Terms of Reference

Government Financial Management Information Systems (GFMIS)

- Yerevan 2023 -

Contect

1. NAME OF THE PROJECT

Design, development and deployment of the Government Financial Management Information Systems (GFMIS):

2. DESCRIPTION OF THE PROJECT

Within the framework of the strategy on Public Finance Management System Reforms approved by the RA Government, it is planned to implement the Government Finance Management Information System (GFMIS). The fundamentals of the introduction of the GFMIS are fixed in the strategy on Public Finance Management System Reforms 2019-2023 (Chapter 19) by the decision N 1716-L of the RA Government dated 28 November 2019.

The main purpose of the project and the implementation is to create a working tool for the end user that will meet the requirements of the Strategy on Public Finance Management System Reforms and will contribute to:

- effective decision-making at strategic and day-to-day levels
- proper supervision
- increase of the quality of accountability

The Consultant provided consulting services for the introduction of the GFMIS. Within the scope of the provided services the business processes related to the management of RA public finances and the existing information systems were studied. The GFMIS implementation model was developed, based on comprehensive analysis and international best practices and guidelines[1]. A comprehensive description of the GFMIS is provided in Appendix B.

Within the scope of this project, the core modules of GFMIS, besides the Procurement module (according to ToR Electronic Procurement System - EPS) should be developed and deployed. Electronic Procurement System will be developed and implemented within the framework of a separate ToR[2].

Each module must ensure the digitization of functions defined by the relevant legislation and automate the work as much as possible for those who implement them.

The following parties will be involved in the project:

- **Client** - RA Ministry of Finance
- **Consultant** - Harmony Information Technologies and Education Development Fund
- **Contractor** - A participant selected in the result of the procurement process and awarded a contract to perform this assignment

[1] Document sources are in Chapter 10, paragraph 2

[2] See the Electronic Procurement System - Terms of Reference document

3. ABBREVIATIONS AND TERMS

3.1 Abbreviations

AMD	Armenian dram ISO code
BI	Business Intelligence
CB	Central Bank
CMBA	Chief Managers of Budget Appropriations
CES	Compulsory Enforcement Service
CPU	Central Processing Unit
CPV	Common Procurement Vocabulary
CRM	Cash Register Machine
CSIP	Civil Service Information Platform
EEU	Eurasian Economic Union
EPS	Electronic Procurement System
FA	Fixed assets
GFMIS	Government Finance Management Information System
GFS	Government Finance Statistics
GIP	Government Interoperability Platform
GTB	Government Treasury Bonds
GTS	Government Treasury Securities
GUI	Graphical User Interface
HR	Human Resources
HTTPS	Hypertext Transfer Protocol Secure
ISIN	International Securities Identification Number
ISO	International Organization for Standardization
LSGM	Local Self-Government Body
MA	Material Assets

MTAI	Ministry Of Territorial Administration And Infrastructure
MTEF	Medium-Term Expenditure Framework
OWASP	Open Web Application Security Project
PB	Program Budgeting
PDMD	Public Debt Management Department
PKI	Public Key Infrastructure
PSA	Public Sector Accounting
PSAS	Public Sector Accounting Standards
RA	Republic of Armenia
RA MF	Ministry of Finance of the Republic of Armenia
SA	System Administrator
SMBA	Subordinate Managers of Budget Appropriations
SNCO	State Non-Commercial Organization
SO	State (Funding Receiving) Organizations (SNCO, CNCO, Foundations, commercial organizations, etc.)
SOE	State-Owned Enterprise
SoR	Statement of Requirements
SRC	State Revenue Committee
SRLE	State Register of Legal Entities
SRP	State Register of Population
SRS	Software Requirement Specification
TLS	Transport Layer Security
TOD	Treasury Operational Day
ToM	Type of Message (CB Bankmail system)
ToR	Terms of Reference
UL	Useful Life
UTF	Unicode Transformation Format

WCAG	Web Content Accessibility Guidelines

3.2 Terms

1	Module	An autonomous electronic system providing a defined functional framework, which operates within the framework of a unified system. The unified system consists of interacting modules.
2	Working Group	A team of specialists and experts, as defined by the client, will collaborate with the Contractor throughout the project, providing vital information, documentation, and, if necessary, facilitating work process presentations and addressing related issues.
3	«Mulberry» system	«Mulberry» Electronic Document Management System

4. SCOPE

4.1 Main tasks of the project

The main tasks of the Contractor must include, but not be limited to:

- Develop a strategy and Project Management Plan (PMP) to ensure the timely achievement of all expected outcomes.
- To precisely define and validate the functional requirements for all modules, or any potential modifications, comprehensive examination of the requirements (including those conducted by the Consultant and the GFMIS conceptual model), in alignment with the Client's functions, relevant laws, and, if required, operational procedures (with Working Group).
- Develop detailed Statement of Requirements (SoR), Prototype and Software Requirement Specification (SRS[3]) for all GFMIS modules, establishing the essential foundation for the System's design and development.
- Develop the System based on the approved functional requirements, prototypes, specifications, and implementation plan.
- Regularly provide progress updates on the development process to the Client.

[3] The Statement of Requirements (SoR) accurately captures the System's functional requirements in plain language, avoiding technical terminology. This document includes the functional requirements that have been clarified and agreed upon, resulting from the clarification process or the Contractor's preferred proposals. The Software Requirement Specification (SRS) document covers both functional and non-functional requirements, defining them with technical precision. The Prototype illustrates the internal functions of modules and inter-module data exchange using graphical representation, based on the Statement of Requirements (SoR), while representing the System's functional capabilities. The Statement of Requirements (SoR) and Prototype undergo review by non-technical experts from the Client, while the Software Requirement Specification (SRS) document is evaluated by technical professionals.

- Test the developed system in collaboration with the Client and an approved Working Group, addressing any detected errors and issues.
- Deploy and implement the developed system in both the test and production environments.
- Conduct Penetration Testing to assess the security and vulnerability of the system.
- Provide knowledge transfer on system maintenance, administrative tasks, and operational procedures as per the agreed methodology and plan with the Client - Clause 5.3.
- Migrate data from existing systems to the new system according to the agreed methodology and plan (Migration plan) with the Client.
- Submit the required documents to the Client according to Clause 5.4.
- Maintain the implemented system according to Chapter 6.

4.2 Nature of the work

GFMIS must present a group of interconnected functional modules (software package).

The software package must be developed according to open source standards, the source codes of which must belong to the Client. The Contractor must secure all the rights to the developed system in accordance with Clause 5.5 of this document. The final version of the software package must be deployed in the environment defined/provided by the Client.

The detailed scope of the work should be identified and described in SoR, Prototype and SRS developed at the stage of preliminary study (Section 9, Phase 1). The SoR and Prototype must be agreed and signed between the Contractor and Client.

Because, Electronic Procurement System is being developed within the framework of another Terms of Reference - ToR (Public Procurement module), GFMIS modules should be developed in such a way that furtherly it can be interconnected with the Electronic Procurement System. A comprehensive description of the GFMIS and data exchange between all modules are presented in Appendix B.

4.3 Functional requirements

The hierarchy of high-level functional requirements of GFMIS is presented in Figure 4.3.

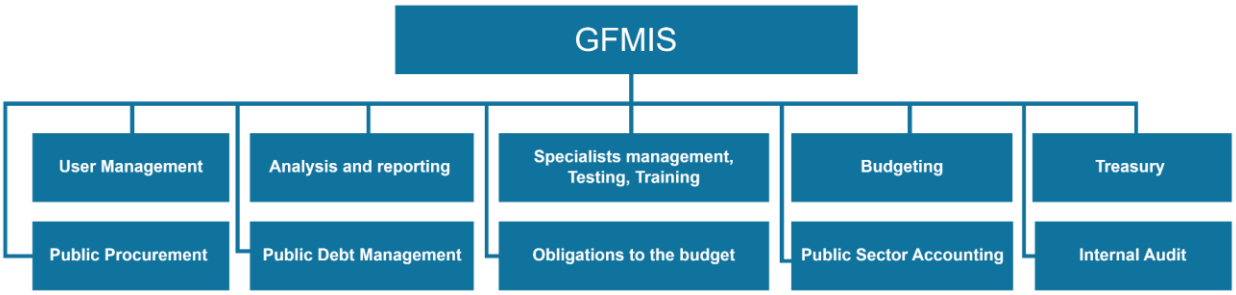


Figure 4.3 Hierarchy of high-level functional requirements of GFMIS

Each section of the functional requirements hierarchy should be implemented in a separate module:

- User management - User management module
- Analysis and reporting - Analytical-Reporting module

- Specialists Management - Specialists Management module
- Testing - Testing module
- Training - Training module
- Budgeting - Budgeting module
- Treasury - Treasury module
- Public procurement - Procurement module
- Public debt management - Public debt module
- Obligations to the budget - Obligations to the budget module
- Public sector accounting - Public sector accounting module
- Internal audit - Internal audit module

The scope of this ToR does not include only the Public Procurement module, which is planned to be developed within the scope of the ToR of the Electronic Procurement System.

The structures, functional hierarchy and requirements of the individual modules are presented in the respective appendixes:

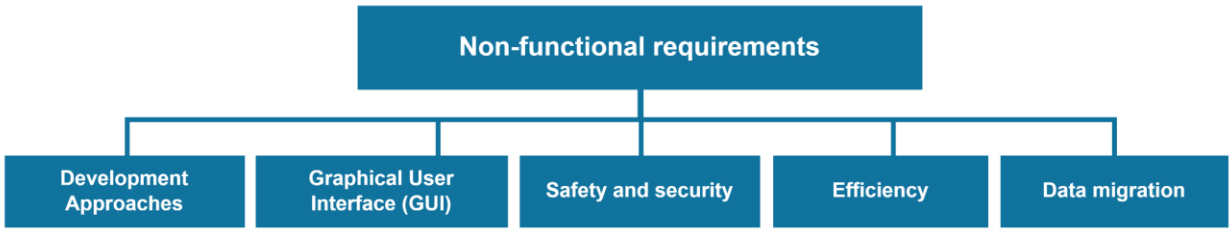
- Appendix C - Budgeting module
- Appendix D - Treasury module
- Appendix E - Public debt module
- Appendix F - Obligations to the budget module
- Appendix G - Public sector accounting module
- Appendix H - Internal audit module
- Appendix I - Analytical-Reporting module
- Appendix J - Specialists Management module, Testing module, Training module
- Appendix K - User management module

Appendix B, section 2 presents high-level functional requirements specific to all modules of GFMIS.

Appendix A presents the classification of functional and non-functional requirements according to the MoSCoW methodology[4].

4.4 Non-functional requirements

The hierarchy of high-level non-functional requirements of GFMIS is presented in Figure 4.4. These requirements apply to all modules.



[4] The MoSCoW methodology, also known as MoSCoW analysis, is a prioritization technique commonly used in requirement management. It helps determine the relative importance of requirements by categorizing them into 4 priority levels: MUST have, SHOULD have, COULD have, and WON'T have (this time).

Figure 4.4 The hierarchy of high-level non-functional requirements of GFMIS

Details of non-functional requirements are described in Appendix B, section 3.

4.5 Analysis of requirements

In this document, including the appendices, functional and non-functional requirements are defined at a sufficient level to comprehend and evaluate the purpose and operational principles of the System. The specific details of these requirements will be explored, analyzed, clarified and documented by the Contractor in the comprehensive Statement of Requirements (SoR) and Software Requirement Specification (SRS).

The Contractor is responsible for allocating appropriate resources to collaborate with the Working Group, composed of individuals designated by the client, in order to uncover and define clarified/agreed functional and non-functional requirements.

During the initial study phase, it is possible that some of the requirements outlined in this document, including the appendices, may undergo modifications. These changes should be documented and incorporated into the Change Management Plan to ensure proper tracking and management of requirements alterations.

5. DELIVERABLES

5.1 General Deliverables

Expected results	Acceptor
Project management planning	
Project management plan	Client
Study of requirements and specifications	
Statement of Requirements, Prototype and Software Requirement Specification	Client
Software development	
Completed/developed modules (source code)	Client
Deployment	
Configured and tested environments	Client
Deployed software package	Client

Data migration	
Deployed software package with complete data migration from existing systems	Client
Testing	
A system tested and debugged to acceptance criteria	Client, Consultant
Transfer of knowledge	
Trained personal (Clause 5.3)	Client
Maintenance	
Fixed software bugs, improvements, functional additions (Chapter 6)	Client
Other deliverables	
Documents	Client
Integration with external systems	Client
Source Codes, Proprietary Rights	Client

5.2 Modules

The Contractor shall provide products, services and other related components which include all modules with appropriate interconnections. Below is a brief description of each module.

- **Budgeting module** - For budget formation, revenue forecasting, budget/deficit balancing and communities budget.
- **Treasury module** - For treasury accounts management, expenses financing, various payments, government payments collection, financial flows management.
- **Public debt module** - For public debt management, government bond auction organization, electronic sales and primary agent registry management.
- **Obligations to the budget module** - For the budget guarantees, loans, debts and promissory notes management.
- **Public sector accountant module** - For implementation of public sector accounting typical functions, such as accounting for inventory and fixed assets, management of partners and contracts, management of cash flows, etc.
- **Internal audit module** - For internal audit functions implementation. As well as the resulting action plan management.
- **Analytical and reporting module** - This module is responsible for processing analytical data and generating reports. It facilitates data analysis for informed decision-making purposes.

- **Specialists management module** - This module manages the register of qualified specialists. It ensures proper management and tracking of specialists.
- **Testing module** - This module facilitates the administration and conduct of qualification tests.
- **Training module** - This module is responsible for the implementation of training courses. It enables the provision of training to stakeholders involved in the procurement process.
- **User management module** - This module enables centralized management of user accounts. It provides a unified access point and streamlined user account management for all modules through a single sign-on mechanism.

5.3 Knowledge transfer

The following type of knowledge transfer should be conducted by the Contractor:

- capacity building,
- training.

5.3.1 Capacity building

The Contractor is directed to execute capacity-building initiatives tailored for a group of technical specialists[5] aligned with the client's interests. Within this framework, knowledge transfer is essential across numerous crucial domains:

- System technological solutions, stack
- Architecture
- Infrastructure
- Code structure
- Database and data structure
- Tool kits

5.3.2 Training

The Contractor is responsible for conducting training sessions for the following target groups:

- system administrators,
- instructors.

The objective of system administrators training is to facilitate the transfer of knowledge and skills pertaining to installation, management, maintenance, and system security. Simultaneously, instructor training aims to equip them with the necessary skills to effectively educate system users on their day-to-day operational tasks.

The minimum number of trainees should align with the figures specified in the provided table:

[5] The group will be represented by the Client, no more than 10 people.

Instructors	System administrators
Three instructors for each module: 11 (modules) x 3 = 33	Three system administrators per module: 11 (modules) x 3 = 33
	Three (3) specialists of modules integration
33	**36**

Training courses can also be held online with video recording.

All training courses must adhere to a pre-approved training plan, which includes details such as methodology, syllabus, and timetable. The training sessions should be conducted based on pre-developed materials, including user manuals and administrator's manuals, which serve as comprehensive resources for participants.

For system administrators, it is essential to develop instruction documents covering different scenarios, such as:

- daily maintenance
- failure measures
- recovery measures

Practical exercises should be incorporated into the training sessions, aligning with the approved plan and documents.

Additionally, it is the Contractor's obligation to create the following resources in the Armenian language:

- User manuals
- Help sections for all modules
- Educational videos

5.4 Documents

The Client and Consultant shall review and approve all documents required by the Contractor. During the implementation of the project, the Contractor must submit the following complete documents:

- Project Management Plan (PMP)
- Statement of Requirements
- Prototype
- Software Requirement Specification(SRS)
- System Architecture / Data Interface Document
- Requirements Traceability Matrix
- Quality Management Plan (QMP)
- Test Plan and Test Case Specifications, Test Results, Test Logs, Requirements vs. Test Case Matrix, Test Analysis and Summary)
- Penetration testing plan and results
- Change Management Plan

- Administrator and User Manuals
- Training Plan
- Deployment Plan - DP
- Migration plan
- Project and Product review, meeting minutes and reports
- System integration layout
- Project Rollout Plan
- Project Completion Report
- As-built documents - Final Design Specifications, Actual Configuration Settings and Know Issues
- Bug fixing report
- Lessons learned register[6]

The schedule of submission of documents according to phases is given in Chapter 9.

5.5 Proprietary Rights, Licenses

Any material, including documents, software code, software packages, licenses, or other deliverables created and supplied by the Contractor within the scope of the project and during the provision of services will be considered as **works made for hire**. As such, all rights, titles, and interests associated with these materials shall be assigned to the Client as their sole and exclusive owner.

An agreement must be concluded between the Contractor and the Client in accordance with the following provisions:

- The Contractor is responsible for ensuring that only users authorized by the Client have access to the system.
- The software package, along with its Software Development Kit (SDK), and all associated rights, titles, and interests, will be transferred and assigned to the Client.
- The Contractor will transfer all developed source code, SDKs, documents, licenses, intellectual rights, and any other artifacts necessary for the complete functionality of the developed system to the Client. These artifacts will be considered the property of the Client upon transfer.
- All developed source code, SDKs, documents, licenses, intellectual rights, and other artifacts related to the developed system will be stored in repositories designated by the Client. The Contractor will ensure proper versioning control and maintain the integrity of these artifacts.
- In the case of third-party software that is off-the-shelf solutions used in the system, the Client will be granted unlimited time licenses. These licenses will not be subject to additional costs or subsequent payments.
- The licenses, source code, and SDKs provided to the Client will enable independent maintenance, updating, and modification of the software package.
- The licenses, source code, and SDKs provided by the Contractor will be complete, stable, and functional. They will be delivered in a state that allows the Client to maintain and modify the software package without encountering any limitations or restrictions.

[6] Clause 7.1 - Project Implementation Methodology.

The Contractor shall bear the responsibility and costs for acquiring any necessary third-party software or licenses used during the development, testing, and release phases of the project. The procurement of such licenses may be included in the Contractor's offer, ensuring that all required licenses are obtained and provided without imposing additional costs on the Client to meet the project requirements.

6. MAINTENANCE

Starting from the moment of acceptance of the system[7], the Contractor shall provide system maintenance services in the following types:

- **Corrective maintenance**: This includes addressing errors, malfunctions, or performance issues identified during the system's use and making necessary improvements.
- **Adaptive maintenance**: Implementation of necessary changes/updates in case of security, network or other technological problems. For example, deployment of the system in a new environment, which may involve changes in equipment, operating system, data center, or cloud infrastructure.
- **Perfective maintenance:** The Contractor will introduce and implement changes to accommodate new functional requirements arising from changes in laws or regulations, as well as to enhance the system's efficiency.
- **Preventive maintenance**: This type of maintenance involves making functional and non-functional changes to proactively prevent potential issues. For example, if an increase in simultaneous transactions is predicted, the system will be adjusted in advance to ensure its performance and avoid future failures.

In addition to the aforementioned maintenance services, the following activities should be implemented:

- **License Renewal:** The Contractor will handle the renewal of any necessary licenses as required.
- **Additional Training:** If necessary, the Contractor will provide additional training sessions for system administrators and users to familiarize them with the changes implemented.

For technical maintenance and support, an agreement[8] (SLA) must be concluded between the Contractor and the Client, wherein the following points will be defined at a minimum:

- **Methods of submitting problem requests** include phone, e-mail, and an electronic ticketing system (e-ticketing system).
- **Degrees of urgency** are categorized as high, medium, and low.
- **Response times** are determined based on the degree of urgency.
- **Methods of problem solving** can be either remote or on-site.
- **Working hours**.

[7] Acceptance testing, approval that the system satisfies to all the clarified/agreed functional requirements (Statement of Requirements) and the act of acceptance are signed.

[8] The Agreement (SLA) will be jointly developed by the Contractor and the Client, accompanied by a preliminary study policy. The Contractor may present their version of the agreement in the Technical Proposal.

7. METHODOLOGY

7.1 Project implementation methodology

The project implementation methodology should incorporate the following points to ensure regular exchange of information between the Contractor, Beneficiary, and Client:

- The project implementation must adhere to the approved Project Management Plan, as agreed upon by the Client. The plan will serve as a guideline for executing and controlling the project according to the established schedule. The Contractor is responsible for providing a comprehensive work breakdown structure, reporting tables (e.g., GANTT chart, milestone list), and any other necessary documents as outlined in the Project Management Plan. The initial breakdown of work should be provided by the Contractor during the bidding process. Subsequently, as the project progresses through the design stage, additional details may be added or modified to further refine the work breakdown structure. It is important to note that the breakdown of work is subject to change as the project evolves and develops.

- At specified intervals, such as weekly or bi-weekly, the Contractor is required to present the progress of the work and the achieved results to both the Beneficiary and the Client. These presentations serve as a means of reporting on the project's status and obtaining approval from the relevant individuals (Release Management).

- The Client has the opportunity to provide suggestions and raise objections concerning the presented results. The Contractor is obligated to consider these suggestions and objections seriously and to address them promptly within the specified time limits.

- The Contractor is responsible for documenting and recording the outcomes of all meetings and discussions held throughout the project.

- The Contractor is responsible for providing an electronic platform that facilitates the management of project tasks, assignments, and their statuses, completed works, delayed works, and notifications about them.

- All problems encountered during the project implementation, along with their details and potential solutions[9], should be documented in the Lessons Learned register.

In addition to the above-mentioned points, the Contractor must also create a document management platform that will allow the parties to exchange necessary documents (laws, legal regulations, work procedures, protocols, proposed functional descriptions, currently developed documents, etc.).

The Contractor shall also implement an issue and task tracking system (such as Trello, Jira or equivalent) where both the Contractor and the Client/Beneficiary can track the progress of project related issues and problems. The Client/Beneficiary can submit issues or tasks as needed.

[9] Problems arising during the implementation of the program with their content, can be used furtherly during the developments of other modules of GFMIS.

The methodology should ensure effective project implementation and Risk management. It should address potential risks associated with misunderstandings between the parties, deviations from expected timelines, and downtimes, among others.

At the preliminary study stage, the specific details of the methodology should be clarified, and a methodology that aligns with relevant standards should be selected based on the points listed.

7.2 Quality management methodology

During the project's progression, the Contractor is required to execute quality management, comprising the subsequent sequence of actions:

- Plan Quality Management
- Manage Quality
- Control Quality

Plan Quality Management: During the Project's development phase, the Contractor is responsible for executing meticulous Quality Planning. This involves outlining the approach for quality management and validation throughout the Project's lifecycle. Within the planning phase, the Contractor strategically identifies the essential resources, tools, and methodologies that will be employed to ensure alignment with the mandated quality standards for Project deliverables. Following the formulation of the comprehensive quality plan, the Contractor submits the meticulously prepared Quality Management Plan for the Client's approval. This approved plan stands as an integral component of the overarching Project Management Plan. The encompassing Quality Management Plan encompasses the entirety of processes associated with defining, documenting, and overseeing the Project's quality management, including the stipulated outcome requirements and adherence to established quality standards.

Manage Quality - The Contractor is mandated to seamlessly integrate quality management practices throughout the entirety of the Project life cycle. Employing rigorous tests and meticulous inspections, it is incumbent upon the Contractor to continually evaluate the Project's adherence to the pre-approved Quality Management Plan. In executing this process, the Contractor is authorized to employ pertinent methods of verification, including, but not limited to:

- Checklists that encompass well-defined acceptance criteria
- Data representation techniques, such as histograms, flowcharts, and diagrams (such as Pareto charts, Control charts, and Cause-and-effect diagrams)
- Conducting comprehensive audits, among other methodologies.

Control Quality - The Contractor shall institute a meticulous quality control process to gauge the comprehensiveness, sufficiency, and appropriateness for Project utilization. This endeavor encompasses a comprehensive assessment of every facet of Project development, encompassing features and variables, and validating their alignment with the specifications meticulously delineated during the planning phase.

Quality management and control shall be diligently executed by the Contractor in strict accordance with the pre-developed and client-approved test plan. The test plan should include the specifications of the test cases and the expected results.

The Contractor shall perform the following testing and defect correction functions in phases:

- **Unit testing** - white box tests of individual components such as methods, objects, classes, software functions, and procedure.
- **Functionality testing** - such as tests on the storage and access capabilities of the system as well as reports generation.
- **Integration testing** - a test of integration between modules.
- **System testing** - an end-to-end test of all software functionalities, business cycle, and business logic.
- **Acceptance testing -** final acceptance testing of the system.
- **Other** - testing of all non-functional requirements, such as security, volume, load, stress, compatibility, usability, as well as document testing.

Acceptance tests should be conducted according to the Test plan with the participation of the Client and the Consultant. The Client and the Consultant may require additional tests (if needed), which should also be included in the Testing Plan. If any test case is not accepted, the entire system is considered non-compliant. In other words, for the system to be considered accepted, all test cases included in the test plan must be accepted.

The results of the acceptance tests shall be submitted in the form of a report, which shall include at least the following:

- the test objective which will represent the system requirement,
- test approach, representing input parameters and/or functions,
- expected result (acceptable criteria),
- the result,
- success or failure record,
- conclusion.

In order to enhance the stability of information and effectively mitigate cyber security threats, it is imperative to conduct comprehensive penetration testing on the system. This process aims to systematically identify and expose vulnerabilities within the system, enabling the development of precise and actionable instructions to remediate these vulnerabilities.

In addition to the above, for security reasons, a source code analysis should also be performed, which will allow identifying system vulnerabilities according to the risks specified in the OWASP Top Ten[10] standard.

After conducting the above mentioned tests, a comprehensive report should be submitted, encompassing the following key components:

- **Test Implementation Methodology:** A detailed account of the approach and methodology employed during the testing process.
- **Conclusion:** An inclusive assessment of the overall protection level, consolidating the findings and insights gained from the test.

[10] Open Web Application Security Project Top Ten

- **Identified Defects Description:** A thorough description of the vulnerabilities and flaws discovered within the system, outlining their nature and potential impact.
- **Testing Process Description:** A comprehensive presentation of the testing procedures undertaken, including an exposition of all vulnerabilities detected and the results obtained through their exploitation.
- **Instructions for Remediation:** Clear and concise guidance on how to rectify the identified vulnerabilities, providing actionable steps to enhance the system's security posture.

