registration_Date”: DATE_AVV ;

registration_aim_type> ;

“UnRegistration_Aim”: <registration_aim_type> ;

“Registered_Date”: DATE_AVV ;

“Registered_Department”: TEXT ;

}

< registration_aim_type> = {

“AimName”: TEXT ;

“AimCode”: TEXT ; }

Code Sample

```
<?php  function http_post($url, $data, $mime_type = null)
{
// init CURL
$curl = curl_init($url);

// curl request options curl_setopt($curl, CURLOPT_POST, 1);
curl_setopt($curl, CURLOPT_POSTFIELDS, $data);
curl_setopt($curl, CURLOPT_HEADER, 0); curl_setopt($curl,
CURLOPT_RETURNTRANSFER, 1); curl_setopt($curl,
CURLOPT_FOLLOWLOCATION, 1);
 if (!is_null($mime_type)) curl_setopt($curl,
          CURLOPT_HTTPHEADER,
                                          ['Content-type: ' . $mime_type]);

// sending request and getting response
$response = curl_exec($curl);

//closing connection curl_close($curl);
 return $response;
}

/* ----------------- Main ----------------- */
 // NOTE: set proper url
$url = 'https://eth.ekeng.am/api/avv/search';
$data = ['param' => 'value'];

$result = http_post($url, $data);
 echo $result, PHP_EOL;

?>
```

ANNEX 5. DATA RECEIVED FROM OTHER STATE ENTITIES

Table of cooperation (exchange of information) with other institutions of the State Probation Service of Armenia (on 15 July 2021). It should be noted that the list of institutions and information will be enlarged during the project implementation.

Organisation	DATA/INFORMATION NEEDED

The POLICE	1. **Personal data of beneficiary**
	2. **Nationality and citizenship**
	3. **Registration and living address**
	4. **Residents living with him/her**
	5. **Criminal records**
	  1. **The type of guilt, the nature of the act**
	  2. **Article (part, point) of the CC**
	  3. **Removal of conviction**
	  4. **The role of the beneficiary in the previous crime(s)**
	  5. **Presence of the victim, gender and age distribution**
	  6. **civil suit, its settlement or otherwise settled**
	  7. **New crime or wanted situation while on probation etc.**
	2. **The age of fist crime**
	3. **Registration in Police (juveniles)**
	4. **Previously serving sentences in prisons and probation**
	5. **Attitudes to criminal subculture**
	6. **Criminality of the existing or previous communities**
	7. **Conviction of the family members of the beneficiary**
	8. **Registration of conflicts or domestic violence**
	9. **Abuses and addictions**

	10. **Information from the Road Police**
	    1. **Suspension or termination of driving license**
	    2. **Utilization of the vehicles (de facto)**
	    3. **Type of poverty of the vehicle**
	    4. **Wanted vehicles**
	2. **Utilization of weapons, license etc.**

Penitentiary Service	1. **Committing crime while in prison** 2. **Violations of the rules during serving the sentence** 3. **Characteristics from different Units of the Prison** 4. **Connections with the outside world, family members etc.** 5. **Other information regarding Parole** 6. **Previously being in prisons and probation, overall duration of each by years and months** 7. **Existence of a civil suit, whether settled or extinguished**
Agency for registering civil acts	1. **Family situation, married/divorced etc.** 2. **Family members of the beneficiary who died**
Agency for State Register of Legal Entities and State Revenue Committee	1. **Entity name** 2. **Tax ID** 3. **Registration ID** 4. **Registration date** 5. **Owner(s)** 6. **Executive's name** 7. **Economic activity identifier(s)** 8. **Other information**
Municipality	1. **People under the care of the beneficiary** 2. **Criminality and criminalization of the community** 3. **Attitudes and communication of the beneficiary with others** 4. **Domestic Violence, conflicts** 5. **Person in life difficult situation**

	6. **Registered in "Pension System"** 7. **Socio-economic situation, family incomes etc.** 8. **Education level** 9. **Educational Progress** 10. **Behavior in the educational organization (for juveniles and youth)** 11. **Addictions**
Ministry of Education and Science	1. **Education level (for high school and higher)** 2. **Educational progress** 3. **Behaviour in the educational residences etc.**
State Revenue Committee	1. **Employment/incomes** 2. **Changes in the workplace (if registered)** 3. **Incomes and financial benefits of the beneficiary**
Health (including mental) organizations, Ministry of Health	1. **Mental health issues and registration** 2. **Addictions** 3. **History of disease**
Ministry of Labour and Social Affairs, State Employment Agency	**Registered in employment seekers' list** **Registered in "benefits system"** **Registered in pension system etc.**