The results of the testing may necessitate the following courses of action:

- Designing and Implementing Intrusion Prevention Measures: Developing and deploying proactive measures to prevent unauthorized access and fortify the system's defenses. This may involve the introduction of additional security controls or the improvement of existing ones.
- Implementation of Continuous Monitoring and Protection Enhancement: Establishing mechanisms for ongoing monitoring and regular assessment of the protection level, thereby facilitating timely identification and remediation of potential vulnerabilities.

Additionally, the Contractor must ensure the organization of a final security penetration testing through other certified companies to further validate the system's resilience and security posture.

7.3 Change Management Methodology

Changes to requirements (functional and non-functional) during the development of the project must be implemented according to the Change Management Plan, which is a component of the project management plan and describes how the change requests throughout the project will be formally authorized and incorporated.

During the development of the system, the Contractor must ensure the implementation of changes in the specified manner, in particular:

1. **Change Request** - Any member of the Client/Beneficiary or the Contractor's team can submit a change request, which must be recorded in the Change log managed by the Contractor.
2. **Review of change requests -** For all requests in the Change log, the impact dependencies must be assessed. If necessary, the requested changes and other needed changes as a consequence to the requested change carried out.
3. **Change approval** – In defined cases (for example, in the case of the need to implement key changes), the need to make changes must be submitted to the Change Control Board (CCB) for approval, which should include the responsible employees of all stakeholders (for example, representatives of the Client / Beneficiary, the Contractor's project manager, etc.). The change management board can approve or reject the implementation of changes.
4. **Implementation of change -** approved changes must be implemented within the timeframe set by the Contractor and their status updated in the change log.
5. **Change Closure –** all committed (as well as those rejected by the Change Management Board) changes should be recorded in the Change log with the appropriate status (for example, accepted, implemented).

8. RESOURCES

During the Project implementation, the Contractor shall ensure the availability of at least the following resources: team and technical environments.

8.1 Team

The Contractor must ensure the presence of a suitably qualified and trained team during the entire project, as well as, if necessary, provide replacement of specialists. The contractor must ensure the physical presence of the Armenian-speaking labor resources necessary for the continuous development and maintenance of the project in the territory of the Republic of Armenia.

The contractor's team shall include, but not be limited to the following professionals:

Project Manager - must manage the project, set deadlines, monitor the implementation, ensure contacts with the working team, coordinate work of the involved specialists, plan meetings, implement management of labor, equipment, software, and other resources.

Business Analysts (BA) - must study the business processes, the current RA Laws, work procedures, the studies and concepts carried out by the Consultant (the model of implementation of the GFMIS), etc. Must have experience in analyzing and requirement elicitation, as well as knowledge in the field of the corresponding module.

System Architect - must design the system (System Architecture / Data Interface Document) according to the approved detailed requirements.

System Administrator, DevOps - must install and maintain the necessary technical environments: servers, databases, repositories, etc.

Database Administrator - must design and develop and maintain the necessary database/s.

Web Designer (UI/UX Designer) – should develop the visual interface and interaction with the system using appropriate tools. Visual interface and interaction should be discussed and approved with the Client.

Programmers/Developer - must develop the software code of the system according to the design and the approved interfaces.

Data Analyst - must develop the necessary data models for analysis, reporting and decision making. In addition, they should develop migration data structures, define the sources and semantic description.

Quality Assurance specialist (QA) - must develop the system testing plan, carry out system testing according to the previously accepted quality management plan. A quality assurance specialist should also be involved in the system development phase to test current software codes/functions, identify bugs (unit testing).

Trainer - must develop the training plan, carry out training of relevant specialists of the Client according to the developed training plan.

Technical Writer - must prepare all required documents according to acceptable standards.

Cybersecurity Specialist - cybersecurity specialist is entrusted with the crucial task of identifying vulnerabilities and risks within networks, software systems, and data centers. This responsibility encompasses conducting ongoing vulnerability scans, monitoring network data, and ensuring the regular updating of hardware and software applications.

The Contractor, in the technical proposal, must present the structure of the working team (organizational chart) and the number of specialists.

In case of a change of specialists (especially the Project Manager and Business Analyst), the Contractor must inform the Client about it (including the reason) within at least 15 working days. Before the involvement of new specialists in the project, the Contractor must provide them with the necessary knowledge within the project.

During the implementation of the project, the Client may nominate a representative who will work in the Contractor's working environment, cooperating with the contractor's specialists. Also, the Client may request that the work of the Contractor's team be carried out at the place specified by the Client.

The contractor's team (or necessary specialists) must be located in the Republic of Armenia. Communication with the Beneficiary and the Client must be carried out in Armenian.

8.2 Technical environment and toolkit

The Contractor must provide the **development environment** with its resources:

- equipment - servers, workstations, printers, etc.
- toolkit - database, its management tools (DBMS), IDE (e.g. Eclipse, Visual Studio), version control tool (e.g. SVN, GIT), task management tool, etc.

The **testing environment,** which is intended for demonstration of the system, various modules or functions (not for acceptance testing), must also be provided by the Contractor. It can be both on-premise and in clouds with non-real data.

The Contractor must ensure the availability of resources for the necessary environments within 60 days of signing the contract.

The Contractor must ensure the availability of backup versions of the specified resources for the purpose of replacement in case of failures. It should also ensure the maintenance of up-to-date backup copies of source codes outside the working area.

The **production environment** will be provided by the Client. It will serve to deploy the production (working) version of the system. Acceptance testing should also be performed in this environment. Its requirements will be discussed in the preliminary study phase.

9. PROJECT SCHEDULE

The stages of project implementation are as follows:

- **Phase 1** - Initial studies phase, during which the Contractor must conduct a requirements study, analyze and describe detailed (clarified/agreed) functional requirements and specifications,
- **Phase 2** - Development Phase, during which the Contractor must develop the system according to detailed functional requirements and specifications,
- **Phase 3** - Testing, training, deployment, and migration phase, during which the Contractor must introduce the system, carry out knowledge transfer (training), test its compliance with functional requirements and specifications (with the Client/Consultant), if accepted, deploy in a production environment, do a data migration from existing systems to a new system.
- **Phase 4** - Maintenance phase (Chapter 6).

The expected results of the stages are given in the table

Phase	Duration	Type	Description
Phase 1	6 months	Document	1. Project Management Plan - PMP 2. Statement of Requirements 3. Prototype 4. Software Requirement Specification 5. Requirements Traceability Matrix 6. System Architecture / Data Interface Document 7. Quality Management Plan - QMP
Phase 2	36 months	Document	1. Change Management Plan
		Software codes	1. Developed system initial software codes
Phase 3	6 months	Document	1. Test Plan and Test Case Specifications, Test Results, Test Logs, Requirements vs. Test Case Matrix, Test Analysis and Summary 2. Penetration testing plan and results 3. Training Plan 4. Administrator and User Manuals 5. Deployment Plan - DP 6. Migration plan 7. Project and Product review, meeting minutes and reports 8. System integration layout 9. Project Completion Report 10. As-built documents - Final Design Specifications, Actual Configuration Settings and Know Issues 11. Bug fixing report

			12. Lessons learned register
		Testing	Conducted tests according to relevant documents
		Training	Conducted training with relevant participants according to the curriculum
		Deployment	1. A system deployed in a test environment for presentation and testing 2. A system deployed in a production environment - a working version
		Data migration	Migrating data from operational/existing systems to an system deployed in a production environment
Phase 4	60 months	Document	1. Bug fixing report 2. Updated versions of documents subject to change
		Maintenance	Fixed software bugs, improvements, functional additions (if any)

Each next phase can start after the successful completion of the previous phase's submission-acceptance process. Handover (delivery and acceptance) is a confirmation of acceptance, as well as signing relevant acts by all interested parties (for example, Client and Contractor).

10. APPENDICES AND REFERENCES

10.1 Appendices

- Appendix A. Classification of requirements
- Appendix B. Comprehensive description of GFMIS
- Appendix C. Budgeting Module
- Appendix D. Treasury Module
- Appendix E. Public Debt Module
- Appendix F. Obligations to the Budget Module
- Appendix G. Public Sector Accounting Module
- Appendix H. Internal Audit Module
- Appendix I. Analytical-Reporting module
- Appendix J. Specialists Management module, Testing module, Training module
- Appendix K. User management module

10.2 References

Documents

- GFMIS Conceptual Model -
    - Budgeting module,
    - Treasury module,
    - Public Procurement module,
    - Public Debt and Obligations to the budget modules,
    - Public Sector Accounting module,
    - Internal audit module.
- ToR of Electronic Procurement System.
- Options of implementation GFMIS
- Methodology for preparing interim consolidated financial statements at the level of ministries
- Consolidation at the Ministry and State level
- Study of the structure of the chart of accounts and economic classifications of the public sector accounting and proposals for revisions or addition of other elements
- Alignment of Public Sector Accounting Chart of Accounts accounts to classes of economic classifiers, which in turn are aligned to accounts in the GFS 2014 Manual
- Analysis of significant differences between the GFS methodology and the RA Public sector accounting standards
- GFS Report Format
- GFS Manual 2014
- Guidelines for responding to the annual GFS questionnaire
- Functional requirement for consolidation of financial statements

Legislations

- Decision of the RA Government on 'Strategy of Public Finance Management (PFM) Reforms 2019-2023 and on approving the action plan to implement the PFM system reform for 2019-2023
- Law of the Republic of Armenia "On the Budget System"
- Law of the Republic of Armenia "On the Budget of the Republic of Armenia"
- Decision of the RA Government "On measures to ensure the action plan for the state budget of the Republic of Armenia"
- Order No 311-A of the RA Minister of Finance dated June 23, 2017, “On Approving Methodological Guidelines within the Framework of the Strategy of Full Introduction of Program Budgeting System in the Republic of Armenia”
- Decision No 2335-N of the RA Government dated December 29, 2005 “On approving the minimum and maximum amount of reimbursement of travel expenses of employees sent to business trip and the procedure of reimbursement; on approving the procedures and amount of cash reimbursement of transportation expenses for travelling from the Republic of Armenia to a foreign state or returning from a foreign state to the Republic of Armenia, as well as expenses of rent of residential premises in a foreign state, incurred by a military serviceman, and the family members thereof, serving in the system of the Ministry of Defence of the Republic of Armenia sent to a foreign state for study or service, by a diplomat, and the family members thereof, sent for service to a diplomatic mission functioning in a foreign state”

- The RA Law “On Treasury System”
- Decision on approving the budget implementation procedure repealing a number of decisions of the Government of the Republic of Armenia
- Law of the Republic of Armenia "On State Debt" (HO-78-N dated May 26, 2008)
- The RA Government decree “On approving the conditions for issuance of the government (treasury) savings coupon bonds of the Republic of Armenia and the procedure for the placement and servicing of the redemption of the government (treasury) savings coupon bonds of the Republic of Armenia” (October 19, 2006 N 1606-N)
- The RA Government decision N 168 dated March 9, 1998 “On approving the procedure for provision of loans from the State Budget of the Republic of Armenia”
- The RA Government decision (April 7, 2022, N 436-N) “On amendment in the RA law “On 2022 State Budget of the Republic of Armenia”, and amendments and additions to the RA Government decision N 2121-N dated on December 23, 2021”
- The RA Law "On Accounting of Public Sector Organizations"
- Order No 5-N of the RA Minister of Finance and Economy dated January 9, 2007, “On Approving the Classifications of Budgetary and Public Sector Accounting and Instructions of their Application”
- Order 254-N of the Minister of Finance of the Republic of Armenia "On approving the directive on the general conditions for the preparation, presentation, summarization of reports related to the implementation of budgets, as well as the financial activities of state and local self-government bodies and their subordinate institutions, as well as the specifics of the preparation and presentation of separate types of reports and on repealing Order N 176-N of the Minister of Finance of the Republic of Armenia dated April 1, 2015, and Order N 324-N of the Minister of Finance and Economy of the Republic of Armenia dated March 28, 2007"
- The RA Government decision N 24-A “On recognizing public administration body authorized by the Republic of Armenia Government”
- The RA Government decision N 313-N “On defining the procedure for determining the compliance of the software enabling the accounting in the public sector organizations with the requirements of the legislation regulating the public sector accounting field, and on defining the requirements towards the automated systems of such software”
- The RA Government decision N 82-N "On establishing the procedure for registration of the accountants holding a Public Sector Accountant qualification and the persons providing accounting services to the public sector organizations”
- The RA Government Decision N 264-N "On inventory and revaluation of fixed assets of public sector organizations"
- Accounting standard of the public sector of the Republic of Armenia - Decision 725-N
- Order "On approving the procedure for formation of accounts receivable reserve for potential losses, recognition of receivables as bad debts, writing-off and reflecting in the accounting records”
- Labour Code of the Republic of Armenia
- The Law of the Republic of Armenia on Civil Service
- The RA law “On Remuneration of Persons Holding Public Positions and Public Service Positions”

- The RA Law "On Internal Audit"
- Decision N 176-N of the RA Government dated on February 13, 2014 “On approving the procedure for qualification of internal auditors and the main requirements towards the organizations for conducting internal audit in the public sector”
- The RA Government Decision N 896-N dated on August 8, 2013, “On Approving the Procedures of the Organization’s Internal Audit System Assessment by Persons not Related to the Organization’s Activities for the Purpose of Ensuring the Quality of the Organizations’ Internal Audit, as well as Internal Audit Cooperation with Inspecting Bodies and External Audit Body”
- The RA Government Decision N 1233-N dated on August 11, 2011, “On Organizing the Internal Audit Process, Stipulating an Authorized Body Envisaged by the Republic of Armenia Law “On Internal Audit” and Making Amendments and Addenda in the RA Government Decision N 503-N dated on May 15, 2008”

Appendix A. Requirements classification

The appendix provides a classification of the system requirements according to the MoSCoW[11] method.

Table AA. ***Definition and Description MoSCoW Requirements Classification***

Classification	Definition	Description
M	Must Have	These requirements are fundamental to the system. Without them the system will be unworkable and useless.
S	Should Have	These are essential requirements for the system. If the Contractor is not able to exactly satisfy these requirements they must provide an alternative or equivalent solution.
C	Could Have	These requirements have lower priority in the delivery of the initial system implementation. These are 'nice to have' functions that could be included if the project has enough time and budget, if resources are available these requirements could be delivered towards the end of the project.
W[12]	Will not have	These requirements are not essential to be delivered in the initial implementation. "W" requirements are included as they have been captured in the requirements gathering phase.

[11] The MoSCoW method is a prioritization technique used in management, business analysis, project management, and software development to reach a common understanding with stakeholders on the importance they place on the delivery of each requirement; it is also known as MoSCoW prioritization or MoSCoW analysis.

[12] This classifier helps to track (not miss) all the requirements of the system for later implementation (or during the project if possible).

APPENDIX B. Comprehensive description of GFMIS

Content

Introduction

This appendix provides a comprehensive (general) description of GFMIS in three chapters:

- **High-level structure and data** – the structures of the overall GFMIS and individual modules are presented, as well as a description of the data that can be exchanged within and between modules.
- **Functional requirements** – high-level functional requirements of GFMIS by modules, as well as general functional requirements and the modules required within the scope of the ToR.
- **Non-functional requirements** – architecture, technologies, security, performance, etc.

1. High-level structure and data

As outlined in the document titled "GFMIS Conceptual Model"[13], the implementation of GFMIS should adhere to a modular approach, wherein a distinct module is to be strategized for each functional domain or group.

This section provides an overview of the high-level structures and data flows of the general GFMIS and individual modules. Data flows and relationships between modules are also described - in separate subsections. Comprehensive details can be found in the appendix, which offers in-depth descriptions of each specific module.

1.1 General GFMIS

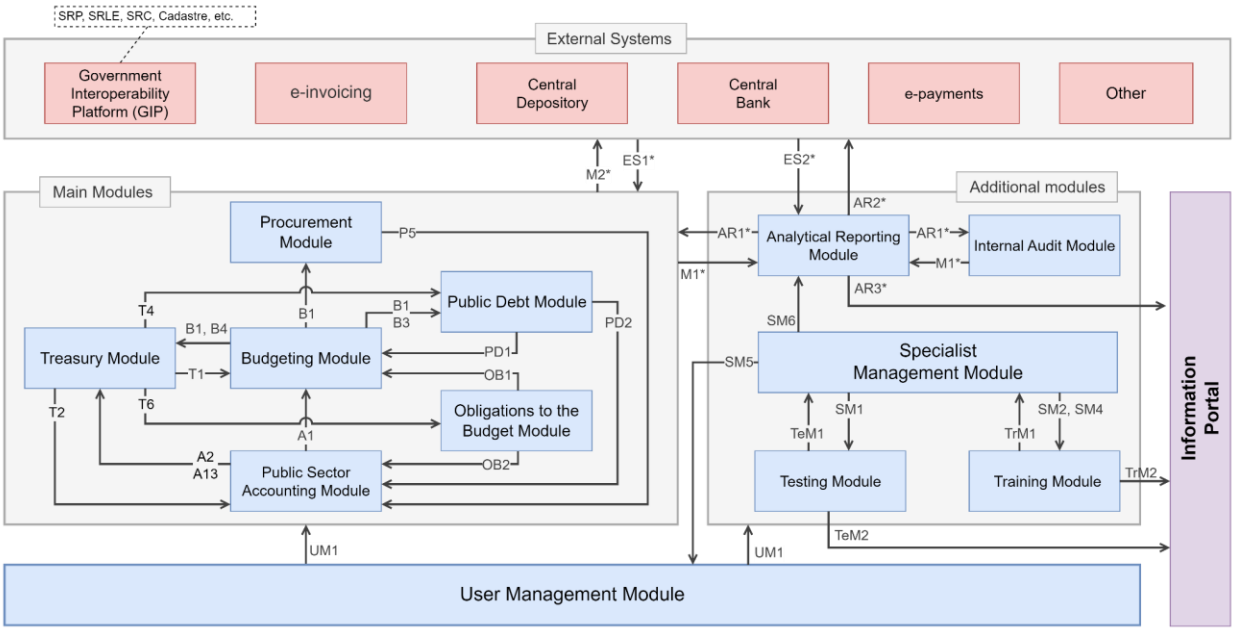


Figure AB.1-1 Structure and data flow of the GFMIS

The modules are divided into several groups:

- **Main modules** - between which the main data flow of the GFMIS takes place,
- **Additional modules** - which perform auxiliary functions, ensuring the availability and high quality of mainstream data processing,
- **External systems** - systems operating outside of the framework of the GFMIS, in which the processed data is needed in the main and additional modules.

[13] Information about the documents is posted in section 10.2 References of the ToR.

Table AB.1-1 Summary list of data exchanged between GFMIS modules

Data	Description	Source	User (Module)
B1	Data on expenditures and budget outflows	Budgeting Module	1. Treasury Module 2. Procurement Module 3. Public Debt Module
B3	Deficit part of the budget	Budgeting Module	Public Debt Module
T1	Stabilization fund residual, residual at the beginning of the year	Treasury Module	Budgeting Module
T2	Data on treasury accounts:	Treasury Module	Public Sector Accounting Module
T4	Treasury inflows/outflows of public debt instruments	Treasury Module	Public Debt Module
T6	Treasury inflows/outflows of budget obligation instruments	Treasury Module	Obligations to the Budget Module
P5	Procurement or Grant contracts	Procurement Module	Public Sector Accounting Module
A1	Registered data on the basis of which the cost estimation is carried out	Public Sector Accounting Module	Budgeting Module
A2	1. Summary data of certificates, obligations 2. Application for financing 3. Payment orders 4. Application for reformulation	Public Sector Accounting Module	Treasury Module
A13	Contracts and payment schedules	Public Sector Accounting Module	Treasury Module
PD1	Borrowings, debt repayments and service	Public Debt Module	Budgeting Module
PD2	Accounting of borrowings, Debt service and repayment	Public Debt Module	Public Sector Accounting Module
OB1	Data on issued promissory notes, loans and debts, budgetary guarantees	Obligations to the Budget Module	Budgeting Module
OB2	Accounting for promissory notes, loans and debts, issuance and repayment of budgetary guarantees	Obligations to the Budget Module	Public Sector Accounting Module

M1*	Analytical data of GFMIS modules	GFMIS Modules	Analytical Reporting Module
M2*	Data of GFMIS modules that will be provided to External Systems	GFMIS Modules	External Systems
AR1*	Analytical data generated from data from all modules and/or external systems	Analytical Reporting Module	GFMIS Modules
AR2*	Analytical data generated from data from all modules.	Analytical Reporting Module	External Systems
AR3*	Public analytical or reporting data	Analytical Reporting Module	Information Portal
SM1	Testing applications/requests	Specialist Management Module	Testing Module
SM2	Training applications/requests	Specialist Management Module	Training Module
SM4	Data on specialists to be trained	Specialist Management Module	Analytical Reporting Module
SM5	User management data on specialists - status, certification, etc.	Specialist Management Module	User Management Module
SM6	Analytical data on specialists (M1*)	Specialist Management Module	Analytical Reporting Module
TeM1	Data on tested specialists	Testing Module	Specialist Management Module
TeM2	Public data on tested specialists	Testing Module	Information Portal
TrM1	Data on trained specialists	Training Module	Specialist Management Module
TrM2	Public data on trained specialists	Training Module	Information Portal
ES1*	Data from external systems for GFMIS modules	External Systems	GFMIS Modules
ES2*	Data from external systems for analytical-reporting issues.	External Systems	Analytical Reporting Module
UM1	1. User permissions	User Management Module	GFMIS Modules

	2. User data		

1.2 Budgeting Module

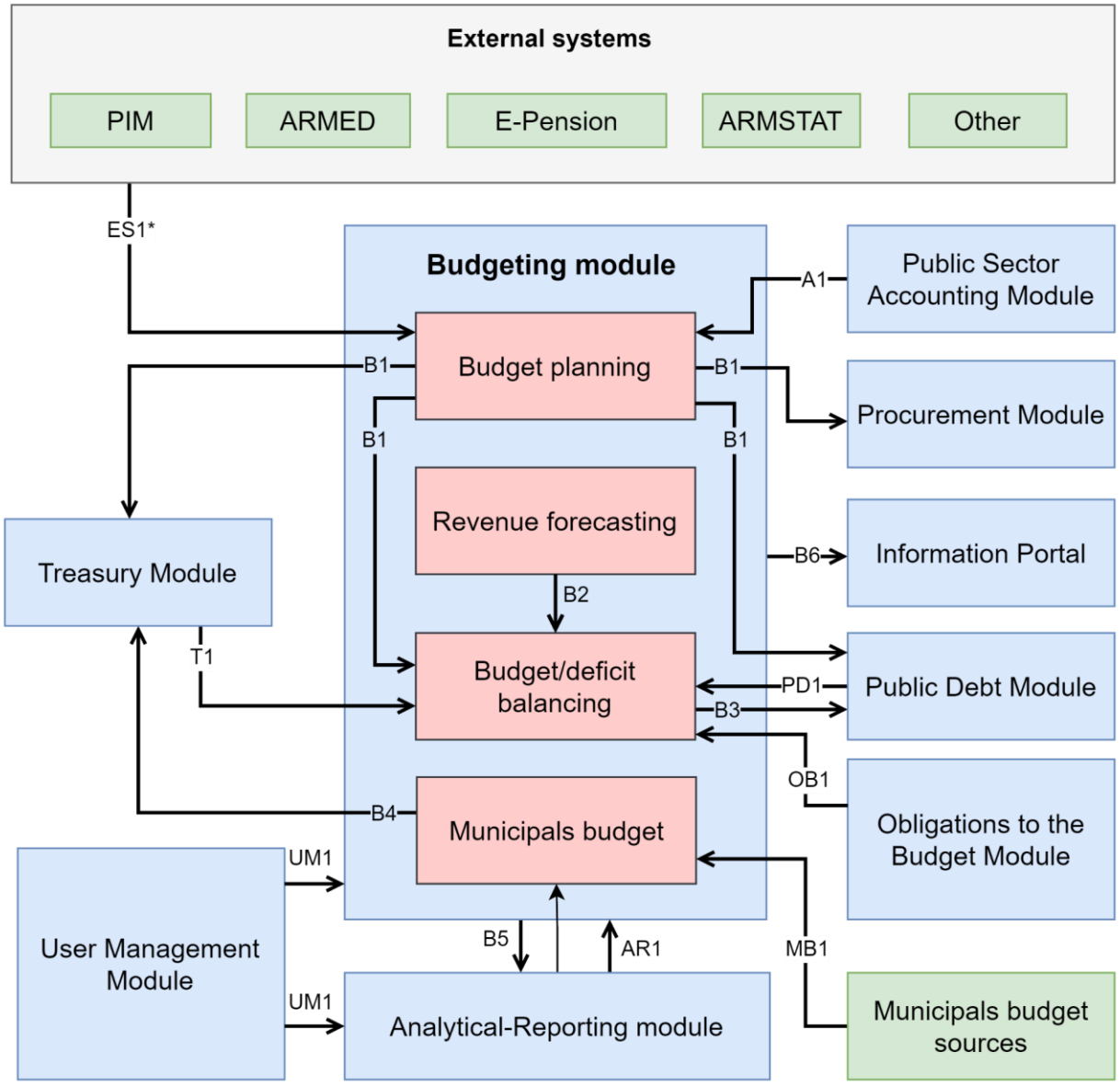


Figure AB.1-2 Structure and data flow of the Budgeting module

Table AB.1-2 Data description of Budgeting module

Data	Description	Source Module/Submodule	User Module/Submodule

B1	Data on expenditures and budget withdrawal. 1. Necessary data for the formation of a procurement plan 2. Necessary data for the formation of the grant plan 3. Approved budget (CMBA-Chief manager of budget appropriations, SMBA-Subordinate manager of budget appropriations, program, event, classification) 4. Provision of the next number of a new program/event 5. Adjusted budget 6. Targeted loans and loans forecasting expenditures 7. Budget expenses	Budgeting Module/Budget planning	1. Procurement Module 2. Treasury Module, 3. Public Debt Module 4. Budgeting Module/ Budget balancing
B2	Data on income 1. Non-tax revenue forecast 2. Tax revenue forecast	Budgeting Module/Revenue forecasting	Budgeting Module/Budget balancing
B3	Deficit part of the budget	Budgeting Module/ Budget balancing	Public Debt Module
B4	Communities approved/adjusted budget	Budgeting Module/ Municipal budget	Treasury Module
B5	Analytical data generated in the budgeting module (M1*)	Budgeting Module/ all submodules	Analytical Reporting Module
B6	Publication of reporting data defined by legal acts	Budgeting Module	Information Portal
A1	Registered data on the basis of which the cost estimation is carried out (for example fixed assets or material value for the operation/maintenance , of which a cost should be carried out)	Public Sector Accounting Module	Budgeting Module/Budget planning
T1	Stabilization fund residual, residual at the beginning of the year	Treasury Module	Budgeting Module/ Budget balancing
PD1	Borrowings, debt repayments and service	Public Debt Module	Budgeting Module/ Budget balancing
OB1	Data on issued promissory notes, loans and debts, budgetary guarantees	Obligation to the Budget Module	Budgeting Module/ Budget balancing

ES1*	Data recorded in external electronic systems[14]. 1. Data on public investment expenditure 2. Benefits 3. Pension 4. Medical data 5. Statistical data 6. other	External systems 1. PIM 2. Npast 3. E-pension 4. ARMED 5. ARMSTAT	Budgeting Module/Budget planning
MB1	Budget data approved by the Municipal Council	External systems	Budgeting Module/ Municipals budget
UM1	1. User permissions 2. User data	User Management Module	1. Budgeting Module 2. Analytical Reporting Module
AR1*	Analytical data generated from data from all modules and/or external systems 1. Planned/approved budget data for the previous year/years 2. Planned/ Collected Revenues for the previous year/years 3. Budget Annexes 4. Various reports 5. other	Analytical Reporting Module	Budgeting Module 1. Budget planning submodule, 2. Revenue forecasting submodule 3. Budget balancing submodule

[14] Data that forms the basis for cost estimation calculation formulas obtained from external systems. For details - Appendix C. Budgeting Module, Section 1.2.1 Cost estimation

1.3 Treasury Module

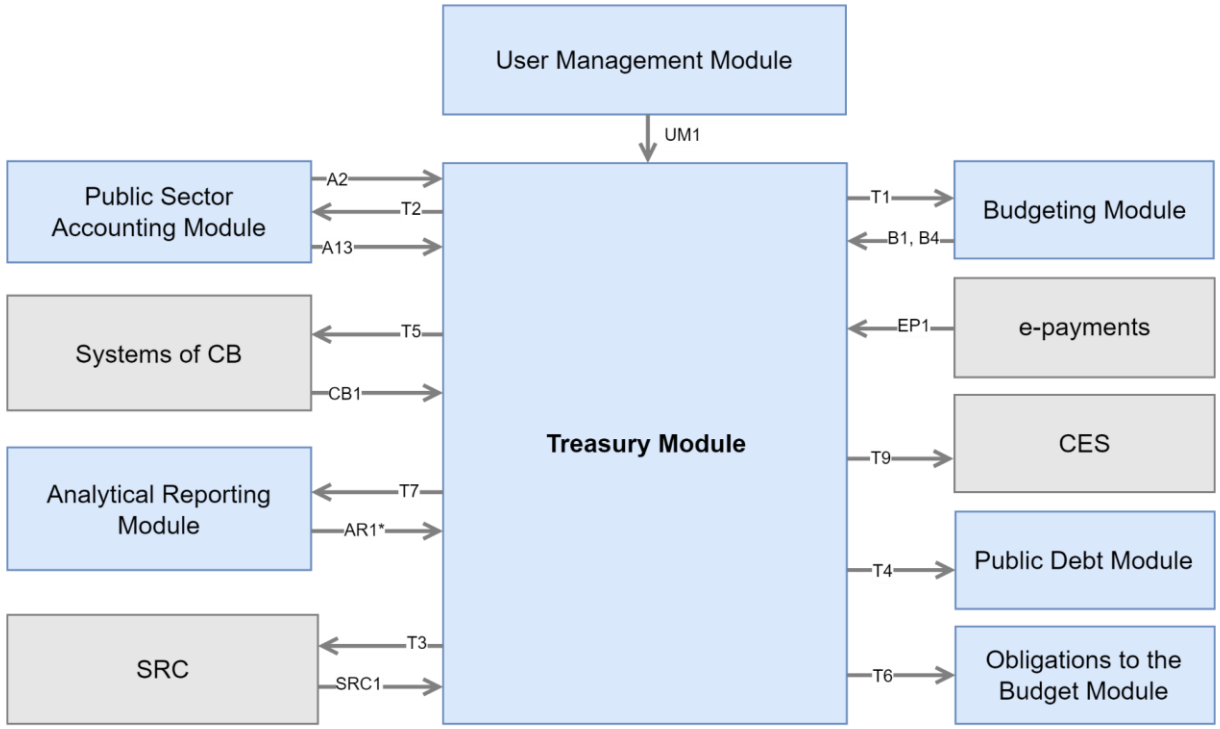


Figure AB.1-3 Structure and data flow of the Treasury module

Table AB.1-3 Data description of Treasury module

Data	Description	Source Module/Submodule	User Module/Submodule
T1	Stabilization fund residual, residual at the beginning of the year	Treasury Module	Budgeting Module
T2	Data on treasury accounts: 1. Treasury account, annual and quarterly limits of the CMBAs' account, SMBAs' account estimations and payment schedule 2. cash in/out 3. residual 4. rejected transaction data 5. exchange rates 6. EEU customs duty and countervailing duty liability data	Treasury Module	Public Sector Accounting Module
T3	Data of Treasury Module that will be provided to External Systems (M2*):	Treasury Module	SRC

	1. Amounts collected through cash register machine and POS terminals		
T4	Treasury inflows/outflows of public debt instruments	Treasury Module	Public Debt Module
T5	Data of Treasury Module that will be provided to External Systems (M2*): 1. data on opened treasury account 2. electronic payments 3. deposit application	Treasury Module	CB
T6	Treasury inflows/outflows of budget obligation instruments	Treasury Module	Obligations to the Budget Module
T7	Analytical data generated in the treasury module (M1*) 1. data on the execution of the budget (revenues, expenses)	Treasury Module	Analytical Reporting Module
T9	Data of Treasury Module that will be provided to External Systems (M2*): 1. Data on accounts and amounts frozen/confiscated	Treasury Module	CES
B1	Data on expenditures and budget withdrawal. 1. Approved budget (CMBA-Chief manager of budget appropriations, SMBA-Subordinate manager of budget appropriations, program, event, classification) 2. Provision of the next number of a new program/event 3. Adjusted budget	Budgeting Module	Treasury Module
B4	Communities approved/adjusted budget	Budgeting Module	Treasury Module
EP1	Data from external systems for Treasury Module (ES1*): 1. Data on revenue collection by collecting authorities	E-Payments	Treasury Module
CB1	Data from external systems for Treasury Module (ES1*):	Central Bank	Treasury Module

	1. Exchange rates 2. Data on cash flows		
SRC1	Data from external systems for Treasury Module (ES1*): 1. Confirmation of cash register machine transactions 2. Tax transactions 3. Operations for the return of customs duties and countervailing duties of the Agreement on the EAEU	SRC	Treasury Module
A2	1. Summary data of certificates, obligations 2. Application for financing 3. Payment orders 4. Application for reformulation	Public Sector Accounting Module	Treasury Module
A13	Contracts and payment schedules	Public Sector Accounting Module	Treasury Module
AR1*	Analytical data generated from data from all modules and/or external systems 1. Various reports	Analytical Reporting Module	Treasury Module
UM1	1. User permissions 2. User data	User Management Module	Treasury Module

1.4 Procurement Module

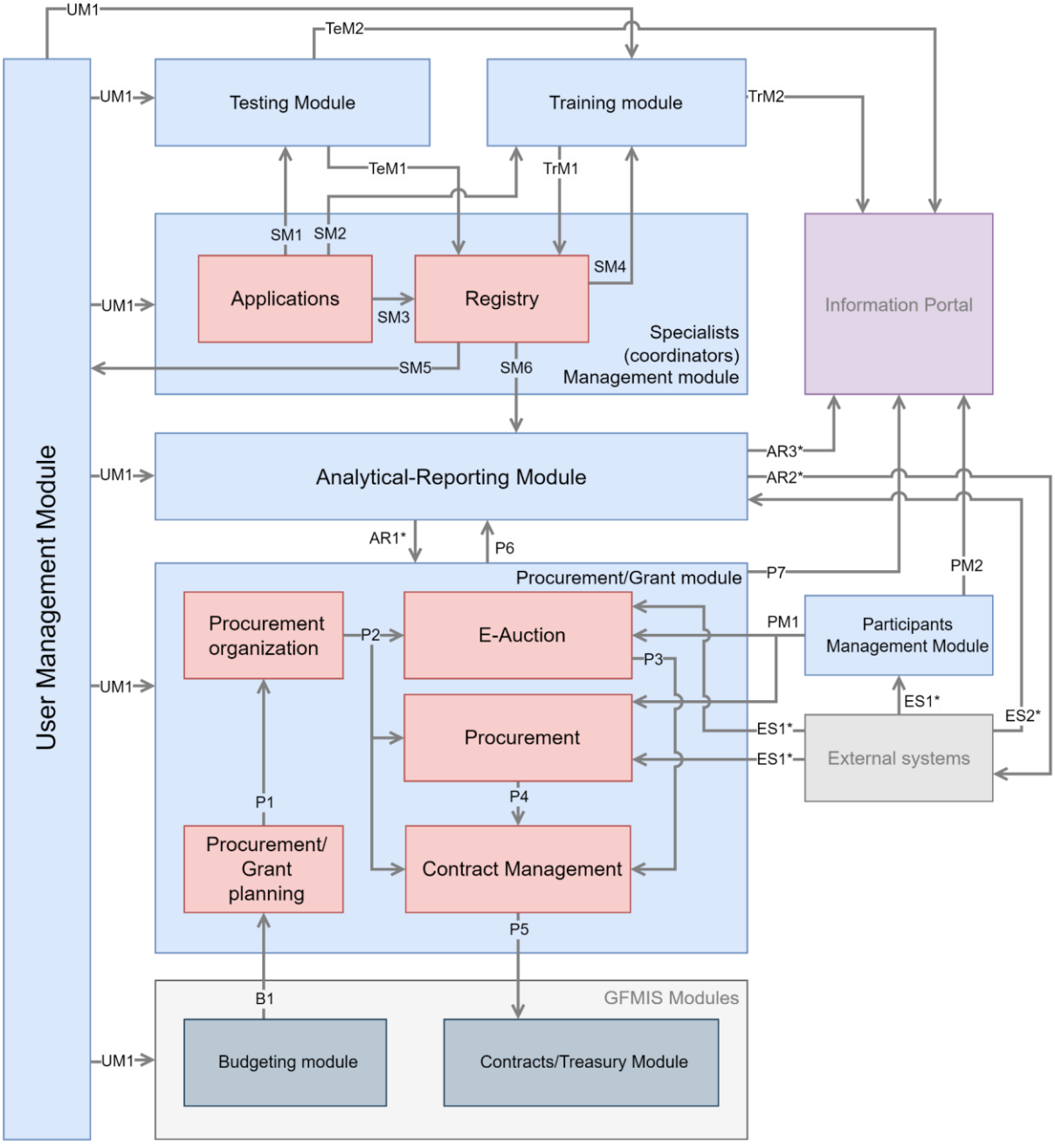


Figure AB.1-4 Structure and data flow of the Procurement module

Table AB.1-4 Data description of Procurement module

Data	Description	Source Module/Submodule	User Module/Submodule
SM1	Testing applications/requests	Applications (Specialists Management Module)	Testing module
SM2	Training applications/requests	Applications (Specialists Management Module)	Training module
SM3	Data confirming the certificate or qualification accepted by the authority	Applications (Specialists Management Module)	Registry (Specialists Management Module)
TeM1	Data on tested specialists	Testing module	Registry (Specialists Management Module)
TeM2	Public data on tested specialists	Testing module	Information portal
SM4	Data on specialists to be trained	Registry (Specialists Management Module)	Training module
TrM1	Data on trained specialists	Training module	Registry (Specialists Management Module)
TrM2	Public data on trained specialists	Training module	Information portal
SM6	Analytical data on specialists (M1*)	Registry (Specialists Management Module)	Analytical Reporting Module
SM5	User management data on specialists - status, certification, etc.	Registry (Specialists Management Module)	User Management Module
UM1	1. User permissions 2. User data	User Management Module	1. Testing module 2. Training module 3. Specialists Management Module 4. Analytical Reporting Module 5. Procurement Module 6. GFMIS Modules
AR1*	Analytical data generated from data from all modules and/or external systems	Analytical Reporting Module	Procurement Module
AR2*	Analytical data generated from data from all modules.	Analytical Reporting Module	External Systems

AR3*	Public analytical or reporting data	Analytical Reporting Module	Information Portal
P6	Analytical data developed in the procurement module (M1*)	Procurement Module	Analytical Reporting Module
P7	Information to be published as defined by RA Law "On Procurement", in particular: 1. Procurement plan 2. Tender/Auction Invitation 3. Requests for clarification 4. Changes made to the invitation 5. Declaration on the decision to sign a contract 6. Statement of cancelation of the procedure 7. Declaration of the signed contract 8. Other Statements	Procurement Module	Information Portal
P1	Data required for the procurement planning, for example: ● For Procurement - item, form, CPV code, unit of measure, unit price, etc. ● For Grant - subject, grant type, unit of measurement, unit price, etc.	Procurement/Grant planning submodule (Procurement Module)	Procurement organization submodule (Procurement Module)
P2	Necessary information provided in the procurement or grant invitation	Procurement organization submodule (Procurement Module)	1. E-Auction, 2. Procurement, 3. Contract management submodules (Procurement Module)
P3	1. Information about the winner of the auction 2. Assessments of committee members 3. Other necessary information	E-Auction submodule (Procurement Module)	Contract management submodule (Procurement/Grand Module)
P4	1. Information about the winner of the auction of grant 2. Assessments of committee members 3. Other necessary information	Procurement submodule (Procurement Module)	Contract management submodule (Procurement/Grand Module)
P5	Procurement or Grant contracts	Contract management submodule	Treasury/ Public Sector Accounting (Contracts)

		(Procurement/Grand Module)	
PM1	Data of participants who are not entitled to participate in the procurement or grant process	Participant Management Module	1. E-Auction, 2. Procurement (including the Grant) submodules (Procurement Module)
PM2	Public data of participants who are not entitled to participate in the procurement or grant process	Participant Management Module	Information Portal
ES1*	Necessary data from external systems for GFMIS modules (Procurement) 1. Information about bankrupt participants 2. Information about convicted participants 3. Other data	External Systems	1. Participant Management Module 2. E-Auction, 3. Procurement (including the Grant) submodules (Procurement Module)
ES2*	Necessary data from external systems for analytical-reporting issues 1. Information about bankrupt participants 2. Information about convicted participants 3. Other data	External Systems	Analytical Reporting Module
B1	Data on expenditures and budget withdrawal. 1. Necessary data for the formation of a procurement plan 2. Necessary data for the formation of the grant plan	Budgeting Module	Procurement/Grant planning submodule (Procurement Module)

1.5 Public Debt Module

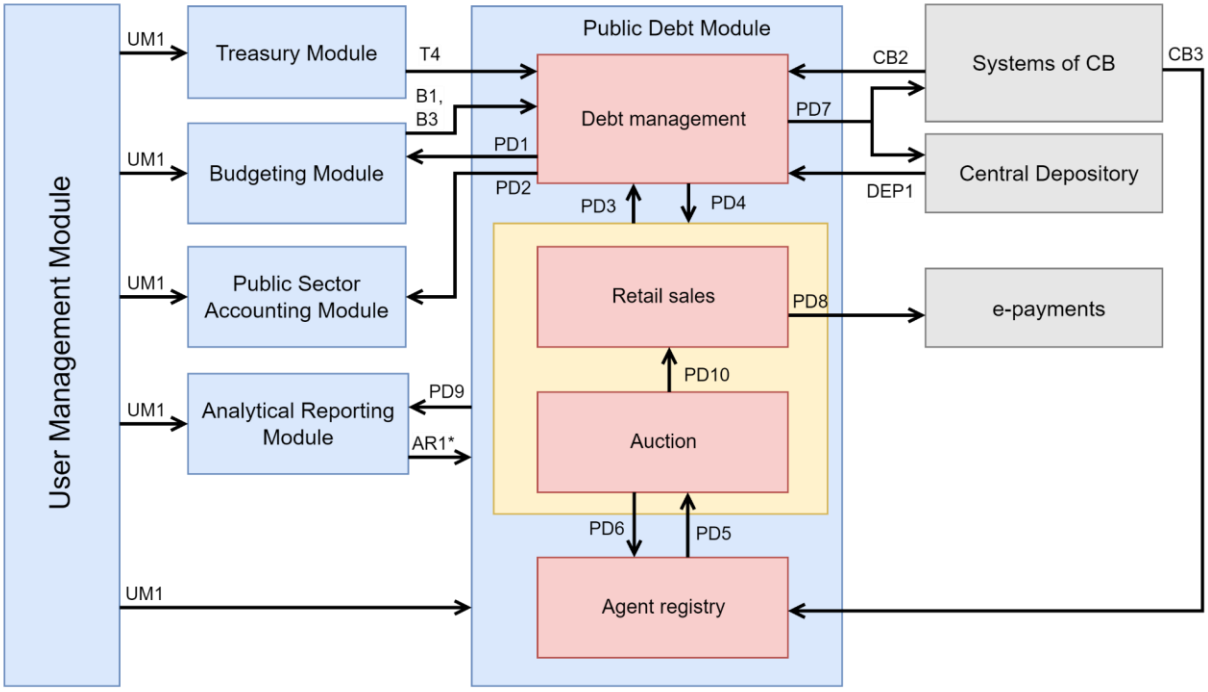


Figure AB.1-5 Structure and data flow of the Public Debt module

Table AB.1-5 Data description of Public Debt module

Data	Description	Source Module/Submodule	User Module/Submodule
PD1	Borrowings, debt repayments and service	Public Debt Module/ Debt management	Budgeting Module
PD2	Accounting of borrowings, Debt service and repayment 1. Contracts and conditions (appendix, schedule, other) of debt instruments (treasury bonds, foreign currency bonds, including Eurobonds, loans received from domestic and external sources) 2. Direct payments	Public Debt Module/ Debt management	Public Sector Accounting Module
PD3	1. Auction result 2. Retail sales result	Public Debt Module/ Auction and Retail sales	Public Debt Module/Debt management

PD4	Data on debt instrument	Public Debt Module/ Debt management	Public Debt Module/ Auction and Retail sales
PD5	Data on primary agents	Public Debt Module/ Agent registry	Public Debt Module/ Auction
PD6	Data of agents participated in the auction	Public Debt Module/ Auction	Public Debt Module/Agent registry
PD7	Data of Public Debt Module that will be provided to External Systems (M2*): 1. Application for granting ISIN code 2. Data on registering government bonds 3. Preliminary results of auction	Public Debt Module/ Debt management	1. Central Depository 2. Systems of CB
PD8	Data of Public Debt Module that will be provided to External Systems (M2*): 1. Data on retail sales (for electronic payment)	Public Debt Module/ Retail sales	E-payments
PD9	Analytical data of Public Debt module (M1*) 1. Analytical data (preliminary forecasts and/or timeline) for the formation of a debt instrument. 2. Data processed during auctions 3. Data processed during retail sales	Public Debt Module/ Debt management	Analytical Reporting Module
PD10	Announcement of the auction and preliminary data on the results of the auction	Public Debt Module/ Auction	Public Debt Module/ Retail sales
B1	Data on expenditures and budget withdrawal. 1. Approved budget CEO (Chief executive officer), SEO (Subordinate executive officer), program, event, classification) 2. Adjusted budget	Budgeting Module	Public Debt Module/Debt management

B3	Deficit part of the budget	Budgeting Module	Public Debt Module/Debt management
T4	Treasury inflows/outflows of public debt instruments	Treasury Module	Public Debt Module/Debt management
CB2	Data from external systems for Public Debt Module (ES1*) 1. Information on registration of bonds with the CB 2. Data of the final calculation of the auction result	Systems of CB	Public Debt Module/Debt management
CB3	Data from external systems for Public Debt Module (ES1*) 1. Activity of agents in the secondary market	Systems of CB	Public Debt Module/Agent registry
DEP1	Data from external systems for Public Debt Module (ES1*) 1. ISIN code	Central Depository	Public Debt Module/Debt management
AR1*	Analytical data generated from data from all modules and/or external systems 1. Analytical data necessary for the formation of debt instruments	Analytical Reporting Module	Public Debt Module/Debt management
UM1	1. User permissions 2. User data	User Management Module	Public Debt Module

1.6 Obligations to the Budget Module

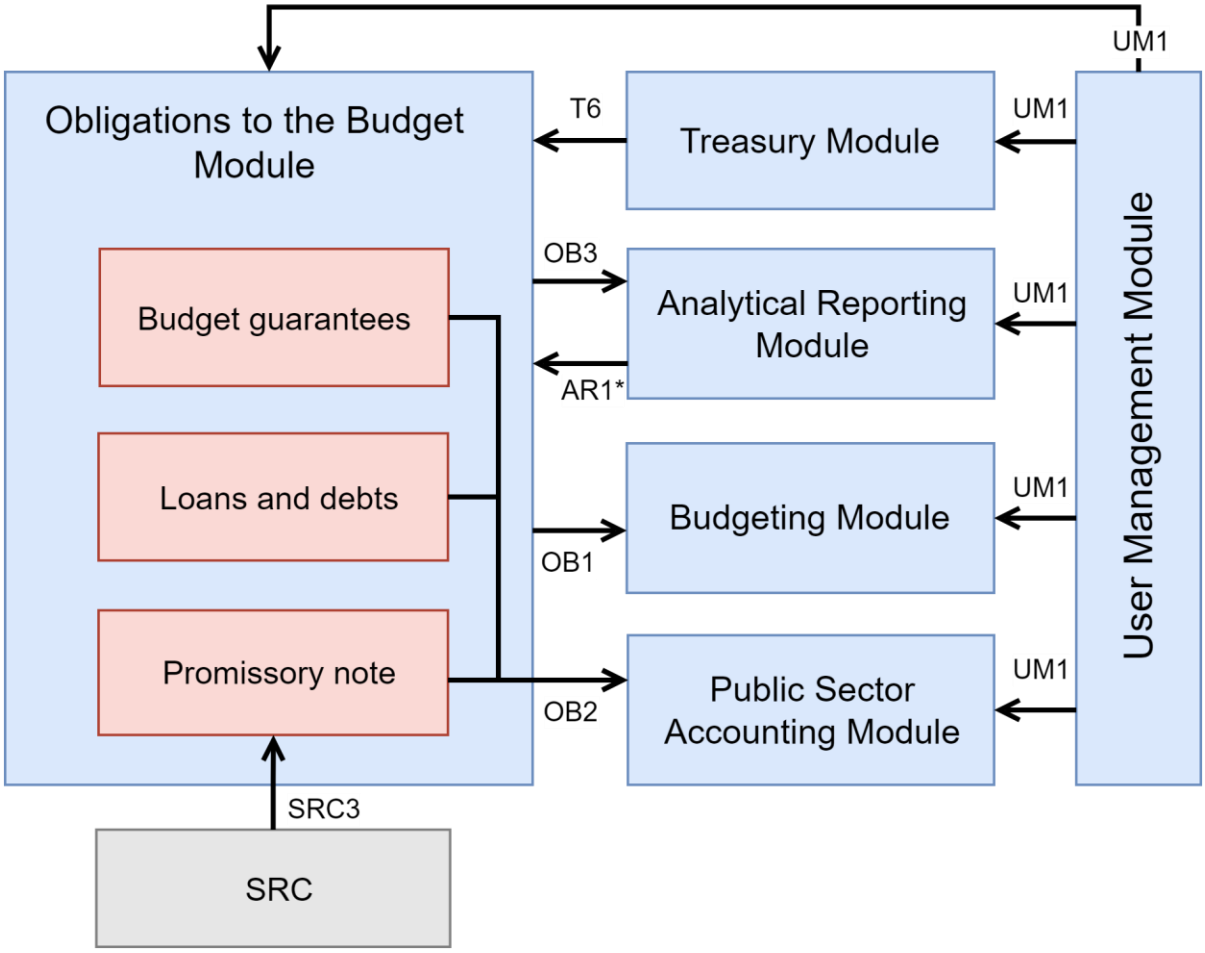


Figure AB.1-6 Structure and data flow of the Obligations to the Budget module

Table AB.1-6 Data description of Obligations to the Budget module

Data	Description	Source Module/Submodule	User Module/Submodule
OB1	Data on issued promissory notes, loans and debts, budgetary guarantees	Obligations to the Budget Module	Budgeting Module
OB2	Accounting for promissory notes, loans and debts, issuance and repayment of budgetary guarantees	Obligations to the Budget Module	Public Sector Accounting Module

OB3	Analytical data developed in the Obligations to the Budget module (M1*) 1. Data on issued promissory notes, loans and debts, budgetary guarantees	Obligations to the Budget Module	Analytical Reporting Module
T6	Treasury inflows/outflows of budget obligation instruments	Treasury Module	Obligations to the Budget Module
SRC3	Data from external systems for Obligations to the Budget Module (ES1*) 1. Information about the possibility of settlement and state duty	SRC	Obligations to the Budget Module/Promissory note
UM1	1. User permissions 2. User data	User Management Module	Public Debt Module
AR1*	Analytical data generated from data from all modules and/or external systems	Analytical Reporting Module	Public Debt Module/Debt management

1.7 Public Sector Accounting Module

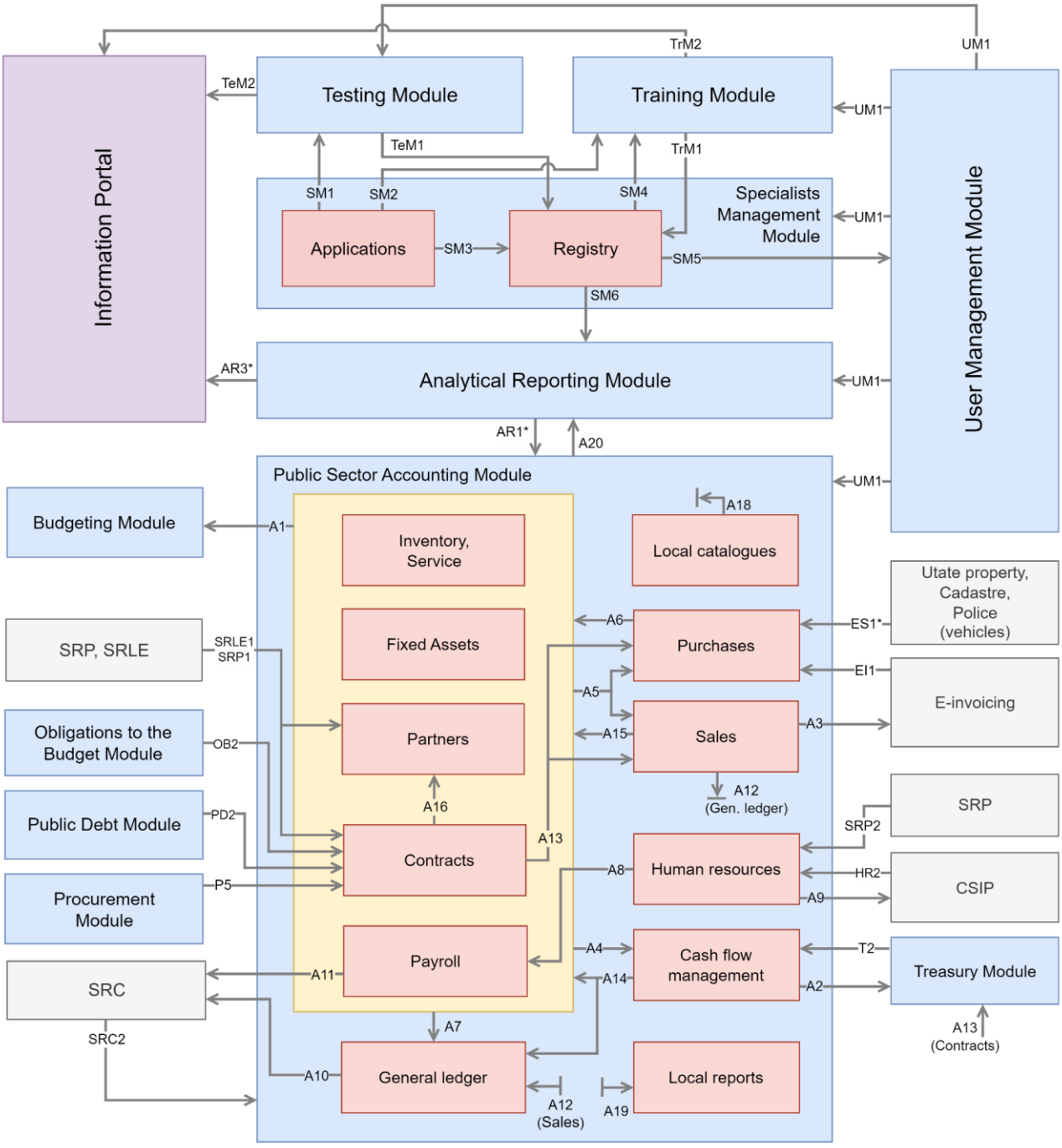


Figure AB.1-7 Structure and data flow of the Public Sector Accounting module

Table AB.1-7 Data description of Public Sector Accounting module

Data	Description	Source Module/Submodule	User Module/Submodule
PD2	Accounting of borrowings, Debt service and repayment	Public Debt Module	Public Sector Accounting Module/ Contracts
P5	Procurement or Grant contracts	Procurement Module	Public Sector Accounting Module/ Contracts
OB2	Accounting for promissory notes, loans and debts, issuance and repayment of budgetary guarantees	Obligations to the Budget Module	Public Sector Accounting Module/ 1. Contracts 2. Partners
T2	Data of treasury accounts: 1. Treasury account, annual and quarterly limits of the CMBAs' account, SMBAs' account estimations and payment schedule 2. cash in/out 3. balance 4. rejected transaction data 5. exchange rates 6. EEU customs duty and countervailing duty liability data	Treasury Module	Public Sector Accounting Module/ Cash flow management
EI1	Data from external systems for Public Sector Accounting Module (ES1*) 1. Purchases made by the organization	E-invoicing	Public Sector Accounting Module/ Purchases
SRP2	Data from external systems for Public Sector Accounting Module (ES1*) 1. Personal data	SRP	Public Sector Accounting Module/ Human resources
HR2	Data from external systems for Public Sector Accounting Module (ES1*) 1. Data on employees	CSIP	Public Sector Accounting Module/ Human resources
A2	1. Summary data of certificates, obligations 2. Application for financing 3. Payment orders 4. Application for reformulation	Public Sector Accounting Module/ Cash flow management	Treasury Module

A3	Data of Public Sector Accounting Module that will be provided to External Systems (M2*): 1. Data on sales made by the organization	Public Sector Accounting Module/ Sales	E-invoicing
A9	Data of Public Sector Accounting Module that will be provided to External Systems (M2*): 1. Data on employees	Public Sector Accounting Module/ Human resources	CSIP
A1	Registered data on the basis of which the cost estimation is carried out: 1. Inventory 2. Contracts (annexes, schedules, etc.) 3. Fixed assets 4. Payroll 5. Sales 6. Partners 7. Data on cash flow	Public Sector Accounting Module: 1. Inventory 2. Contracts 3. Fixed assets 4. Payroll 5. Sales 6. Partners	Budgeting Module/ Cost estimation
A4	1. Employee debt 2. Partners debt 3. Contract management	Public Sector Accounting Module: 1. Payroll 2. Partners 3. Contracts	Public Sector Accounting Module/ Cash flow management
A5	Analytical data	Public Sector Accounting Module: 1. Inventory, Services 2. Fixed assets 3. Partners 4. Contracts	Public Sector Accounting Module: 1. Purchases 2. Sales
A6	Data on purchases	Public Sector Accounting Module/ Purchases	Public Sector Accounting Module: 1. Inventory, Services, 2. Fixed assets 3. Partners 4. Contracts
A7	Synthetic formulations and summary data: 1. Inventory 2. Services 3. Partners 4. Contracts 5. Fixed assets 6. Sales	Public Sector Accounting Module: 1. Inventory, Services, 2. Partners 3. Contracts 4. Fixed assets 5. Sales 6. Payroll	Public Sector Accounting Module/ General ledger

	7. Payroll		
A10	Data of Public Sector Accounting Module that will be provided to External Systems (M2*): 1. Tax reports	Public Sector Accounting Module/ General ledger	SRC
A8	Data on employees	Public Sector Accounting Module/ Human resources	Public Sector Accounting Module/ Payroll
A12	Summary data on sales	Public Sector Accounting Module/Sales	Public Sector Accounting Module/ General ledger
A14	Data on cash changes	Public Sector Accounting Module/ Cash flow management	Public Sector Accounting Module: 1. Partners 2. Contracts 3. General ledger
A11	Data of Public Sector Accounting Module that will be provided to External Systems (M2*): 1. Monthly calculation of income tax and social contributions	Public Sector Accounting Module/ Payroll	SRC
A13	Contracts and payment schedules	Public Sector Accounting Module/ Contracts	1. Treasury Module 2. Sales (PSA Module) 3. Purchases (PSA Module)
SRLE1	Data from external systems for Public Sector Accounting Module (ES1*) 1. Legal entity data	SRLE	Public Sector Accounting Module: 1. Partners 2. Contracts
SRP1	Data from external systems for Public Sector Accounting Module (ES1*): 1. Personal data	SRP	Public Sector Accounting Module: 1. Partners 2. Contracts
ES1*	Data from external systems for Public Sector Accounting Module: 1. Fixed assets property numbers and other data	External Systems 1. State property, 2. Cadastre, 3. Police (vehicles)	Public Sector Accounting Module/ Sales

AR1*	Analytical data generated from data from all modules and/or external systems 1. financial statements 2. budget performance statements (actual part) 3. GFS reporting 4. others	Analytical Reporting Module	Public Sector Accounting Module
AR3*	Public analytical or reporting data	Analytical Reporting Module	Information Portal
A15	Data on partners and contracts formed as a result of the sales	Public Sector Accounting Module/ Sales	Public Sector Accounting Module: 1. Partners 2. Contracts
A16	Data on contracts	Public Sector Accounting Module/ Contracts	Public Sector Accounting Module/ Partners
A18	Catalogues data	Public Sector Accounting Module/ Local catalogues	Public Sector Accounting Module/ all submodules
A19	Reporting data	Public Sector Accounting Module/ all submodules	Public Sector Accounting Module/ Local reports
A20	Analytical (complete) data of Public Sector Accounting Module (M1*)	Public Sector Accounting Module	Analytical Reporting Module
SRC2	Data from external systems for Public Sector Accounting Module (ES1*) 1. sales/return identification data (cash register machine receipt identification number)	SRC	Public Sector Accounting Module: 1. Cash flow management 2. Partners
TeM1	Data on tested specialists	Testing Module	Specialists Management Module/ Registry
TeM2	Public data on tested specialists	Testing Module	Information Portal
SM1	Testing applications/requests	Specialists Management Module	Testing Module

SM2	Training applications/requests	Specialists Management Module	Training Module
SM3	Data confirming the certificate or qualification accepted by the authority	Specialists Management Module/Applications	Specialists Management Module/ Registry
SM4	Data on specialists to be trained	Specialists Management Module/ Registry	Training Module
SM5	User management data on specialists - status, certification, etc.	Specialists Management Module/ Registry	User Management Module
SM6	Analytical data on specialists (M1*)	Specialists Management Module/ Registry	Analytical Reporting Module
TrM1	Data on trained specialists	Training Module	Specialists Management Module/ Registry
TrM2	Public data on trained specialists	Training Module	Information Portal
UM1	1. User permissions 2. User data	User Management Module	GFMIS Modules

1.8 Internal Audit Module

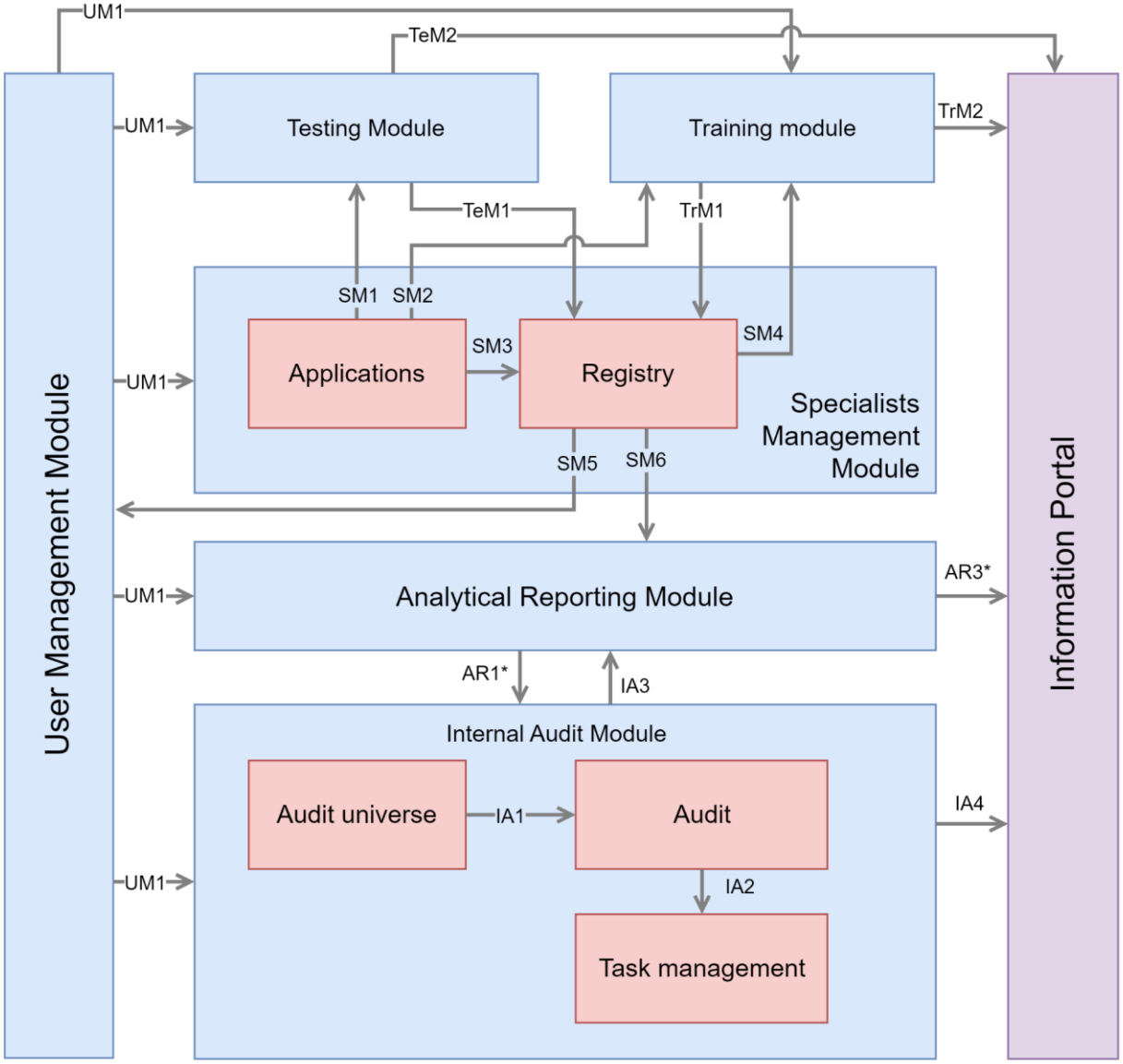


Figure AB.1-8 Structure and data flow of the Internal Audit module

Table AB.1-8 Data description of Internal Audit module

Data	Description	Source Module/Submodule	User Module/Submodule
SM1	Testing applications/requests	Specialists Management Module	Testing Module
SM2	Training applications/requests	Specialists Management Module	Training Module

SM3	Data confirming the certificate or qualification accepted by the authority	Specialists Management Module/Applications	Specialists Management Module/ Registry
SM4	Data on specialists to be trained	Specialists Management Module/ Registry	Training Module
SM5	User management data on specialists - status, certification, etc.	Specialists Management Module/Registry	User Management Module
SM6	Analytical data on specialists (M1*)	Specialists Management Module/Registry	Analytical Reporting Module
TeM1	Data on tested specialists	Testing Module	Specialists Management Module/ Registry
TeM2	Public data on tested specialists	Testing Module	Information Portal
TrM1	Data on trained specialists	Training Module	Specialists Management Module/ Registry
TrM2	Public data on trained specialists	Training Module	Information Portal
AR3*	Public analytical or reporting data 1. Public data of Registry	Analytical Reporting Module	Information Portal
AR1*	Analytical data generated from data from all modules and/or external systems	Analytical Reporting Module	Public Sector Accounting Module
AR3*	Public analytical or reporting data	Analytical Reporting Module	Information Portal
IA1	Formed audit universe data	Internal Audit Module/ Audit universe	Internal Audit Module/ Audit
IA2	Audit results	Internal Audit Module/ Audit	Internal Audit Module/ Task management
IA3	Analytical data of Internal Audit Module (M1*)	Internal Audit Module	Analytical Reporting Module
IA4	Public data generated during internal audit functions	Internal Audit Module	Information Portal

1.9 Analytical Reporting Module

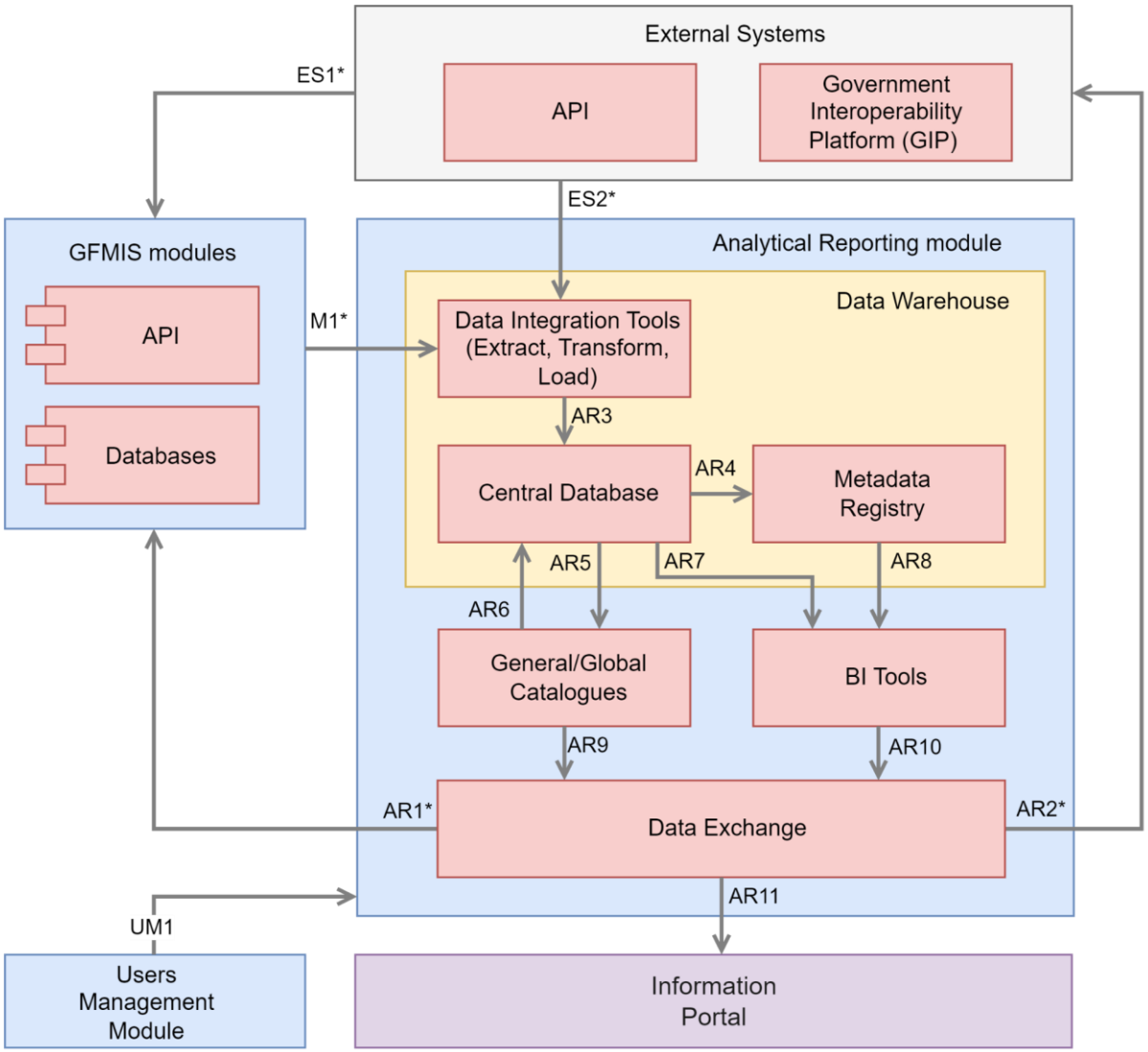


Figure AB.1-9 Structure and data flow of the Analytical Reporting module

Table AB.1-9 Data description of Analytical Reporting module

Data	Description	Source Module/Submodule	User Module/Submodule
M1*	Analytical data of GFMIS Modules	GFMIS modules	Analytical Reporting Module/ ETL
ES1*	Data from external systems for GFMIS modules	External Systems	GFMIS Modules
ES2*	Data from external systems for analytical-reporting issues.	External Systems	Analytical Reporting Module/ ETL

AR1*	Analytical data generated from data from all modules and/or external systems	Analytical Reporting Module/Data Exchange	GFMIS Modules
AR2*	Analytical data generated from data from all modules.	Analytical Reporting Module/Data Exchange	External Systems
AR3	Structured or unstructured data	Analytical Reporting Module/ ETL	Analytical Reporting Module/Central Database
AR4	Central database structure, data sources, etc.	Analytical Reporting Module/Central Database	Analytical Reporting Module/Metadata Registry
AR5	Saved data on Catalogues	Analytical Reporting Module/Central Database	Analytical Reporting Module/Global Catalogues
AR6	Catalogues	Analytical Reporting Module/Global Catalogues	Analytical Reporting Module/Central Database
AR7	Data subject to analytical processing	Analytical Reporting Module/Central Database	Analytical Reporting Module/BI Tools
AR8	Metadata (semantic data) necessary during analytical process	Analytical Reporting Module/Metadata Registry	Analytical Reporting Module/BI Tools
AR9	Catalogues data to be provided to the GFMIS modules and/or External systems	Analytical Reporting Module/Global Catalogues	Analytical Reporting Modul/ Data Exchange
AR10	Developed data models - reporting, decision-making, etc	Analytical Reporting Module/BI Tools	Analytical Reporting Modul/ Data Exchange
AR11	Public data - public reports, analysis, etc	Analytical Reporting Modul/ Data Exchange	Information Portal
UM1	1. User permissions 2. User data	User Management Module	GFMIS Modules

1.10 Specialist Management, Testing and Training Modules

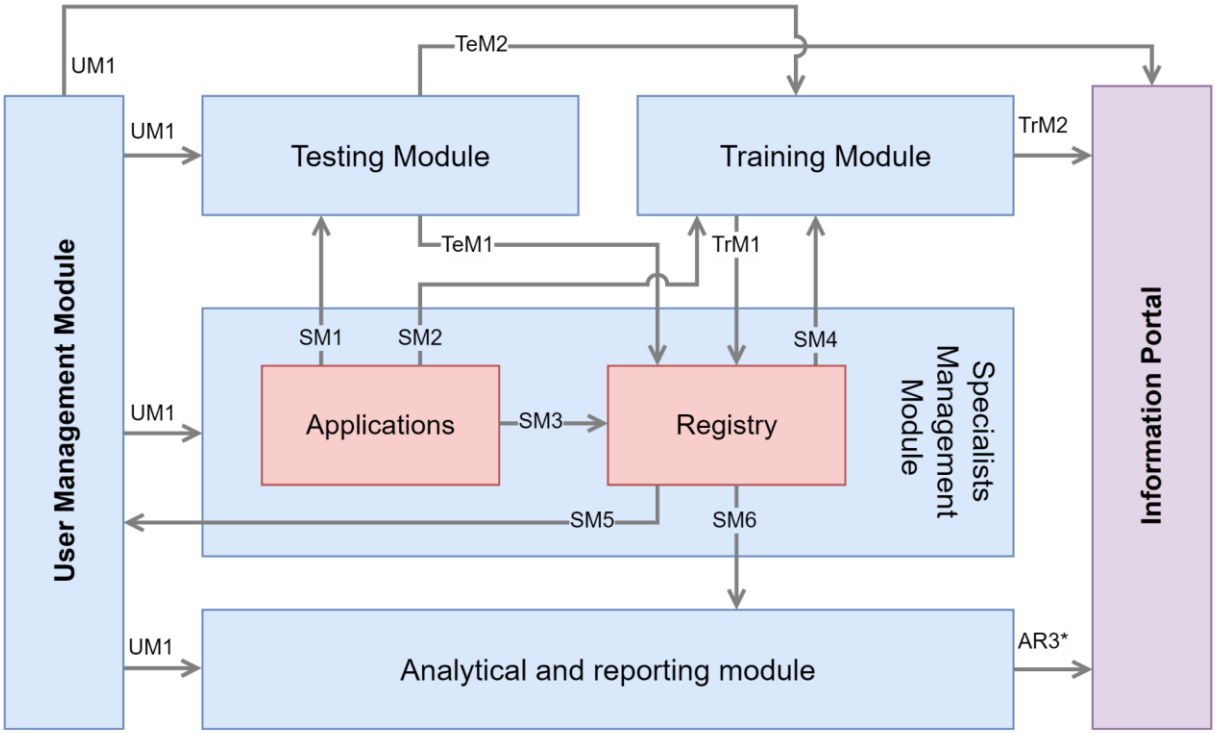


Figure AB.1-10 Structure and data flow of the Specialist Management, Testing and Training modules

Table AB.1-10 Data description of Specialist Management, Testing and Training modules

Data	Description	Source Module/Submodule	User Module/Submodule
SM1	Testing applications/requests	Specialists Management Module	Testing Module
SM2	Training applications/requests	Specialists Management Module	Training Module
SM3	Data confirming the certificate or qualification accepted by the authority	Specialists Management Module/Applications	Specialists Management Module/ Registry
SM4	Data on specialists to be trained	Specialists Management Module/ Registry	Training Module
SM5	User management data on specialists - status, certification, etc.	Specialists Management Module/Registry	User Management Module

SM6	Analytical data on specialists (M1*)	Specialists Management Module/Registry	Analytical Reporting Module
TeM1	Data on tested specialists	Testing Module	Specialists Management Module/ Registry
TeM2	Public data on tested specialists	Testing Module	Information Portal
TrM1	Data on trained specialists	Training Module	Specialists Management Module/ Registry
TrM2	Public data on trained specialists	Training Module	Information Portal
AR3*	Public analytical or reporting data 2. Public data of Registry	Analytical Reporting Module	Information Portal
UM1	1. User permissions 2. User data	User Management Module	GFMIS Modules

1.11 User Management Module

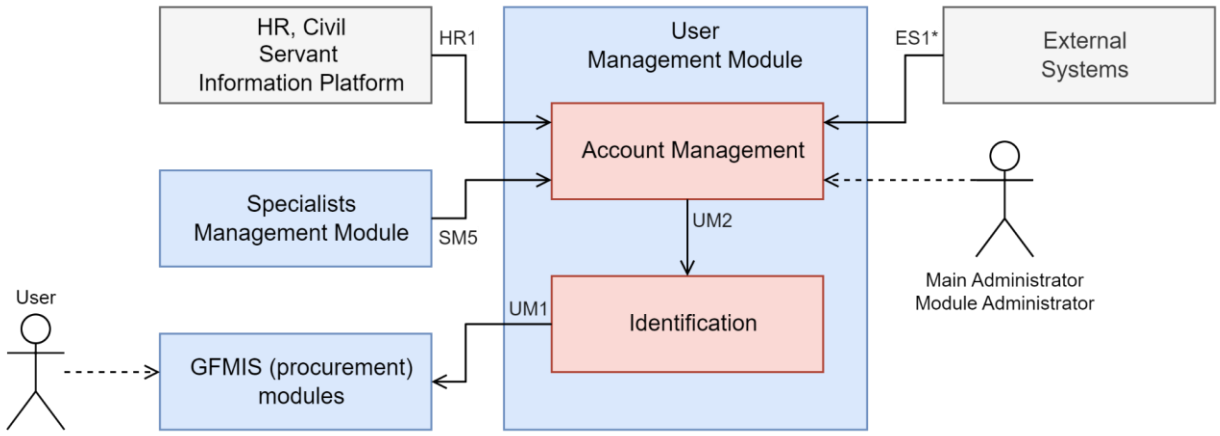


Figure AB.1-10 Structure and data flow of the User Management module

Table AB.1-10 Data description of User Management module

Data	Description	Source Module/Submodule	User Module/Submodule
SM5	User management data on specialists - status, certification, etc.	Specialists Management Module	User Management Module/Account Management
HR1	Data from external systems for User Management Module (ES1*) 1. HR data - employee, status, etc.	External Systems: 1. Human Resources System, 2. CSIP	User Management Module/Account Management
UM1	1. User permissions 2. User data	User Management Module/Identification	GFMIS modules
UM2	User account data, permissions	User Management Module/Account Management	User Management Module/Identification
ES1*	Data from external systems for User Management Module: 1. Personal data 2. Legal entity data	External Systems: 1. SRP 2. SRLE	User Management Module/Account Management

2. Functional requirements

This section outlines the high-level functional requirements for GFMIS, including modules specified within the Terms of Reference (ToR), high-level functional requirements of GFMIS modules, and overarching general functional requirements.

Figure AB.2-1 shows high-level functional hierarchy of GFMIS.

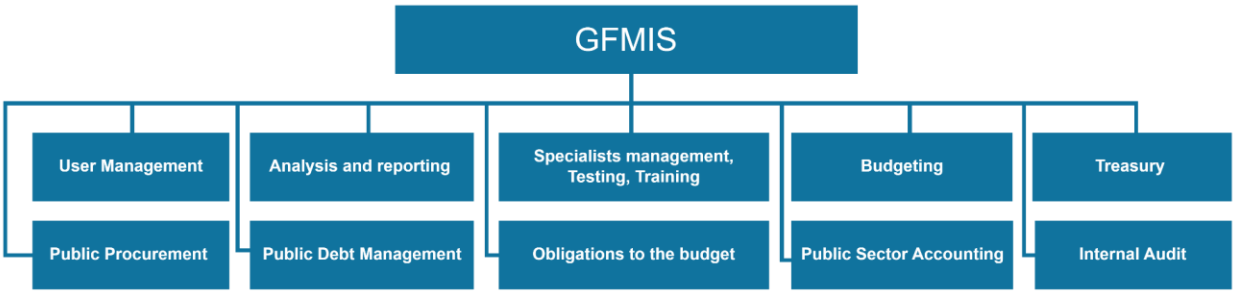


Figure AB.2-1 High-level functional hierarchy of GFMIS

2.1 Required modules

Within the scope of this ToR, high-level functional requirements according to the MoSCoW method are presented in Table AB.2-1.

Tabel AB.2-1 High-level requirements within the scope of the ToR

Requirement	MoSCoW Classifier
User Management	M
Analysis and Reporting	M
Specialists Management	M
Testing	M
Training	M
Budgeting	M
Treasury functions	M
Public Procurement	W
Public Debt Management	M
Budget commitment management	M
Public Sector Accounting	M
Internal Audit	M

Based on the correspondence of the functional groups[15], we can formulate that the Table AB.2-1 also presents the requirements for the GFMIS modules, based on the presented compliance. In other words - which priority classifier does the GFMIS module have (according to the MoSCoW method) within the scope of the technical task. The Table AB.2-1 shows that all modules, except for the Procurement module, are required within the framework of this ToR. The Procurement module will be developed and implemented within a separate ToR[16].

2.2 High-level functional requirements of GFMIS modules

This section presents the high-level functional requirements for the GFMIS modules, each presented in dedicated subsections. Detailed functional requirements are defined in the appendices describing the modules. Furthermore, an overview of the functional requirements for Public Procurement is provided below. However, as previously mentioned in Section 2.1, that this is not a requirement stipulated in the current Terms of Reference.

2.2.1 Budgeting

B.1	**Budget planning**	
B.1.1	Definition of limits	
B.1.2	Budget formation	
	B.1.2.1	Cost estimation
	B.1.2.2	Performance indicators definition
	B.1.2.3	New proposals presentation
B.1.3	Reallocation	
B.2	**Revenue forecasting**	
B.2.1	Non-tax revenue forecasting	
B.2.2	Tax revenue forecasting	
B.3	**Budget/deficit balancing**	
B.4	**Municipals budget**	
B.4.1	Comparable data input	
B.4.2	Approved budgets input	
B.5	**Analysis and reporting**	

[15] Described in section of 4.3 of ToR
[16] ToR of Electronic Procurement System (EPS)

B.5.1	Reporting: ● Presentation of expenditure programs of the state budget for CMBA (MTEF, annual, quarterly distribution), ● Presentation of the state budget for functional classifier (MTEF, annual, quarterly distribution), ● Presentation of the state budget for economic classifier (MTEF, annual, quarterly distribution) ● Presentation of sources of financing of the state budget deficit (MTEF, annual, quarterly distribution), ● Presentation of indicators of the final result for expenditure programs of the state budget (MTEF, annual, quarterly distribution), ● Reports generated as a result of tagging:
B.5.2	Development of models/algorithms of decision making: ● Information in case of an increase in the minimum salary at the stipulated rate, the total impact on the financial indicators of the state budget, ● Information in case of increase the pension at the stipulated rate, the total impact on the financial indicators of the state budget, ● Information on forecasting revenue in case of increase in one of the state duties at the stipulated rate, ● Information on comparative results of planned and actual financial and non-financial indicators, ● Information on approved new proposals by presenting bodies.
B.5.3	Catalogues (Directory): ● Programm ● Event ● List of functional classifiers ● List of economic classifiers ● Linking economics articles to CPV Code 3-rd level ● Constants of cost estimation
B.6	**Specialists management, Testing, Training**
B.6.1	Budgeting specialists' management according to the section of "Specialist management".
B.6.2	Budgeting specialists' testing according to the section of "Testing".
B.6.3	Budgeting specialists' training according to the section of "Training".

2.2.2 Treasury

T.1	**Management of treasury accounts**
T.1.1	Management of expense accounts
T.1.2	Management of revenue accounts
T.1.3	Management of other accounts (deposit, transit)

T.1.4	Blocking/Freezing of treasury accounts and confiscation of funds according to orders of Compulsory Enforcement Service
T.2	**Expenditure financing**
T.2.1	Expenditure financing on a daily basis
T.2.2	Financing by special programs
T.2.3	Financial support to local self-government bodies
T.2.4	Community subventions
T.3	**Payments by CMBA /SMBA**
T.4	**Refund of taxes, duties and other charges**
T.4.1	Tax refund through SRC web service
T.4.2	Refund of taxes, duties and other charges by the Treasury
T.5	**Collection of Payments**
T.5.1	Electronic payments (e-payments)
T.5.2	Collection of payments through cash register machines and terminals
T.5.3	Inflows from commercial banks to treasury accounts
T.6	**Opening/closing of operational day**
T.7	**Cash flow management**
T.8	**Distribution of customs duties and countervailing duties among EEU states**

2.2.3 Public Procurement

P.1	**Procurement planning**
P.1.1	Management the Common Procurement Vocabulary
P.1.2	Preparation of a procurement plan
P.1.3	Change in a procurement plan
P.2	**Organization of the procurement process**
P.2.1	Preparation and publication of the procurement process
P.2.2	Provision of clarification requests

P.2.3	Appeal of the invitation
P.2.4	Change of invitation
P.3	**Procurement/Tender**
P.3.1	Submission of applications (Bids)
P.3.2	Evaluation of received bids
P.3.3	Summary of evaluation results, publication of announcements, setting of inactivity period, appeal
P.4	**E-auction**
P.4.1	Submission of applications (Bids)
P.4.2	Conducting an e-auction
P.4.3	Evaluation of received applications
P.4.4	Summary of evaluation results, publication of announcements, setting the period of inactivity and appeal
P.5	**Single source procurement**
P.6	**Procurement contract management**
P.6.1	Contract award
P.6.2	Submission of a contract and qualification provisions
P.6.3	Signing (conclusion) of necessary documents (contract, agreement)
P.6.4	Implementation of delivery and acceptance, submission of invoices
P.7	**Grant planning**
P.7.1	Preparation of Grand plan
P.7.2	Changing the grant plan
P.8	**Grant procurement organization**
P.8.1	Preparation of the Grant procurement
P.8.2	Provision of clarification requests
P.8.3	Change of invitation
P.9	**Grand procurement (tender)**
P.9.1	Submission of packages by the invitation

P.9.2	Evaluation of received bids
P.9.3	Summary of evaluation results, publication of announcements
P.10	**Direct Disbursement of funds**
P.11	**Management of Grand Contracts**
P.11.1	Contract awarding
P.11.2	Accounting of signed contracts
P.11.3	Implementation of Handover (delivery and acceptance)
P.12	**Participant management (Black List)**
P.13	**Publication of information**
P.13.1	Publication of information
P.13.2	Public Reports
P.13.3	Notification Platform
P.14	**Analysis and reporting**
P.14.1	Reporting: • regarding sealed contracts • on procurement procedures according period • according to city/province procurement processes • cases of refusal to sign a contract by selected participants • EEU (Eurasian Economic Union) reports
P.14.2	Development of models/algorithms of decision making: • Ability to identify cases of suspicious activity within electronic auctions. • Information about price offers that are not significantly different between the first, second and consecutively placed participants within the framework of electronic auctions. • Information on the existence of possible interconnections between participants. • Information on cases of repetition of the price policy of the participants in the scope of acquisition of the same procurement items by different customers. • Information regarding the recognition of the same company as a selected participant for a specific procurement subject with the same customer for years.
P.14.3	Catalogues (Directory): • Development/Management of CPV Code Catalogues • Relationship of the CPVcodes with economic classifiers
P.15	**Management, testing and training of specialists**
P.15.1	Procurement specialists' management according to the section of "Specialist management".

P.15.2	Procurement specialists' testing according to the section of "Testing"
P.15.3	Procurement specialists' training according to the section of "Training"

2.2.4 Public Debt

PD.1	**Debt management**	
PD.1.1	Formation of a debt instrument	
	PD.1.1.1	Registration of debt instrument
	PD.1.1.2	Issuance of government treasury bonds
PD.1.2	Attracting of borrowing funds	
	PD.1.2.1	Bonds - Allocation auction, Buyback Auction, Switch auction, Retail sales, Registration of foreign currency bonds
	PD.1.2.2	Loans disbursement
	PD.1.2.3	Registration of communities' debt
	PD.1.2.4	Registration of SOEs' debt
PD.1.3	Management of payment schedules	
PD.2	**Management of agents' registry**	
PD.2.1	Assessment based on auction data	
PD.2.2	Formation of registry	
PD.3	**Analysis and reporting**	
PD.3.1	Reporting. ● Public Debt Annual Report ● Medium-term government debt management strategy ● Monthly statistical bulletins ● Reports on order of RA MF 28.12.2020 N 426-L ● Other reports	
PD.3.2	Development of models/algorithms of decision making. ● Development of a medium-term debt strategy ● Cash flow forecasting	

2.2.5 Obligations to the budget

OB.1	**Management of budgetary guarantees**

OB.2	**Budget loans and debt management**
OB.3	**Management of promissory notes**
OB.4	**Analysis and reporting**
OB.4.1	Reporting. ● Issued budgetary guarantees by recipient and schedule ● Budget loans and debts by recipients and schedule ● Expected budget inflows from budget loans and debts ● Amount and schedule of payments in the next financial year for promissory notes

2.2.6 Public Sector Accounting

A.1	**Accounting of Tangible Assets (TA) and Services**	
A.1.1	Warehouse receipt/purchases	
A.1.2	Allocation of additional costs	
A.1.3	Return to supplier	
A.1.4	TA Movement	
A.1.5	TA assembling/disassembling	
A.1.6	Inventory write-off/dispatch	
A.1.7	TA revaluation	
A.1.8	TA stocktaking	
A.1.9	Receiving Service	
A.2	**Fixed Assets (FA)**	
A.2.1	FA registration	
A.2.2	Operation of Fixed Assets	
	A.2.2.1	FA start of use
	A.2.2.2	Withdrawal from use
	A.2.2.3	Restart of use
A.2.3	FA movement	
A.2.4	Construction/Reconstruction of FA	

	A.2.4.1	Construction of FA
	A.2.4.2	Reconstruction of FA
A.2.5	Revision of useful life	
A.2.6	Depreciation calculation	
A.2.7	Write off of FA	
A.2.8	Partial derecognition	
A.2.9	Revaluation	
A.2.10	Stocktaking	
A.3	**Partners accounting**	
A.3.1	Revaluation of Partners Balances	
A.3.2	Write-off of Trade Receivables	
A.3.3	Forming a mutual reconciliation act	
A.4	**Purchases**	
A.4.1	Local Purchases	
A.4.2	Import	
A.4.3	Ledger of Purchases	
A.5	**Contracts**	
A.5.1	Creation of contracts	
A.5.2	Management of contracts	
A.6	**Sales/Disposals**	
A.6.1	Inventory sales/disposal	
A.6.2	Service provision	
A.6.3	FA disposal	
A.6.4	Ledger of sales and disposals	
A.7	**Human Resources**	
A.7.1	Organizational chart	
A.7.2	Hiring/ Employee card creation	

A.7.3	Appointment
A.7.4	Change of appointment
A.7.5	Transfer
A.7.6	Vacation
A.7.7	Working time calculation
A.7.8	Calculation of work experience period / coefficient
A.7.9	Termination
A.8	**Payroll**
A.8.1	Calculation of salary and other allowances
A.8.2	Vacation pay calculation
A.8.3	Benefit calculation
A.8.4	Termination settlement calculation
A.8.5	Summary
A.8.6	Payment
A.9	**Cash Flow**
A.9.1	Cash inflow
A.9.2	Cash outflow
A.9.3	Currency conversion
A.9.4	Revaluation
A.10	**General ledger**
A.11	**Local catalogues**
A.12	**Analytics and Reports**
A.12.1	Local Reports ● Inventory reports, ● Fixed Assets reports, ● Partners reports ● Contracts management reports, ● Payroll and Human Resources reports ● Sales, write off, disposal reports

	• General ledger reports
A.12.2	Global Reports. • Consolidated Financial Statements, • Budget performance reports, • GFS reports
A.12.3	Treasury accounts statements
A.12.4	Global Catalogues • Chart of Accounts, • Partners reference list, • Contracts, • GFS classifiers
A.13	**Management, testing and training of specialists**
A.13.1	Data management of accountants according to the section of "Specialist management".
A.13.2	Testing of accountants according to the section of "Testing"
A.13.3	Training of accountants according to the section of "Training"

2.2.7 Internal Audit

IA.1	**Internal Audit**	
IA.1.1	Design of the audit universe	
	IA.1.1.1	Definition of Audit Universe
	IA.1.1.2	Formulation of strategic and annual plans
IA.1.2	Audit	
IA.1.3	Conducting an action plan	
IA.2	**Management, testing and training of specialists**	
IA.2.1	Data management of internal auditors according to the section of "Specialist management".	
IA.2.2	Testing of internal auditors according to the section of "Testing"	
IA.2.3	Training of internal auditors according to the section of "Training"	
IA.3	**Analysis and Reports**	
IA.3.1	Reports: • Internal audit engagement by type (initial, interim and final), • On internal audit activities by beneficiaries (annual and annual review).	

IA.3.2	Development of models/algorithms of decision making: ● Risk assessment of internal audit units subject, ● Prioritizing of actions with the same risk level, ● Notification of compliance with deadlines for providing information to various bodies (for example, the authorized body).
IA.3.3	Catalogues (Directory): ● Organizational structure (tree) by units, subordination ● Functions of organization units

2.2.8 Analysis and reporting

AR.1	**Data warehouse**
AR.1.1	Data Collection
AR.1.2	Data storage
AR.1.3	Metadata development
AR.2	**Data modeling**
AR.2.1	Data analysis
AR.2.2	Development of the data models
AR.2.3	Data visualization
AR.3	**General or Global Catalogues (Directory) development**
AR.4	**Data Provision**
AR.4.1	Data transformation
AR.4.2	Data access
AR.5	**Publication of information**

2.2.9 Specialists management

SM.1	**Application submission, processing, approval**
SM.2	**Registry management**

2.2.10 Testing

TeM.1	**Development of questionnaires**

TeM.2	**Publication of the test**
TeM.3	**Conduction of testing**

2.2.11 Training

TrM.1	**Development of the Courses**
TrM.2	**Publication of the course**
TrM.3	**Conduction of the course**

2.2.12 User Management

UM.1	**Account Management**
UM.1.1	Account management
UM.1.2	Role management
UM.1.3	Attribute management
UM.1.4	Profile management
UM.2	**Identification**
UM.2.1	Authentication
UM.2.2	Authorization

2.3 General functional requirements

This section presents the general functional requirements[17] of the GFMIS according to the MoSCoW method. These requirements should be thoughtfully taken into account in conjunction with the specific functional requirements of each module. Further references to these general functional requirements can be found within the respective modules' requirements, provided in the appendices.

A detailed description of general functional requirements will be introduced in the initial study phase.

Table AB.2-2 General functional requirements

General functional requirements	MoSCoW Classifier

[17] These requirements are applicable to multiple modules. To avoid redundant formulation of the same requirement throughout the document, they have been consolidated and defined in a single location, with individual module-specific functional requirements being cross-referenced to the relevant clause within the general functional requirements. This approach has been implemented to enhance document clarity and streamline the execution process.

GF.1. Process automation tool (Workflow Engine)		
GF.1.1	Providing automation of all possible process requirements for users who don't have programming knowledge (low-code, no-code), with at least the following capability: ● definition of the sequence of the process in well-known modeling languages, ● the possibility of building templates and using them in the below mentioned processes (form builder): configurable structure, number of fields, types, possible values, ● definition of process participants (for example, data submitters, approvers, etc.), ● setting terms and deadlines (paragraph GF.5.2 of this table), ● notifications, etc.	M
GF.1.2	Development of all processes approved as a result of the initial study using an automation tool.	M
GF.2. Electronic payment system		
GF.2.1	In specific cases (cases will be presented at the preliminary study stage) the system should be integrated with the state electronic payment system (e-payments.am) for the electronic payment.	M
GF.3. Feedback		
GF.3.1	In case of technical problems, the possibility of feedback from the users (for example, the customer) to the employees of the Competent Authority (RA MoF).	M
GF.3.2	Management of issues through the electronic registration system (e-ticketing system).	M
GF.4. Electronic digital signature		
GF.4.1	Using electronic digital signature with all possible solutions defined by RA Government Decree 572-N: ID card, mID, etc.	M
GF.5. System Calendar		
GF.5.1	Definition of non-working days of the current year (holidays and memorial days). Automatic definition of non-working days for weekends, with the possibility of change.	M
GF.5.2	Implementation of following functions in all modules, taking into account	M

	non-working days (GF.5.1): ● selection of a calendar day (it should not be possible to select/specify a non-working day), ● calculation of a calendar day when specifying the number of working days (for example, calculation of deadlines).	
GF.6. Integration with the Mulberry system		
GF.6.1	Transfer of documents created in the system (module) to the Mulberry system.	M
GF.6.2	Obtaining document workflow status from the Mulberry system and implementing functions based on it.	M

3. Non-functional requirements

This section presents the non-functional requirements of GFMIS: architecture, technology, security, etc.

Figure AB.3-1 shows high-level non-functional hierarchy of GFMIS.

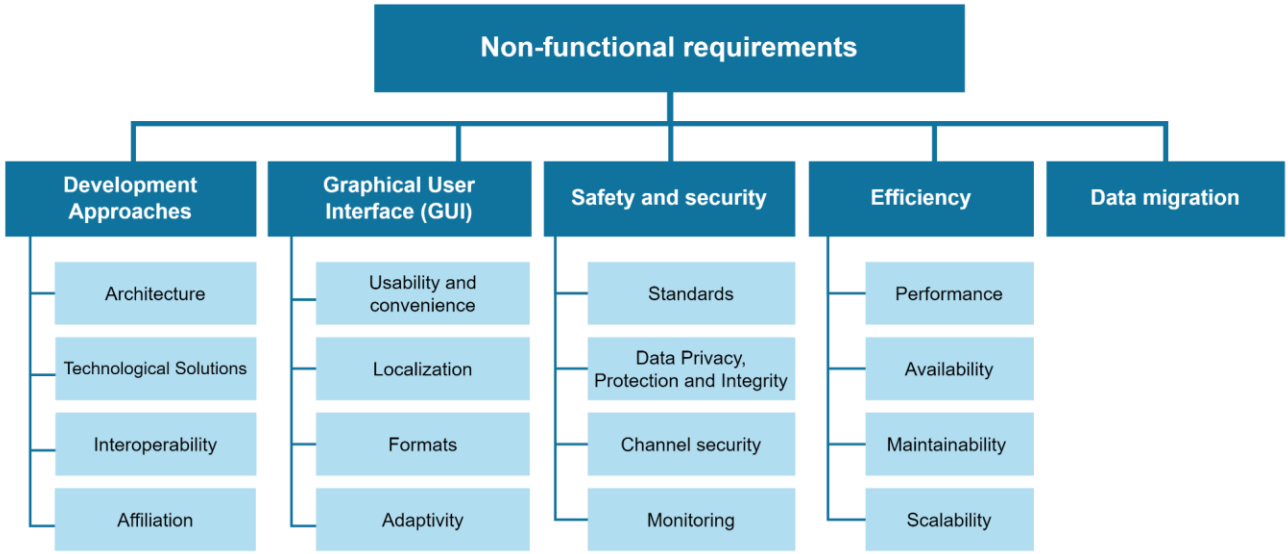


Figure AB.3-1 High-level non-functional hierarchy of GFMIS.

3.1 Development Approaches

Requirement		MoSCoW Classiffer
NF.1.1. Architecture		
NF.1.1.1	GFMIS should be developed with such an architecture, within which each module will act as separate autonomous systems, exchanging the necessary data with others.	S
NF.1.1.2	An interoperability platform must be implemented in the system to allow ● define the rules of data exchange between modules, ● check the integrity and security of the exchanging data, ● receive data from external systems[18] (can be of different standards and structures); ● to transform data into the standard and structure accepted in the GFMIS modules, ● to provide the transformed data to the necessary modules,	S

[18] External system: an electronic system operating outside the framework of the GFMIS, which is capable of exchanging data - electronic systems of state agencies, electronic payment systems, etc.

	● to provide the data processed in the GFMIS modules to external systems.	
NF.1.1.3	For all modules, the User Management module should act as a general user management system, ensuring the principle of one user for all modules (single sign on).	S
NF.1.1.4	The architecture should allow further functional extensions both in individual modules and addition of new modules.	S
NF.1.1.5	The architecture should ensure Reliability, Maintainability, Availability.	S
NF.1.2. Technological solutions		
NF.1.2.1	All functional modules should be developed as web-based solutions with a Client-Server approach that should allow: ● ensure platform independence, ● avoid installing on individual computers ● apply both on computer and portable devices	S
NF.1.2.2	In order to implement further functional additions or improvements, the system should be developed using open source and widely accepted standards supported by several well known, independent companies. All components must meet these standards. ● source code ● frameworks used in the code ● database ● etc.	S
NF.1.2.3	The developed modules should be cross-platform (deployed on different operating systems): ● Unix/Linux, ● MS Windows Server	S
NF.1.3. Interoperability		
NF.1.3.1	Data exchange between the modules of the GFMIS should be implemented according to well-known architecture (e.g. RESTful).	S
NF.1.3.2	GFMIS modules must exchange data with external systems through the Government Interoperability Platform[19] (GIP), following the requirements	M

[19] Government Interoperability Platform (GIP) - a combination of information systems of state bodies, local self-government bodies, as well as other legal entities, which ensures data exchange between them. The operator of the latter is EKENG (E-Government Infrastructure Implementation Office).

	of RA Government Decision No. 1093-N of August 31, 2015[20]	
NF.1.3.3	Interoperability with CB systems in ToM message format. ** The format of ToM messages is defined by the CB.* *The details should be studied in the preliminary study phase.*	M
N.F.1.4. Affiliation		
	The source codes of the developed system must belong to the customer.	M
	Subscriptions, licenses, etc. acquired by a third party during development shall also belong to the customer.	M

3.2 Graphical User Interface (GUI)

Requirement		MoSCoW Classifier
NF.2.1. Usability and convenience		
N.F.2.1.1	All functional modules must be developed based on web solutions, accessible through popular web browsers (MS Edge, Chrome, Firefox, Safari, etc.) regardless of platform. ** Out-of-date operating systems (for example, MS Windows 7) exist among*	M

[20] Decision on determining security, interoperability and general technical requirements of electronic systems used for providing electronic services or performing operations by state and local self-government bodies

	users. When implementing this requirement, it is necessary to take into account the limitations of updating web browsers in them.	
N.F.2.1.2	Widely accepted and recognizable web elements should be used, which will allow users to perform functions more comfortably and quickly.	M
N.F.2.1.3	It should be developed with proper layout and typography, understandable illustration, color coding.	M
N.F.2.1.4	The sequence of operations should be adapted to the business processes known to the users.	M
N.F.2.1.5	Users should always be informed about actions, status changes, post-actions, errors, etc. This should be done in the form of messages with appropriate color coding.	M
N.F.2.1.6	When errors occur, the system should display an error message and return to a stable state, ensuring continuity. In case of its technical impossibility, the system should be closed and log the error.	M
N.F.2.1.7	The response of the graphical interface should not exceed 0.1 seconds.	M
N.F.2.1.8	Interfaces with public access (modules, submodules or individual pages - Information Portal) must be designed according to WCAG 3.0[21] guidelines. WCAG 3.0 compliance for non-public areas is desirable.	M
N.F.2.1.9	All modules should have help sections that allow users to quickly find information about the application.	M
NF.2.2. Localization		
N.F.2.2.1	The working interfaces of all modules must be in Armenian.	M
N.F.2.2.2	Publicly available data of the modules must be presented in at least the following languages: ● Armenian ● Russian ● English	M
NF.2.3. Formats		
N.F.2.3.1	The system must support UTF-8 character format.	M
N.F.2.3.2	Dates must be in the following format: 'DD-MM-YYYY' (eg 13-Apr-2023 or 13-04-2023').	M

[21] W3C Accessibility Guidelines (WCAG) 3.0

NF.2.4. Responsiveness		
N.F.2.4.1	Graphical interfaces must be adapted for different screen sizes, at least 800x600 up to 1920x1080.	M
N.F.2.4.2	Graphical interfaces should be adapted for different devices: phone, tablet, laptop, computer.	M

3.3 Safety and security

Requirement		MoSCoW Classifier
NF.3.1. Compliance with standards		
N.F.3.1.1	The entire system shall be designed and developed in accordance with the following security standards and/or guidelines: ● ISO 27001 ● ISO 27002 ● ISO 27037 ● ISO 27040 ● OWASP (Open Web Application Security Project) Top Ten	M
N.F.3.1.2	The entire system must be designed and developed according to the regulations in force in the Republic of Armenia. ● Decision No. 1093-N of the Government of the Republic of Armenia dated August 31, 2015, ● Decision No. 572-N of the Government of the Republic of Armenia dated May 25, 2017	M
NF.3.2. Data Privacy, Data Protection and Data Integrity		
N.F.3.2.1	Non-public data should be accessible only to a specific group of users who have the right to do so.	M
N.F.3.2.2	The processing of sensitive data (personal, financial, health, etc.) should be processed in accordance with the RA government's decision N 1093-N of August 31, 2015, also in accordance with the laws of "On Protection of Personal Data" and "On Freedom of Information".	M
N.F.3.2.3	At least the following mechanisms should be used for data protection: ● backup, ● web services protection (endpoint protection), ● disaster recovery.	M

N.F.3.2.4	Replication should be used for databases.	M
N.F.3.2.5	At least the following mechanisms should be used for data integrity: ● encryption, ● limitation of unnecessary data removal (data erasure), ● replication.	M
NF.3.3. Channel security		
N.F.3.3.1	Access to the system must be ensured using a TLS certificate (at least version 1.2) provided by a trusted provider with the HTTPS protocol.	M
NF.3.4. Identification		
N.F.3.4.1	The principle of one user (single sign on) should apply to all modules.	M
N.F.3.4.2	Authentication and authorization mechanisms, OAuth or other equivalent standard, must be used for identification.	M
N.F.3.4.3	The identification should be possible with the PKI standard (ID Card, Mobile ID), according to the decision of the Government of the Republic of Armenia N 572-N of May 25, 2017.	M
NF.3.5. Monitoring		
N.F.3.5.1	A system of event registration, exploration, and monitoring should be implemented.	M
N.F.3.5.2	All important events (these and their data structure will be specified in the initial study phase) should be defined.	M
N.F.3.5.3	All actions must be recorded (they and their data structure will be specified in the initial study phase, but at least the action and the data of the user must be recorded).	M
N.F.3.5.4	Events must have types according to which the system must allow them: ● send messages (system, e-mail, or other) automatically to the relevant users ● filter, search, group ● export	M
N.F.3.5.5	The system should have a productivity reporting dashboard that should include but not be limited to reporting the following data: ● system availability or uptime ● system utilization - average & peak CPU utilization, storage utilization	M

	• peak and average user connections/sessions)	

3.4 Efficiency and Performance

Requirement		MoSCoW Classifier
NF.4.1. Performance		
N.F.4.1.1	The number of beneficiaries/users of the entire GFMIS (all modules taken together) can reach the number of employees engaged in the RA state administration system (ministries, state departmental bodies), which is about 15000. Each module must support the activity of its users.	M
N.F.4.1.2	In case of simultaneous work of 90% of the total number of users, the response time of the system should not exceed 2 seconds.	M
N.F.4.1.3	To 5000 simultaneous requests from external systems, the system's response through web services should not exceed 1 second.	M
NF.4.2. Availability		
N.F.4.2.1	The system must be available to users in accordance with the following condition: • On business days and hours, at least 99.99% monthly • On non-working days and hours, at least 99.5% monthly	M
NF.4.3. Maintainability		
N.F.4.3.1	Maintenance of the system must be carried out on non-working days and hours.	M
N.F.4.3.2	The recovery time for issues of primary importance should not exceed: • On working days and hours - 1 hour • On non-working days and hours - 2 hours	M
NF.4.4. Scalability		
N.F.4.4.1	It should be possible to expand the initial abilities up to 100% by horizontal and/or vertical scaling.	M

3.5 Data migration

	Requirement	MoSCoW Classifier
N.F.5.1	Data migration from existing systems to relevant modules of the system. ** A description of the existing systems is provided in the document of "Options of implementation GFMIS" in Chapter 1 - Review of existing IT systems.*	M
N.F.5.2	Migration of data from existing/saved files (xls., xlsx, csv, xml, json - machine-readable files) into the appropriate modules and/or data warehouse to provide the widest possible range of data for analysis. ** Many functions are performed by processing data in files. Entering data from stored files into the system should ensure continuity of processes, based on the data in the files in some cases.*	M
N.F.5.3	Data migration must be performed according to the migration plan. * *Terms of reference - 4.1 Main tasks of the project*	M

APPENDIX C. Budgeting Module

Content

Introduction

Budgeting shall be organized through the Budgeting module, which includes the following main functions

- Budget Planning
- Revenue Forecasting
- Budget/Deficit Balancing
- Municipals Budgets Data Input
- and compiling various other reports

In addition to the main functions, the module shall provide opportunity to obtain and provide necessary data from GFMIS other modules, as well as to exchange data with external systems.

The description of budgeting module structure, data flow, as well as the relationship with GFMIS other modules and external systems are presented in Figure AC-1.

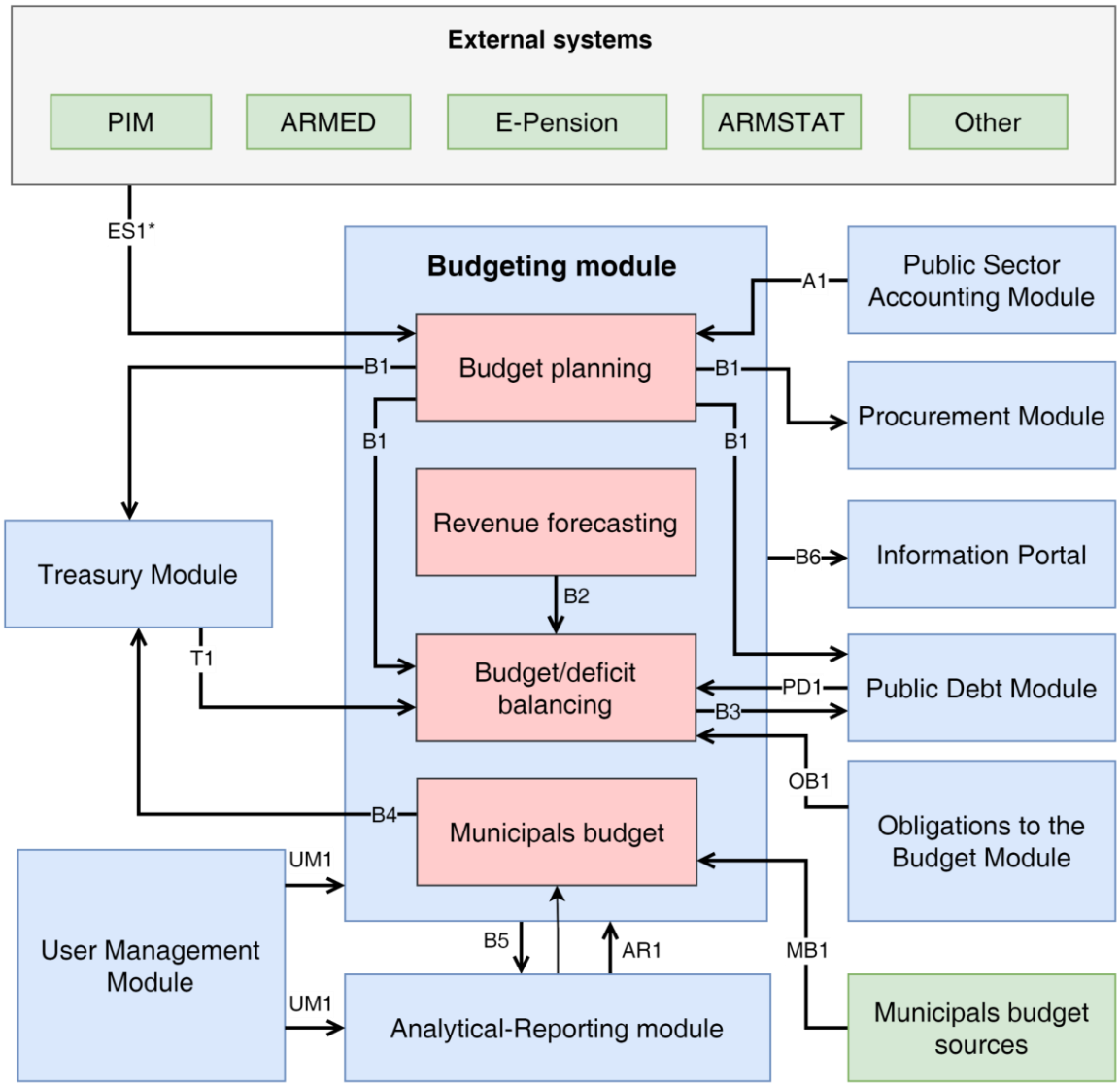


Figure AC-1. Description of Budgeting Module Structure and Data Flow

Nature and flow of data exchange are described in Table AC-1 below.

Table AC-1. Budgeting Module Data Description

Data	**Data Description**	**Provider module/submodule**	User **module/submodule**
B1	Data on expenditures and budget withdrawals. 1. Necessary data for the formation of a procurement plan	Budgeting/Budget planning	1. Procurement 2. Treasury, 3. Public Debt 4. Budgeting/ Budget balancing

	2. Necessary data for the formation of the grant plan 3. Approved budget (CMBA-Chief manager of budget appropriations, SMBA-Subordinate manager of budget appropriations, program, event, classification) 4. Provision of the next number of a new program/event 5. Adjusted budget 6. Targeted loans and loans forecasting expenditures 7. Budget withdrawal		
B2	Data on income 1. Non-tax revenue forecast 2. Tax revenue forecast	Budgeting/Revenue forecasting	Budgeting/ Budget balancing
B3	Deficit part of the budget	Budgeting/ Budget balancing	Public debt
B4	Communities approved/adjusted budget	Budgeting/Municipal budget	Treasury
B5	Analytical data generated in the budgeting module (M1*)	Budgeting/all submodules	Analytical-reporting module
B6	Publication of reporting data defined by legal acts	Budgeting	Information portal
A1	Registered data on the basis of which the cost estimation is carried out (for example fixed assets or tangible assets for the operation/maintenance , of which a cost should be carried out)	Public sector accounting	Budgeting/Budget planning
T1	Balance of stabilization account, free balance at the beginning of the year	Treasury	Budgeting/ Budget balancing
PD1	Borrowings, debt repayments and service	Public debt	Budgeting/ Budget balancing
OB1	Data on issued promissory notes, loans and debts, budgetary guarantees	Obligation of the budget	Budgeting/ Budget balancing

ES1*	Data recorded in external electronic systems[22]. 1. Data on public investment expenditure 2. Benefits 3. Pension 4. Medical data 5. Statistical data 6. other	External systems 1. PIM 2. Npast 3. E-pension 4. ARMED 5. ARMSTAT	Budgeting/Budget planning
MB1	Budget data approved by the Municipal Council	External systems	Budgeting/ Municipal budget
UM1	1. User Account Authority Scope 2. Required data of user	User Management	1. Budgeting 2. Analytical-reporting
AR1*	Analytical data generated from all modules and/or external systems 1. Planned/approved budget data for the previous year/years 2. Planned/ Collected Revenues for the previous year/years 3. Budget Annexes 4. Various reports 5. other	1. Analytical-reporting	Budgeting 1. Budget planning submodule 2. Revenue forecasting submodule 3. Budget balancing submodule

In Figure AC-2 the functional hierarchy of the budgeting system is presented to ensure the effective implementation of the specified processes.

[22] Data that forms the basis for cost estimation calculation formulas obtained from external systems. For details - Section 1.2.1 Cost estimation

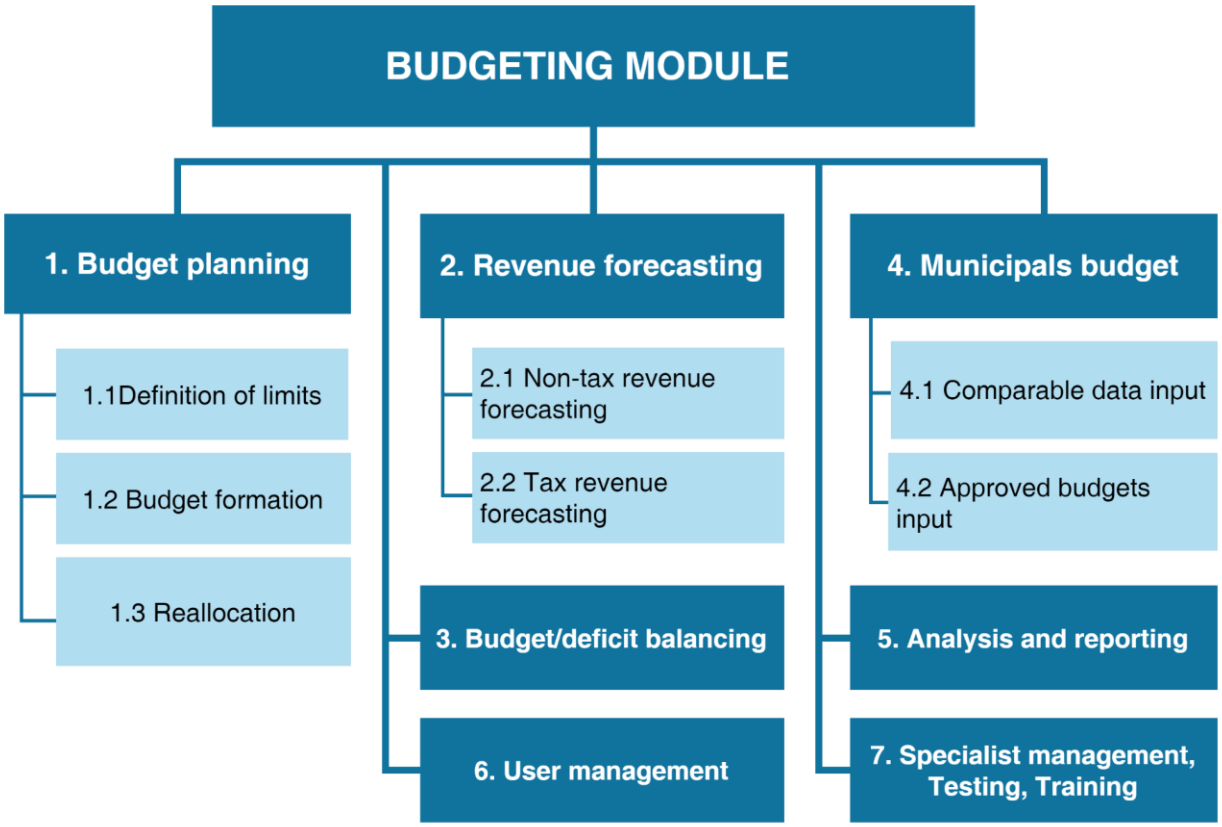


Figure AC-2: Functional hierarchy of budgeting system

Next, a brief description of each functional section is presented.

1. Budget Planning

According to the Law on Budgetary System of the Republic of Armenia, the process and implementation of budget planning is carried out on the basis of cash method.

Budget formation has the following main functions:

- Definition of limits
- Budget formation
- Implementation of reallocation

Budget planning shall be implemented according to both bottom-up and top-down approaches.

In particular, the **bottom-up** approach implies the implementation of RA State Budget Development by all entities involved in the budget formation, from the lowest level to the highest level (e.g. from SNCO to SMBA, from SMBA to CMBA, from CMBA to the Ministry of Finance of the Republic of Armenia). It should be noted that the hierarchy of levels can be more.

In accordance with the **top-down** approach, the determination of indicative limits (e.g. determination of limits by the Ministry of Finance of the Republic of Armenia for CMBAs, by CMBAs for SMBAs, etc.) or the reallocation of quarterly proportions according to SMBAs should be carried out.

The conceptual description of the mentioned processes is provided in *3.2 Budget Planning* section of the *GFMIS (Government Finance Management Information System) Conceptual Model - Budgeting* document.

1.1 Definition of Limits

At the beginning of each year, the RA Ministry of Finance provides information on indicative limits to all applicant bodies. The mentioned information serves as a guide for the applicant bodies to define the financial indicators in the budget requests.

The calculation of indicative limits should be carried out based on various data: MTEF and the fiscal framework of the coming year, the approved and actually used financial indicators of the CMBAs of the previous years and other necessary data.

The calculated data is defined by the RA Finance Ministry for each CMBA. The CMBA bodies, in turn, can set indicative limits both for SMBAs and for the measure implemented by SMBAs. The specified limits should be mutually verifiable, not allowing exceeding the indicator specified in the superior limit. For example, the total sum of the limits for different SMBAs implementing the measure may not exceed the limit set for the measure.

Indicative limits must pass both hard and soft checks. In the case of hard check, the state bodies may perform cost estimates without exceeding the amount specified by the limits, and in the case of soft check, the submitted cost estimates may exceed the specified limits. Data on exceedances must be visible to higher authorities in order to make appropriate analyzes and decisions.

The conceptual description of the mentioned processes is provided in *3.1 Determination of limits* section of the *GFMIS Conceptual Model - Budgeting module.*

1.2 Budget Formation

Budget formation should be carried out in accordance with the principles of program budgeting. Program Budgeting (PB) is a variant of results-based budgeting and is based on well-formulated budget programs aimed at ensuring or implementing policies set by the state in various areas. To submit program budgeting, the applicant bodies shall present budget financing requests applications to the RA Finance Ministry, and these requests are considered a set of financial and non-financial data. Funding applications must include cost calculations for the upcoming year for the planned programs and events estimates of MTEF costs, performance indicators, etc.

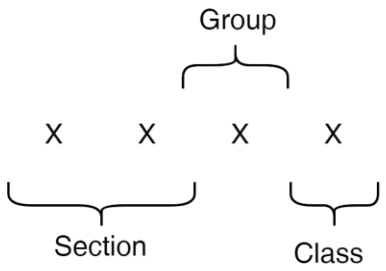
The program is a logical grouping of state policy implementation events (program events) aimed at achieving the same goal, which intends to develop efficient management of state budget expenditure.

Each CMBA may present its budget application to the RA Finance Ministry within the framework of one or more programs. The same program may not be carried out by several CMBAs. Only one CMBA bears responsibility for the implementation and the program and its results. Programs in turn include one or more events..

The events are the interventions of the state carried out for the purpose of implementing the state policy within the framework of the program, which are aimed at the realization of the goal defined for the given program.

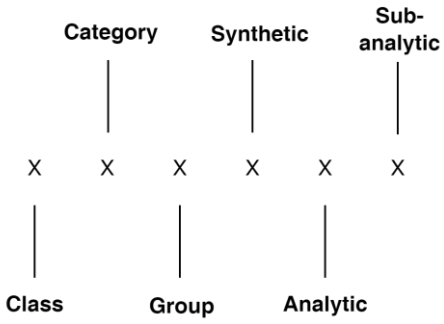
The same event may not be included in another program. More than one CMBA may participate in the implementation of the same event.

Event expenses are presented by **functional classification**[23]. Functional classifiers consist of a four-digit code: XXXX and have the following structure:



Each event may be presented by only one functional classification.

Events may be presented in one or more **economic articles**[24]. Economic articles consist of a six-digit code: XXXXXX and have the following structure:



[23] Order No 5-N of the RA Minister of Finance and Economy dated January 9, 2007 "On Approving the Classifications of Budgetary and Public Sector Accounting and Instructions of their Application''

[24] Order No 5-N of the RA Minister of Finance and Economy dated January 9, 2007 "On Approving the Classifications of Budgetary and Public Sector Accounting and Instructions of their Application''

During the budget planning, the four-digit code of economic articles is used: class, category, group, synthetic. The same economic articles may be used within the framework of various events.

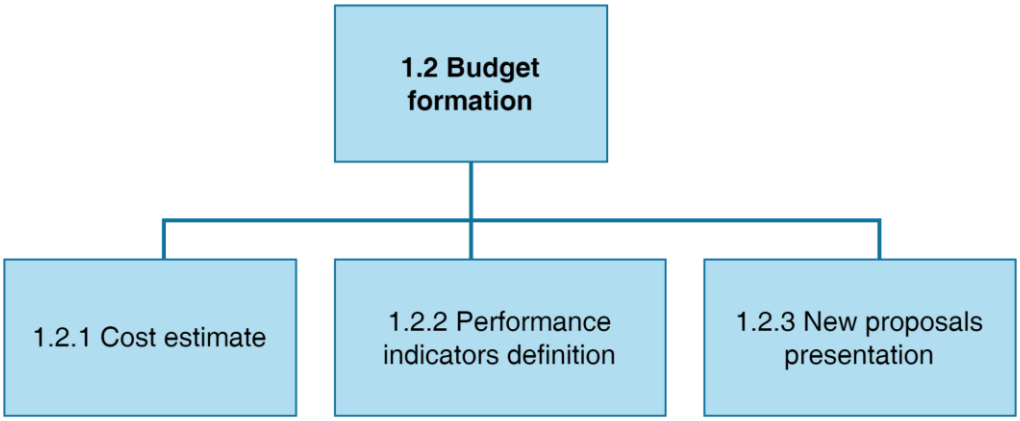
In the case of an article containing a purchase act, the economic articles must be correlated with the **CPV**[25].

In cost estimation an important role is given to **tagging**. Tagging is a process of identification of budget expenditures with a pre-given indicator, which enables to identify, evaluate and monitor budget expenditures corresponding to that indicator in the budget system.

As a rule, tagging of budget expenditures is used in cases where the existing budget classifications do not allow to directly or easily identify, group and present these expenditures with a specific indicator. Tagging may be applied both at the level of programs and at the level of events carried out within the framework of programs. Each program, event may have more than one tagging, for which cost weights (coefficients) must be set.

Budget formation includes the following processes (Figure AC-3):

- Cost Estimate
- Performance indicators definition
- New proposals presentation



FigureAC-3. Functional hierarchy of budget formation

1.2.1 Cost Estimate

The presentation of cost estimate is carried out by the hierarchical structure of the bodies to which the expenditure is presented. The state organization (SO) represents the SMBA, the SMBA represents the CMBA, the CMBA represents the RA Ministry of Finance. Each of these represent as a separate level.

Cost estimate should be implemented on the basis of a clearly defined methodology. Each field, based on its characteristics and data structure, shall develop a methodology for calculating financial indicators, which

[25] For more information about the CPV, see the ToR of the Electronic Procurement System

must be approved by the authorized body. As necessary, the established methodology may be modified or revised depending on changes in legislative requirements or calculation approaches.

On the basis of the developed methodology, it should be possible to implement the formula for each data necessary for cost estimate. The following approaches should be used to draw up formulas:

1. Formula formed on the basis of **constants.** Constants are, for example, the amount of the minimum salary established by law, gas or electricity tariffs approved by the Public Services Regulatory Commission, norms regulated by legislative acts, etc.
2. Formula based on **budget execution**. For example, take execution indicators as a basis and apply a certain interest rate.
3. Formulas in which data processed in **external systems** serve as arguments. For example, the data necessary for cost estimate may be obtained from the E-Health System (ArMed) or from the Registration of Persons with Disabilities "Pyunik" Information System.
4. Formula based on data recorded in **Public Sector Accounting (PSA).** This is most applicable to the calculation of maintenance expenditures of state bodies.

The more data are included from external electronic systems, the more accurate and reliable the financial indicators will be.

Cost estimate shall be carried out both for the **coming year** and by calculation of **MTEF**. In addition, the information shall be presented with detailed calculations and justifications regarding the programs and events to be implemented by the state body within the framework of the state budget. Besides, the applications shall also be presented according to the **quarterly proportions**.

It's significant to take into account that if the organizer of the event is the SMBA body, then it shall present the expenses by the corresponding economic articles and the set of expenses is implemented according to the submitted economic articles. Except for SMBAs, other subjects of state budget development (for example, SNCOs) present their expenses by the economic article, but are included in one economic article, in particular, a grant or subsidy economic article.

Budget financing request must be formed and submitted to the RA Ministry of Finance according to the following stages, within the deadlines set by the budget calendar:

- **Stage 1:** Submission of the budget financing request of the RA state medium-term expenditure framework (including the upcoming year),
- **Stage 2:** Submission of the budget financing request for the coming year,
- **Stage 3:** Submission of quarterly proportions of expenditure provided for by the events approved by the submitted requests.

Deadlines are set for the submission and implementation of changes in the above-mentioned stages.

In cost estimate, the following types of expenditures are distinguished:

- Current expenditures
- Capital expenditures

Current and capital expenditures estimate is implemented on the basis of the hierarchical structure of the bodies presenting expenses and the cost estimate methodologies presented in this section.

In the case of Capital expenses, it's significant to take into account that in case of exceeding the limit established by the Law (the current law applies to capital cost exceeding AMD 1 billion), cost estimate shall be implemented based on the data submitted in the public investment management (PIM)[26] system.

Cost estimate is not implemented for the events containing **confidential articles**.

1.2.2 Performance Indicators Definition

In addition to the formation of financial indicators, non-financial indicators (performance indicators) of programs and events shall also be defined and monitored. Performance indicators should present the effectiveness and efficiency of the use of financial resources, as well as to increase transparency and accountability.

Performance indicators definition shall be carried out in accordance with the requirements set by the methodological instructions provided by the Ministry of Finance of the Republic of Armenia[27].

Changes, i.e. reallocations, in the approved budget may occur at any level. In case the planned financial reallocations also imply a change in the established performance indicators, then the latter should also be changed.

The conceptual description of the mentioned processes is provided in *3.2.1 Data input- 4th level*, *3.2.2. Budget Application Formation - 3rd level, 3.2.3. Budget Application Formation- 2nd level, 3.2.4. Review and Approval of Budget Applications- 1st level* sections of the *GFMIS (Government Finance Management Information System) Conceptual Model - Budgeting.*

1.2.3 New Proposals Presentation

Applicant bodies must be able to submit budget requests presenting the expenditures for both existing programs and new proposals. New proposals are considered the expenditure proposals that relate to the expansion of programs/events (for example, services) and/or the scope of beneficiaries of existing expenditure commitments, i.e., when it is proposed to provide new services outside the scope of established services and/or to provide established services to new groups of beneficiaries.

All submitted proposals shall be registered and have an appropriate status: approved, rejected, under discussion, under editing.

[26] The Public Investment Management System (PIM) is under development

[27] Order No 311-A of the RA Minister of Finance dated June 23, 2017, "On Approving Methodological Guidelines within the Framework of the Strategy of Full Introduction of Program Budgeting System in the Republic of Armenia", Appendix 2 - Methodological manual "Definition of performance indicators for programs and measures in the format of program budgeting"

It should be noted that the applicant bodies may present new proposals both during budget planning and during budget implementation.

Presentation of new proposals shall be carried out in accordance with the procedure presented in *1.2.1 Cost estimate* chapter of this document. But in this case the program and event codes shall be as drafts. After the final approval of the expenses presented by the new proposals, the corresponding program and event (receiving codes) shall also be approved.

The conceptual description of the mentioned processes is provided in *3.3. New Proposals* section of the *GFMIS (Government Finance Management Information System) Conceptual Model - Budgeting.*

1.3 Reallocations

At the state budget implementation stage, each change in the approved budget is made through reallocations[28].

Data on the results of reallocations shall be transferred to the Treasury for freezing and unfreezing of funds. If the deductible item has a procurement process started in the procurement module (encumbered with commitments), no reallocation may be made.

Approval of reallocations (if necessary) is carried out according to the bottom-up approach.

As a result of reallocations, along with financial changes, performance indicators may also be changed. The reallocation will be finally confirmed if the performance indicators have also been changed accordingly.

The following types of reallocations are distinguished:

- **Intra-article reallocations** are carried out inside an article within the scope of the same event (for example, changing the procurement plan). The state bodies implementing the events may carry out the inter-article reallocation independently, without the approval of a superior body.
- **Inter-articular (within articles) reallocations** are carried out between articles within the scope of the same event. This type of reallocation is carried out independently by the state bodies implementing the events. Exceptions are reallocations in case of changes in economic articles (for example, reallocation from current expenditures article to capital expenses article). In case of these reallocations, the approval of the RA Government is mandatory.
- **Inter-event reallocations** are carried out between different events and its articles within the same program. This type of reallocation may be carried out independently by the state bodies implementing the events.
- **Inter-program reallocations** may be carried out in form of one of the following types:
    a) Reallocations of programs between CMBA bodies. In this case, the approval of the RA Government is mandatory.

[28] The RA Government decision N 2111-N "On actions ensuring the execution of the RA State Budget" dated on 29.12.2022, appendix 12

b) Reallocations between the programs implemented by the CMBA, which the CMBA may implement independently, if the sum of the approved annual allocations for all planned expenditure programs and the incremental amounts of the quarterly distribution of that sum are not exceeded. Reallocations of this type shall also be agreed with the state bodies implementing the events.

c) Reallocations from the "Reserve Fund of the RA Government" expenditure program. In case of this redistribution, the approval of the RA Government is mandatory.

- **Interquarterly transfers** imply the transfer between the quarterly reallocations of the event article of the same program of the state body, from one quarter to another.

The functional requirements related to the budget planning process according to the MoSCoW classification are presented in Table AC-2.

Table AC-2

1. The functional requirements related to the budget planning process		**MoSCoW classification**
1.1 Definition of Limits		
1.1.1	Obtaining the necessary data (to make a decision on limits) ● MTEF and the coming year fiscal framework, ● Approved and actually implemented financial indicators of the previous years of the CMBAs ● Data on the current year's current expenditures of the CMBAs, ● etc. * The data may be obtained from the Analytical-Reporting Module of the GFMIS, or from other modules in which these data are processed.	M
1.1.2	Definition of limits on a hierarchical basis. ● Definition of limits by Finance Ministry for CMBAs, ● Definition of limits by CMBAs for SMBAs implementing the events, ● Definition of limits by SMBAs for SNCOs operating under its authority (CNCO, Foundation, etc.), ● etc.	M
1.1.3	Ability to define quarterly proportional limits (as needed) on a hierarchical basis from superior bodies to subordinate bodies.	M
1.1.4	Exclusion of exceeding the cost estimation amount in case of hard limits definition.	M

1.1.5	Possibility of exceeding the cost estimation amount in relation to the limits in case of soft limits definition.	M
1.1.6	Availability of information on exceeding and/or reaching the defined limit.	M
1.1.7	Opportunity to change the defined limits.	M
1.1.8	Preservation of versioning of limits.	M
1.2 Budget Formation		
1.2.1 Implementation of cost estimation		
1.2.1.1	Availability of users with appropriate roles (the description of the functional requirements of the roles and authorities is provided in Appendix K - User management module.	M
1.2.1.2	Obtaining at least the following data from informants for cost estimation: ● Programs (5.3.1), ● Events (5.3.2), ● Functional classifiers (represented by a four-digit code) (5.3.3), ● Economic classifiers (represented by a six-digit code) (5.3.4), ● Cost estimation constants (5.3.8) ● CMBA bodies ● etc. ** More details on functional classifiers and economic articles are presented in subsection 1.2.*	M
1.2.1.3	Presentation of cost estimation at least with the following structure. ● Program, ● Event, ● Economic classifiers ● cost, ● etc	M
1.2.1.4	Hierarchical approval/rejection of cost estimation data presentation, at least with the following hierarchy: ● SMBAs' approval/rejection of the data submitted by SOs ● CMBAs'approval/rejection of the data submitted by SMBAs, ● RA Finance Ministry's approval/rejection of the data submitted by CMBA. **Hierarchies of different depth may be defined for the approval of submitted data.*	M
1.2.1.5	Opportunity for State Budget Formation by calculation of MTEF.	M

1.2.1.6	Opportunity for State Budget Formation quarterly distribution.	M
1.2.1.7	Opportunity for presenting at least the following data during the cost: ● planned data of the previous year/years, ● Approved data of the previous year/years, ● Actual data of the previous year/years and etc.	M
1.2.1.8	Opportunity for obtaining information on approvals, rejections and/or edits and changes in data.	M
1.2.1.9	Opportunity for commenting on approvals, rejections and/or edits and changes in data.	M
1.2.1.10	Opportunity for entering data in foreign currency.	M
1.2.1.11	Opportunity for automatic conversion of data in foreign currency in accordance with the foreign currency exchange rates defined by the Central Bank of the Republic of Armenia.	S
1.2.1.12	Ensuring the automation of the cost estimation in accordance with Appendix B, Section 2.3, Clause GF.1.1.	M
1.2.1.13	Opportunity for using an electronic digital signature in accordance with Appendix B, Section 2.3, Clause GF.4.1.	M
1.2.1.14	Hierarchical aggregation of cost estimation data also by levels: ● According to CMBA, ● According to SMBA, ● According to programs and etc.	M
1.2.1.15	Implementation of soft check of indicative limits (Clause 1.1) defined in different levels (SNCO, SMBA, CMBA and etc). Availability of obtaining information on exceeding the limits (on exceeding and the exceeded amount).	M
1.2.1.16	Opportunity for re-using and/or reproducing of financial and non-financial indicators of the previous year during cost estimation.	M
1.2.1.17	Cost estimation presentation using formulas, in particular: ● Formed based on constants, ● Formed based on performance, ● Formed based on external systems (API) ● Formed based on data processed in GFMIS modules and submodules. ** In case of integration.* *** Integration is implemented according to Appendix B, section 3.1, Clause*	M

	NF.1.3.2.	
1.2.1.18	Presentation of cost estimation by manual data entry (non-formula).	M
1.2.1.19	Opportunity for presentation of procurement articles, goods and services both with CPV codes (procurement planning) and without them at the article level.	M
1.2.1.20	Opportunity for defining expenditure priorities according to events.	M
1.2.1.21	Presentation of expenditure priorities of event according to administrative territorial division (by provinces).	M
1.2.1.22	Opportunity for specifying the main expenditure factors (**price and non-price**) that are the basis of the cost estimation of the event.	M
1.2.1.23	In the case of capital expenditure, opportunity for separation by objects. ** The accounting of objects is carried out in the Public Sector Accounting Module.*	M
1.2.1.24	Maintenance of versioning of budget (planned, approved, etc.) formed on the basis of the data provided by cost estimation. Setting statuses for versioning of budget. ** For example, there should be an opportunity for defining a sample status for a versioning, thus the performance may be estimated in comparison with it.*	M
1.2.1.25	Aggregation of cost estimation data within one article. ** For example, to form cost estimation of SOs with necessary articles, which are aggregated at the superior body with one article: subsidy or endowment.*	M
1.2.1.26	In accordance with the schedule of the budget planning, setting deadlines for the events planned for cost estimation, with the opportunity for reminding the bodies implementing cost estimation of the deadlines.	M
1.2.1.27	Forming a list of bodies that did not provide information within the specified period.	M
1.2.1.28	Implementation of cost estimation according to the data processed in the Public Investment Management system (PIM), if the given expenditure is a capital expenditure and exceeds the established limits (1 billion drams according to the applicable law).	S

	** In case of integration.* *** Integration is implemented according to Appendix B, section 3.1, Clause* NF.1.3.2.	
1.2.1.29	Opportunity for State Budget versioning maintenance.	M
1.2.1.30	Data exchange with at least the following modules: ● Treasury Module ● Public Debt Management Module, ● Public Sector Accounting Module, etc.	M
1.2.1.31	Formation and exporting the budget program based on cost estimation data in at least the following formats: PDF, DOCX.	M
1.2.1.32	Publication of appendices prescribed by law on the information portal and export in DOCX, XLSX and PDF formats based on the generated data.	M
1.2.2 Performance Indicators Definition		
1.2.2.1	Opportunity for presenting performance indicators for programs and events.	M
1.2.2.2	Presentation of indicators at the level of CMBA and SMBA.	M
1.2.2.3	Opportunity for presenting the final result of the program providing at least the following data: ● completion of **baseline** and **target** indicators, ● The relation to the policy targets defined by the program of the RA government, ● etc.	M
1.2.2.4	Opportunity for presenting the final results of the program in digital form: quantity, number, percentage, etc.	M
1.2.2.5	Presentation of final results of the program on an annual basis.	M
1.2.2.6	Opportunity for presenting event performance indicators on an **annual** and **quarterly** basis.	M
1.2.2.7	Presentation of events results in numerical terms: year, number, day, quantity, percentage, etc.	M
1.2.2.8	Presentation of event performance indicators according to CMBAs.	M

1.2.2.9	Presentation of event performance indicators according to SMBAs responsible for implementing events.	M
1.2.2.10	Defining final result indicators of the program and event performance indicators for **new proposals**.	M
1.2.2.11	Opportunity for changing/editing final result indicators of the program and event performance indicators.	M
1.2.2.12	Establishing a hard link between financial and performance indicators. In case of change of financial indicators in the approved budget, there should be opportunity for changing performance indicators (non-financial indicators) at the same time.	M
1.2.3 New Proposals Presentation		
1.2.3.1	Implementation of new proposals cost estimation according to clause 1.2.1.	M
1.2.3.2	New proposals data processing with at least the following structure: ● Proposing body ● Nature of proposals (planning to create a new event or expand an existing event), ● Funding source, ● Estimated start and deadline of the proposal ● etc.	M
1.2.3.3	Opportunity for presenting new proposals according to priorities.	M
1.2.3.4	Opportunity for defining at least the following stages for new proposals: ● **Editing stage** - In case of incomplete or inaccurate data in the submitted information, it was sent back for editing by the superior body. ● **Discussion stage** - In the absence of mistakes in the submitted information, the proposal is submitted to the Government of the Republic of Armenia for approval. ● **Approved** - The presented information is approved by the RA Government. ● **Rejected**- The presented information is not approved by the RA Government.	M
1.2.3.5	Limitation of the number of new proposals presented by CMBA bodies.	M
1.2.3.6	Opportunity for presenting new proposals both during budget planning and budget implementation.	M

1.2.3.7	Opportunity for including approved proposals (by obtaining the appropriate program and event code) in financing requests.	M
1.2.3.8	Opportunity for archiving rejected proposals.	M
1.2.3.9	Opportunity for editing and resubmitting archived proposals.	M
1.3 Reallocations		
1.3.1	Implementation of reallocations at all levels of budget formation (SO, SMBA, CMBA).	M
1.3.2	Opportunity for recording requests for reallocations submitted by the body.	M
1.3.3	Reallocation limitation for budget lines that have been processed in the procurement or grants module. ** In case of integration.*	S
1.3.4	Limitation of reallocations within the same program (as well as event or article), if there is an unapproved or incomplete reallocation request within the scope of the given program (as well as event or article).	M
1.3.5	Transfer of reallocation data to the Treasury module for expenditures and account management. ** In case of integration.*	S
1.3.6	Opportunity for archiving rejected reallocations data.	M
1.3.7	Opportunity for editing and resubmitting archived reallocations.	M
1.3.8	Opportunity for generating, publishing and exporting (at least in the following formats: Excel, PDF, CSV, etc.) appendices required by law as a result of reallocation.	M

2. Revenue Forecasting

The revenue forecasting is the forecast of non-tax revenue and tax revenue.

2.1 Non-Tax Revenue Forecast

Non-tax revenue forecasts are carried out by public authorities (state departments, regional administrations, ministries) and the data are provided to the RA Finance Ministry. In this process, there is no separation of CMBA, SMBA, program or event. Each body provides its own non-tax revenue forecasts.

In particular, the bodies submit the following non-tax revenues to the RA Finance Ministry:

a) state duties
b) official grants
c) revenues from operations with non-financial assets
d) other receipts

For non-tax revenue forecasts, the public authorities shall use the actual indicators of previous years, as well as the actual indicators available as of the given period of the current year.

A specific calculation approach shall be developed for each type of revenue to make more accurate forecasts. Explanations justifying the calculations shall be attached to the forecasts.

2.2 Tax Revenue Forecast

Tax Revenue Forecasts is carried out by the relevant sub-department of the RA Ministry of Finance (Macroeconomic Policy Department). The mentioned department implements tax forecasts by applying analytical tools available to use within its range of activity. The resulting tax forecast data is entered into the revenue forecasting module by the MPD.

The results of the implemented tax forecasts, consolidating with non-tax revenue forecasts, form the state budget revenue general forecast.

Forecasted revenue data are used in budget balancing and serve as an important data source for fiscal framework forecasts and other required analyses.

The conceptual description of the mentioned processes is provided in *3.5 Non-Tax Revenue Forecast* section of the *GFMIS Conceptual Model - Budgeting.*

The functional requirements for revenue forecasting according to the MoSCoW classification are presented in Table AC-3.

Table AC-3

2. The functional requirements for revenue forecasting		**MoSCoW classification**
2.1	**Non-Tax Revenue Forecast**	
2.1.1	Opportunity for obtaining at least the following data to make the required forecasts: ● Forecasted data of previous years, ● Actual indicators of previous years (at least previous 3 years) ● Actual indicators available as of the given period of the current year ● etc.	M

2.1.2	Automation of non-tax revenue forecasts according to the methodology specific to the given type of revenue.	M
2.1.3	Opportunity for presenting data on a quarterly and annual basis.	M
2.1.4	Opportunity for editing input/calculated data.	M
2.1.5	Opportunity for inputting explanations justifying calculations of forecasted data.	M
2.1.6	Opportunity for making hierarchical transfer of data from public authority bodies to the RA Ministry of Finance, with the opportunity for approval or rejection by the latter.	M
2.1.7	Opportunity for sending notifications to bodies regarding deadlines set by the budget calendar.	M
2.1.8	Forming a list of bodies that did not provide information within the required period.	M
2.1.9	Opportunity for summarizing data by types of revenue in the RA Finance Ministry.	M
2.1.10	Opportunity for creating reporting forms in a defined format.	M
2.1.11	Opportunity for exporting data in at least the following formats: Excel, PDF, CSV:	M
2.1.12	Opportunity for publishing data in the information portal.	M
2.2	**Tax Revenue Forecast**	
2.2.1	Opportunity for inputting forecasted tax revenue by types of taxes.	M
2.2.2	Opportunity for aggregation data entered by types of taxes.	M
2.2.3	Opportunity for editing/removing entered data.	M
2.2.4	Opportunity for chronological maintenance of entered data.	M
2.2.5	Opportunity for consolidation of tax and non-tax revenues.	M
2.2.6	Opportunity for exporting data in at least the following formats: Excel, PDF, CSV:	M

3. Budget/ Deficit Balancing

The following formula is used for state budget balancing:

$$\mathbf{E = R + D}$$

in which E- planned expenditure, E-forecasted revenues, D-deficit.

Expenditure data is derived from data collected during cost estimate, **revenue** data are derived from tax and non-tax revenue forecasts. The excess of expenditures over budget revenues constitutes the budget **deficit** (shortfall).

The deficit, in turn, must be balanced. The deficit balancing calculation contains inflow and withdrawal parts.

The **inflow** part is data on financial resources taken from internal and external sources, for example, issued treasury bonds, revenue from the return of loans and credits, or loans and credits from external sources. This data is not presented by program-events. The necessary information is obtained from the relevant department of the RA Ministry of Finance.

The **withdrawal** part is always presented by program-events and with the relevant economic articles. Examples of withdrawals are repayment of promissory notes, obtained loans and credits, or disbursement of loans and credits. Information on the withdrawal part is provided by the relevant departments of the RA Finance Ministry.

In the resulting data, the withdrawal part always exceeds the inflow part. This means that funds must be provided for financing the deficit, which in turn shall balance the deficit. The attraction of funds for financing the budget deficit is carried out from both internal and external sources.

To ensure the budget balancing process, it is necessary to exchange data with a number of modules and submodules of the GFMIS, for example, data on the free balances at the beginning of the year and the stabilization fund account shall be obtained from treasury module, and the public debt module shall be provided with data on the size of the budget deficit, etc.

The conceptual description of the mentioned processes is provided in *3.6 Budget/Deficit Balancing* section of the *GFMIS Conceptual Model - Budgeting*.

The functional requirements related to budget balancing according to the MoSCoW classification are presented in Table AC-4.

Table AC-4

3. The functional requirements related to budget/deficit balancing	**MoSCoW classification**

3.1	Opportunity for obtaining the following data for budget/deficit balancing: ● Planned expenditures (cost estimation) ● Forecasted revenue ● Withdrawal ● Inflow	M
3.2	Opportunity for forming formulas for implementing balances.	M
3.3	Opportunity for warnings about violations of balances.	M
3.4	Opportunity for creating reporting forms in a defined format	M
3.5	Opportunity for reporting forms in at least the following formats: Excel, PDF, CSV	M

4. Municipals Budgets

The process of receipt of municipal budgets[29] is designed to ensure receipt of budgets approved by Municipal Councils, verification and exclusion of inter-budgetary transfers, and receipt of a consolidated budget at the state level.

The following types of transfers may be directed to municipalities from the RA State Budget.

1. Subsidies
   1.1 Financial equalization subsidies,
   1.2 Other subsidies
2. Subvention,
3. Budget credits,
4. Budget loans,
5. Budget guarantees,
6. Appropriations for the exercise of delegated powers of the State.

The above-mentioned transfers are reflected as income in the municipal budget.

The total amount of the state budget and municipals budget, without inter-budgetary transfers, is a consolidated budget. Interbudgetary transfers are the transfers from the state budget to municipalities.

[29] In case of transition to program budgeting, municipalities may also carry out a cost estimate of the budget with the help of a cost estimate tool designed for the state budget formation.

The data obtained as a result of the processes of receiving municipals budget are necessary to perform cost estimation checks.

Municipals budget input and management shall be carried out through the following main processes (Figure AC-4):

- Comparable data input
- Approved budgets input

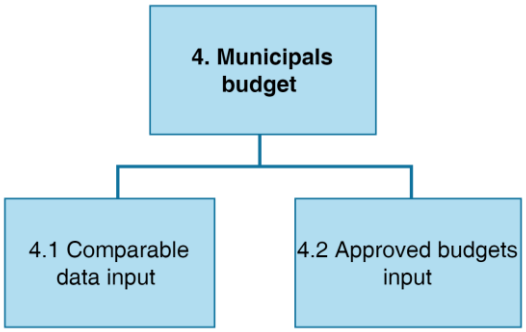


Figure AC-4: Functional hierarchy of the municipals budget

4.1 Comparable data input

The transfers from the RA State Budget to the municipalities are comparable with the data presented in municipals budget approved by the Municipal Council, in terms of revenue.

For example, the Ministry of Finance of the Republic of Armenia calculates the total amount of subsidies provided from the state budget to all municipalities of the Republic of Armenia on the principle of financial equalization in a given year, in order to provide it to the MTAI. The total amount of subsidies provided from the state budget to all municipalities of the Republic of Armenia on the principle of financial equalization in a given year is defined as not less than 4% of the total amount of the actual revenues of the RA consolidated budget (state and municipals budget) in the second budget year preceding the given year[30]. MTAI, in turn, within the cost estimation of its program-event, presents a distribution of subsidies according to municipalities, the amount of which should be comparable with the total amount of the subsidies calculated by the RA Finance Ministry.

The conceptual description of the mentioned processes is provided in *3.7.2 Verification of municipal cost estimations with data of approved budgets* section of the *GFMIS Conceptual Model - Budgeting.*

[30] Law of the Republic of Armenia "On the Budgetary System of the Republic of Armenia"

4.2 Approved budgets input

The budgets approved by the Municipal Council shall be presented to the RA Finance Ministry to obtain consolidated budget indicators.

Municipals budget consists of[31]

a) administrative part of municipals budget (administrative budget)
b) fund part of municipals budget (reserve fund budget)

Municipals budget, as well as the state budget, is made up of revenue, expenditure and deficit.

Transfers obtained from the state budget for municipalities are reflected in the revenue and shall be comparable with the transfers sent to municipalities presented in the state budget cost estimation.

The conceptual description of the mentioned processes is provided in *3.7.1 Receipt of approved municipals budgets* section of the *GFMIS Conceptual Model - Budgeting*.

The functional requirements related to municipals budget according to the MoSCoW classification are presented in Table AC-5.

Table AC-5

4. The functional requirements of municipals budget		**MoSCoW classification**
4.1 Comparable Data Input		
4.1.1	Opportunity for inputting the amount of the total subsidy calculated by the RA Finance Ministry.	M
4.1.2	Opportunity for inputting the amounts of subsidies allocated by MTAI to municipalities.	M
4.1.3	Opportunity for inputting appropriations from the state budget to municipalities.	M
4.1.4	Opportunity for automatic verification of comparable amounts, for example, checking the total number of subsidies with the total number of subsidies of separate municipalities.	M
4.2 Approved Budget Input		

[31] Law of the Republic of Armenia "On the Budgetary System of the Republic of Armenia"

4.2.1	Opportunity for inputting budget data approved by Municipal Council. ** In case of integration.* *** Integration is implemented according to Appendix B, section 3.1, Clause* NF.1.3.2.	S
4.2.2	Opportunity for approval/rejection of submitted data.	M
4.2.3	Opportunity for transferring the generated data to other modules, for example, to Treasury module or Analytical module. ** In case of integration.*	S
4.2.4	Opportunity for calculating interbudgetary transfers.	M
4.2.5	Opportunity for automatic checking of municipals budget balancing based on the submitted data.	M
4.2.6	Opportunity for automatic formation of the consolidated budget indicator.	M

5. Analysis and Reporting

For the effective implementation of the budgeting process, it is necessary to provide a methodology of analysis and reporting, which assumes the implementation of several processes, particularly:

- Data collection from all necessary modules and external systems,
- Conduct what-if scenario analysis based on collected data, for example:
    - Information in case of an increase in the minimum salary at the stipulated rate, the total impact on the financial indicators of the state budget,
    - Information in case of increase the pension at the stipulated rate, the total impact on the financial indicators of the state budget,
    - Information on forecasting revenue in case of increase in one of the state duties at the stipulated rate,
    - Information on comparative results of planned and actual financial and non-financial indicators,
    - Information on approved new proposals by presenting bodies,
    - Other information.
- Formation of static, dynamic and ad-hoc reports, e.g.:
    - Presentation of expenditure programs of the state budget for CMBA (MTEF, annual, quarterly distribution),
    - Presentation of the state budget for functional classifier (MTEF, annual, quarterly distribution),
    - Presentation of the state budget for economic classifier (MTEF, annual, quarterly distribution)
    - Presentation of sources of financing of the state budget deficit (MTEF, annual, quarterly distribution),

    - Presentation of indicators of the final result for expenditure programs of the state budget (MTEF, annual, quarterly distribution),
    - Reports generated as a result of tagging.
- Availability of displaying data to be published in the public domain (for example, Information Portal) in special formats: tables, graphs, diagrams, etc.

It is planned to include an Analytical-Reporting module in GFMIS, which shall ensure the equivalent implementation of the aforementioned functions for all the GFMIS modules. The detailed description and functional requirements of the Analytical-Reporting module are presented in Appendix I.

The functional requirements related to the analysis and reporting of Budgeting module according to the MoSCoW classification are presented in Table AC-6.

Table AC-6

5. The requirements of Analysis and Reporting		**MoSCoW classification**
5.1 Data Warehouse **According to the requirements of the 1st section of Appendix I.*		M
5.2 Data Modeling **According to the requirements of the 2nd section of Appendix I, particularly*		M
5.2.1	Development of at least the following types of report: static, dynamic and ad-hoc reports (Appendix I 2.2.2). ● Presentation of expenditure programs of the state budget for CMBA (MTEF, annual, quarterly distribution), ● Presentation of the state budget for functional classifier (MTEF, annual, quarterly distribution), ● Presentation of the state budget for economic classifier (MTEF, annual, quarterly distribution) ● Presentation of sources of financing of the state budget deficit (MTEF, annual, quarterly distribution), ● Presentation of indicators of the final result for expenditure programs of the state budget (MTEF, annual, quarterly distribution), ● Reports generated as a result of tagging:	M

5.2.2	Development of models/algorithms for making at least the following types of decisions. (Appendix I 2.2.3.). ● Information in case of an increase in the minimum salary at the stipulated rate, the total impact on the financial indicators of the state budget, ● Information in case of increase the pension at the stipulated rate, the total impact on the financial indicators of the state budget, ● Information on forecasting revenue in case of increase in one of the state duties at the stipulated rate, ● Information on comparative results of planned and actual financial and non-financial indicators, ● Information on approved new proposals by presenting bodies, ● Other informations	M
5.3 Directory Development **According to the requirements of the 3rd section of Appendix I, particularly*		M
5.3.1	**Program** ● Program name, ● Program code (represented by a four-digit code), ● Purpose of the program, ● Program implementation period, ● The **relation** of the program to the **goals and targets** of the RA government policy defined by the program of the RA government and other strategic documents of the RA government. ● The **relation** of the program to the United Nations sustainable development goals and indicators. ● and etc.	M
5.3.2	**Event**. ● Event name ● Event code (represented by a five-digit code), ● Event description ● Expenditure part of event (current, capital, public property management and financial asset management) ● Type of event (rendering services, provision of transfers, etc.) ● Expenditure part of the event (mandatory, discretionary) ● Event deadline ● functional classifier ● and etc.	M
5.3.3	List of functional classifiers	M
5.3.4	List of economic classifiers	M

5.3.5	Limitation of the classification of the economic classifiers depending on the **type of the event** (current, capital, etc.).	M
5.3.6	Possibility of connecting economic classifiers in the system with the 3rd level of **CPV** codes.	M
5.3.7	Availability of at least the following data in the income statements: ● List of public authorities ● List of income types ● List of licensable activities ● List of state duties ● and etc.	M
5.3.8	Cost estimation constants. ● Minimum wage, ● Base salary, ● The amount of utility fees approved by the Public Services Regulatory Commission, ● The amounts of expenses for business trips defined by RA Government Decision 2335-N, ● and etc. ** The complete list of cost estimation constants will be presented in the preliminary study stage.*	M
5.4 Data Prevision **According to the requirements of the 4th section of Appendix I .*		M

6. User Management

The functions of user management participating in the budgeting planning shall comply with the principles defined in the GFMIS Conceptual Model. It is planned to implement a User Management Module which should provide centralized user management of all modules (Single Sign-On authentication must be applied - one user for all modules).

Detailed description and functional requirements of User Management Module are presented in Appendix K.

7. Specialist Management, Testing and Training

The management, testing and training processes of budget planning specialists are similar to the data management requirements of the other sector specialists, with certain features, particularly:

- The Ministry of Finance of the Republic of Armenia (Budget Process Coordination Department) is the authorized body for qualified specialists management, testing and training.
- Registration of qualified specialists in the Registry is carried out only on the basis of the results of testing.

At the GFMIS the functions of specialist management, testing and training are planned to be implemented through appropriate modules. The detailed description and functional requirements of the mentioned modules are presented in Appendix J.

APPENDIX D. Treasury module

Content

Introduction

The Treasury module is designed for accounting of revenues and expenditures of state and municipal budgets in accordance with the types of revenue/expenditure in compliance with the budget classification, management of the relevant treasury accounts in order to ensure the accounting of revenues and expenditures, financing expenditures with preliminary control and carrying out financial operations with general state resources.

The structural scheme of the Treasury module, data flow, as well as the relationship to other modules of GFMIS and external systems are presented in Figure AD-1.

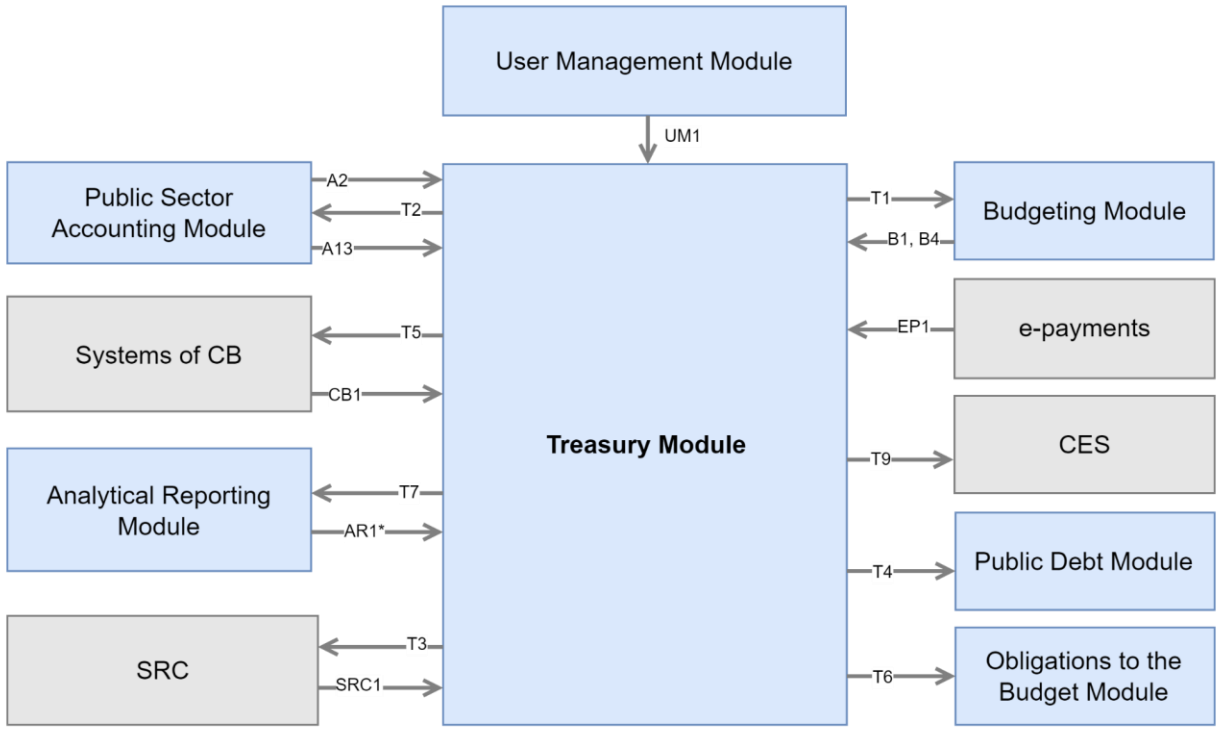


Figure AD-1: *Structure of the Treasury module, data flow, as well as the correlation to other modules of GFMIS and external systems.*

The data exchanged in the module is described in Table AD-1 below.

Table AD-1. Treasury Module Data Description

Data	Description	Source Module/Submodule	User Module/Submodule
T1	Stabilization fund residual, residual at the beginning of the year	Treasury Module	Budgeting Module

T2	Data on treasury accounts: 1. Treasury account, annual and quarterly limits of the CMBAs' account, SMBAs' account commitments and payment schedule 2. cash in/out 3. Account balances 4. rejected transaction data 5. exchange rates 6. EEU customs duty and countervailing duty liability data	Treasury Module	Public Sector Accounting Module
T3	Data created in the Treasury Module that will be provided to External Systems (M2*): 1. Amounts collected through cash register machine POS terminals	Treasury Module	SRC
T4	Treasury inflows/outflows of public debt instruments	Treasury Module	Public Debt Module
T5	Data of Treasury Module that will be provided to External Systems (M2*): 1. data on opened treasury accounts 2. electronic payments 3. deposit application	Treasury Module	CB
T6	Treasury inflows/outflows of budget obligation instruments	Treasury Module	Obligations to the Budget Module
T7	Analytical data generated in the treasury module (M1*) 1. data on the execution of the budget (revenues, expenses)	Treasury Module	Analytical Reporting Module
T9	Data of Treasury Module that will be provided to External Systems (M2*): 1. Data on accounts and frozen/confiscated amounts	Treasury Module	CES
B1	Data on expenditures and budget withdrawal. 1. Approved budget (CMBA-Chief manager of budget appropriations, SMBA-Subordinate manager of	Budgeting Module	Treasury Module

	budget appropriations, program, event, classification) 2. Provision of the next number of a new program/event 3. Adjusted budget		
B4	Communities approved/adjusted budget	Budgeting Module	Treasury Module
EP1	Data from external systems for Treasury Module (ES1*): 1. Data on revenue collection by collecting authorities	E-Payments	Treasury Module
CB1	Data from external systems for Treasury Module (ES1*): 1. Exchange rates 2. Data on cash flows	Central Bank	Treasury Module
SRC1	Data from external systems for Treasury Module (ES1*): 1. Confirmation of cash register machine transactions 2. Tax transactions 3. Operations for the return of customs duties and countervailing duties of the Agreement on the EAEU	SRC	Treasury Module
A2	1. Summary data of certificates, obligations 2. Application for financing 3. Payment orders 4. Application for reformulation	Public Sector Accounting Module	Treasury Module
A13	Contracts and payment schedules	Public Sector Accounting Module	Treasury Module
AR1*	Analytical data generated from the data from all modules and/or external systems 1. Various reports	Analytical Reporting Module	Treasury Module
UM1	1. User permissions 2. User data	User Management Module	Treasury Module

The functional hierarchy to be provided by the Treasury module is presented in Figure AD-2.

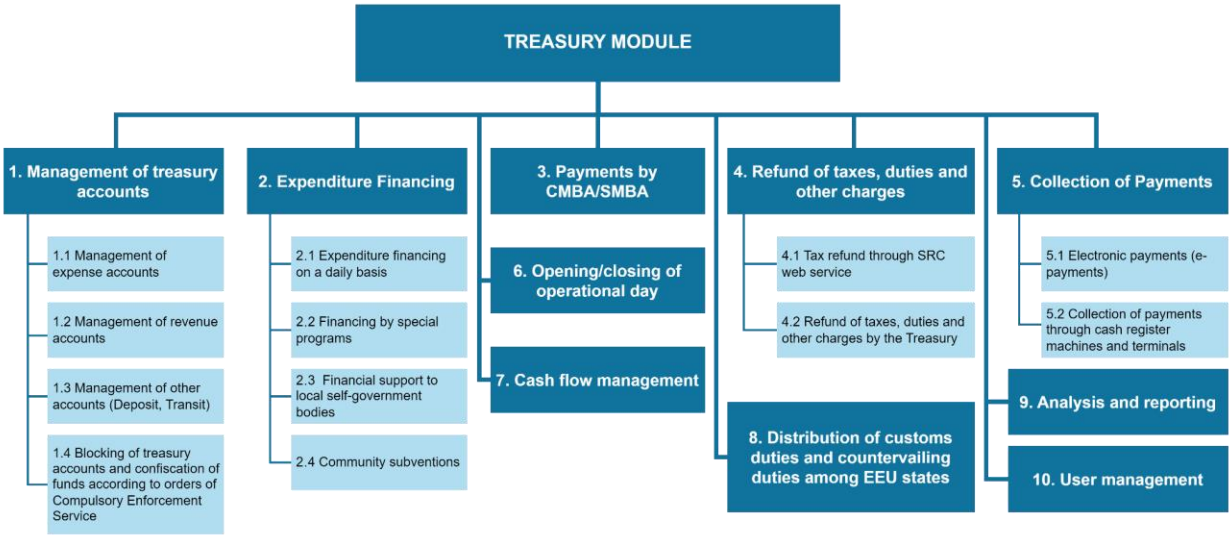


Figure AD-2: *Functional hierarchy of Treasury module*

1. Management of Treasury Accounts

The process of management of Treasury accounts includes the management of expense accounts (opening, closing, blocking), management of revenue accounts (opening, closing), management of deposit, transit accounts, as well as confiscation of funds from blocked accounts.

1.1. Management of Expense Accounts

After the approval of new expense programs, under each new program/event, expense accounts are automatically opened for the CMBA/SMBA based on the data created during the budget planning process (functional, economic classifier, balance account, responsible, executor) for separate record-keeping of the program/event expenditures.

Limits are set on all the newly opened as well as existing Treasury expense accounts according to the approved budget plan. In case the approved budget plan is changed, the limits of the expense accounts are changed accordingly. Amendments to expense implementation schedules according to program/event are carried out based on the data of budget amendments.

More than one expense account may be opened for the same event, which, having one Responsible Department, shall have different executors.

The conceptual description of the opening process of expense accounts is provided in 3.1. Opening of CMBA/SMBA expense accounts and application of limits section in GFMIS Implementation Module-Treasury Module.

1.2. Management of Revenue Accounts

Revenue accounts are opened on the basis of the electronic application of the body responsible for the organization of the collection of budget revenues or in accordance with the decree of the Government of the Republic of Armenia. The application is checked and approved by the authorized employee of Treasury Module, after adding a revenue classification code (Order No. 5 of the Minister of Finance of the Republic of Armenia dated on January 9, 2007). CMBA has access to only view the revenue accounts, that is, it is not possible to make expenses from the given account. Restatements or refunds can be made from revenue accounts.

After opening the account, the necessary data is sent to the CB to provide the requested information to the commercial banks.

The conceptual description of the mentioned process is provided in 3.2 Revenue accounts opening section of GFMIS Implementation Model- Treasury Module.

1.3. Management of Other Accounts (Deposit, Transit)

Transit and deposit accounts are used for the efficient performance of several Treasury Module functions and for separate record-keeping. Transit accounts are used for both money transfer and receipt transactions. Transit /deposit accounts are opened on the basis of RA government decrees or in cases provided by the law (for example, notaries). With these accounts, no plan is imported and no control is carried out. Control is carried out only over the account balance.

A conceptual description of the withdrawal process from the specified accounts is provided in 3.4.1. Withdrawal of funds from transit/deposit accounts section of GFMIS Implementation Model- Treasury Module.

1.4. Blocking of Treasury Accounts and Confiscation of Funds According to Orders of Compulsory Enforcement Service

Based on the orders of the Compulsory Enforcement Service, a number of treasury accounts (municipalities, SNCOs, legal entities) are blocked and confiscations are carried out on unpaid obligations in the manner and within the deadlines defined by the law.

Complete blocking may be set on the relevant treasury account, banning any debit transactions, or partial blocking may be set in a certain amount.

Based on the order to carry out confiscation on the amount, the amount is confiscated from the relevant treasury account in the following manner:

- If the account balance is sufficient, then the full amount is confiscated
- If the account balance is not sufficient, then a partial confiscation is carried out blocking in the necessary amount to the given account until the account is replenished

The conceptual description of the process is provided in 3.13.Blocking of Treasury Accounts and Confiscation of Funds According to Orders of Compulsory Enforcement Service section of GFMIS Implementation Module- Treasury Module.

Functional requirements for management of treasury accounts according to MoSCoW classification are presented in Table AD-2.

Table AD-2

1. Management of Treasury Module		**MoSCoW Classification**
1.1 Management of Expense Accounts		
1.1.1	Automatic generation of expense accounts with limits and schedules of expense implementation after the formation of the appropriate budget plan (cost estimation) in the budgeting module. ** In the case of integration with budget cost estimation.* *** Details of cost estimation data is presented in Appendix C.*	S
1.1.2	Automatic updating of data (limits, schedules) in case of changes (reallocations) of the approved budget plan. ** Details of reallocations are presented in Appendix C.*	S
1.1.3	Editing, making additions, and maintaining automatically generated account data by an authorized employee (for example, account type, expense balance account, status, etc.).	M
1.1.4	Sending notifications of opened account/s to the authorized employee of CMBA/SMBA.	M
1.1.5	Provision of user permissions for the management of the account (viewing, creation/editing, electronic signature). ** Electronic digital signature shall be applied according to Appendix B, Section 2.3, Clause GF.4.1.*	M
1.1.6	Submission of an electronic application for closing an account by CMBA/SMBA.	M
1.1.7	Opportunity for closing and blocking accounts by an authorized employee.	M
1.1.8	Ensuring the automation of the account closing process in accordance with Appendix B, Section 2.3, Clause GF.1.1.	M

1.1.9	Providing account data (API or other option) to external systems, such as CB.	M
1.1.10	Opportunity to view account balances.	M
1.1.11	Crediting and debiting accounts, creating account statements for different periods.	M
1.2 Management of Revenue Accounts		
1.2.1	Submission of an electronic application for opening a revenue account by CMBA.	M
1.2.2	Ensuring the automation of the opening process of revenue accounts in accordance with Appendix B, Section 2.3, Clause GF.1.1.	M
1.2.3	Sending notifications of opened account/s to the authorized employee of CMBA/SMBA.	M
1.2.4	Provision of user permissions to view the account (description of functional requirements for roles and authorities is provided in Appendix K- User Management Module).	M
1.2.5	Submission of an electronic application for closing an account by CMBA/SMBA.	M
1.2.6	Ensuring the automation of the closing process of revenue accounts in accordance with Appendix B, Section 2.3, Clause GF1.1.	M
1.2.7	Providing account data (API or other option) to external systems, such as CB.	M
1.2.8	Possibility for opening sub-accounts within accounts.	M
1.2.9	Possibility for viewing account balances.	M
1.2.10	Crediting of accounts, zeroing out accounts, formation of account statements according to different periods.	M
1.3 Management of Other Accounts (Deposit, Transit)		
1.3.1	Opening, closing of deposit/transit accounts.	M
1.3.2	Possibility for opening sub-accounts within accounts and conducting record-keeping (for example, according to TINs)	M
1.3.3	Possibility for making transfers between accounts, both automatically according to predefined rules and by an authorized employee.	M

1.3.4	Ensuring the automation of the multi-level (in some specific cases, two-level) process of approvals in accordance with Appendix B, Section 2.3, Clause GF.1.1.	M
1.4 Blocking of Treasury Accounts and Confiscation of Funds According to Orders of Compulsory Enforcement Service		
1.4.1	Data exchange with the CES electronic service to provide at least the following functions: ● receiving data on the status of treasury accounts, ● application of blocking, ● confiscation of funds. **In the case of integration with CES electronic system.* ***Integration is performed according to Appendix B, Section 3.1, Clause NF.1.3.2.*	S
1.4.2	Provision of an answer to the request by the authorized employee of Treasury Module through the appropriate system interface. ** In the case of integration with CES electronic system.*	S
1.4.3	Ensuring the automation of the blocking process of treasury accounts and confiscation of funds, according to Appendix B, Section 2.3, Clause GF.1.1.	M

2. Expenditure Financing

The function of state budget expenditure financing is defined by the Law of the Republic of Armenia "On the Treasury System", the charter of the Ministry of Finance of the Republic of Armenia and is carried out in accordance with the procedure established by Decision No. 706-N of the Government of the Republic of Armenia dated on June 15, 2018.

The expenditure financing is carried out in the amounts defined by the law on the state budget of the given year and in limits defined by quarterly proportions, according to the classification of budget expenditures. The expenditure financing process includes the following types:

- expenditure financing on a daily basis,
- expenditure financing with special programs,
- financial support to local self-government bodies (subsidies),
- providing subventions to municipalities

For the purpose of risk assessment along with expenditure financing the following references are prepared:

- according to functional, economic classifiers,

- comparison of previous budget years,
- programs financed from external sources,
- capital expenditure,
- reserve fund.

2.1. Expenditure Financing on a Daily Basis

In order to get financing, during each operational day the SMBAs form payment obligations in the Public Sector Accounting (PSA) module, both with purchasing and non-purchasing articles. During the approval/registration of the transactions for the formation of obligations, the system, through the exchange with the Treasury module, carries out data verification/monitoring with the approved (adjusted) budget according to the functional, economic and agency classification, as well as the payment schedule, after which, in the absence of discrepancies, the payment obligations are being approved. In case of discrepancies, the system displays an error message rejecting the registration.

On the basis of the data of financing requests formed in PSA module, after the closure of the operating day, the Treasury module forms a database summarized as of the end of the previous working day, based on which budgetary payment orders are automatically generated in the system, which clearly reflect all the expenditures subject to financing according to functional, economic and agency classification articles.

The comprehensive daily analytical report on due financing is developed and summarized, after which the turnover and balance of the treasury joint account is evaluated within the framework of flow management and forecasting of the expenditure part of the budget, and only after that, the budget payment orders become subject to verification and validation in various circles. After final verification and approval, the funds are transferred from the state general resources account to the CMBA treasury accounts. In order to assess the risks of expenditure financing, monthly and weekly reports are prepared in the Treasury module according to functional, economic and agency classification, with comparative time series of previous budget years, programs financed from external sources and capital expenditures.

The conceptual description of the mentioned process is provided in 3.3.1. Summary of obligations of SMBAs, automatic formation and implementation of financing requests /on a daily basis/ section in GFMIS Implementation Module- Treasury Module.

2.2. Financing by Special Programs

CMBA presents the calculation of implemented expenditures by a number of programs of the RA government, in particular:

2.2.1 - In the case of the presence of payment documents for the financing of the event "Providing fair financial compensation based on decrees and decisions of the European Court of Human Rights", the CMBA presents the calculation, and after verification and approval of it by the Treasury employee, request for the formation of the limit is submitted to the Budget module. After the approval of it, the Treasury employee receives a notification. CMBA/SMBA also receives a notification. After receiving

the notification, the Treasury employee forms a financing request/budget payment order, after approval of which the funds are transferred from the general state resources to CMBA treasury accounts.

2.2.2 - In case of the presence of payment documents for the financing of the event "Receptions of foreign delegations", the CMBA presents the calculation to the Treasury, and after verification and approval of it by the Treasury employee, a request for the formation of the limit is submitted to the Budget module. After the approval of it, the Treasury employee receives a notification. CMBA/SMBA also receives a notification. After receiving the notification, the Treasury employee forms a financing request/budget payment order, after approval of which the funds are transferred from the general state resources to CMBA treasury accounts.

2.2.3 - In case of the presence of payment documents for the financing of the event "Foreign Official Business Trips" The CMBA presents the calculation, and after verification and approval of it by the Treasury employee, the CMBA/SMBA receives a notification. After receiving the notification, the Treasury employee forms a financing request/budget payment order, after approval of which the funds are transferred from the general state resources to CMBA treasury accounts.

The conceptual description of the mentioned process is provided in 3.3.2. Appropriations of financing by special programs section in GFMIS Implementation Module- Treasury Module.

2.3. Financial Support to Local Self-Government Bodies

The financial support to local self-government bodies is carried out according to the approved/adjusted budget on a monthly basis.

In order to provide financial support to local self-government bodies, based on the data received from the Budgeting module, a budgetary payment order is automatically formed at the end of each month in the Treasury module. The system transfers the generated budgetary payment order to the System monitoring queue, where it is subject to verification and approval by an authorized employee. After passing the relevant checks and validations, the payment order is approved and the funds are credited to the communities' account.

The conceptual description of the mentioned process is provided in 3.3.3. Compensation for Subsidies and Losses section in GFMIS Implementation Module- Treasury Module.

2.4. Community Subventions

The subvention is provided to the community on the basis of the decision of the Government of the Republic of Armenia and its book-keeping is carried out through subvention expenditure and revenue accounts opened for that purpose.

The community may use the subvention appropriated to it based on the government's decision after fulfilling its obligations. The community uploads the documents justifying the fulfillment of its

obligations in the inset of the relevant contract in the Contracts submodule of PSA module and forms a payment request in the system, which is sent to the Treasury.

The authorized employee examines the payment request and substantiating documents. In case of discrepancies, the payment request is rejected by sending an error message to the community in the PSA module. If there are no mistakes, the transaction is approved and after system checks, the amount is credited to the subsidy expenditure account of the community.

The conceptual description of the mentioned process is provided in 3.3.4. Payment of subventions to communities from the RA state budget section in GFMIS Implementation Module- Treasury Module.

The functional requirements for expenditure financing according to MoSCoW classification are presented in Table AD-3.

Table AD-3

2. Expenditure Financing		**MoSCoW classification**
2.1 Expenditure Financing on a Daily Basis		
2.1.1	Verification of payment obligations with the approved/adjusted budget plan by functional, economic and agency classification and payment schedules. Provision of processed data (API or other version) to other modules of the GFMIS, for example, the PSA.	M
2.1.2	After the closing of the operating day, summarizing and consolidating the financing requests registered in PSA module as of the end of the previous working day and automatically forming summarized budget payment orders based on the requests. • *Financing requests are formed in the PSA module- In cash outflows.*	M
2.1.3	Ensuring the automation of the processes of forming, checking, and approving the summary budget payment order (in different circles) in accordance with Appendix B, Section 2.3, Clause GF.1.1.	M
2.1.4	Accounting, registration of financial data, updating of information on Treasury accounts balances.	M
2.2 Financing by Special Programs		

2.2.1	Forming, editing, removal and approval of the financing request by the CMBA/SMBA. The request must contain a calculation of expenditures planned for special programs.	M
2.2.2	Notification of the request to the appropriate employee of the Treasury.	M
2.2.3	• If the application is approved by the authorized employee of the Treasury, formation of the budget payment order, approval by the supervisor. • If the application is not approved by the authorized employee of the Treasury, return to editing and removal.	M
2.2.4	Accounting of financial data, registration and updating of treasury account balances.	M
2.3 Financial Support to Local Self-Government Bodies		
2.3.1	Based on the data obtained from budgeting module automatic formation and transfer of budget payment order to the system monitoring queue at the end of each month.	M
2.3.2	Notification to the authorized employee on the availability of budget payment order subject to approval.	M
2.3.3	Ensuring the automation of editing, returning, removing and approval processes of budget payment order, in accordance with Appendix B, Section 2.3, Clause GF.1.1.	M
2.3.4	Accounting, registration of financial data, updating of treasury account balances.	M
2.4 Community Subventions		
2.4.1	Receipt of subvention payment request from PSA Module.	M
2.4.2	Possibility for checking the contracts. ** Contracts are managed in a centralized way in the PSA module, the submodule of contracts.*	M
2.4.3	Ensuring the automation of the processes of providing/rejecting community subventions in accordance with Appendix B, Section 2.3, Clause GF.1.1.	M
2.4.4	Accounting, registration of financial data, updating of treasury account balances.	M

3. Payments by CMBA/SMBA

After receiving financing from the RA Ministry of Finance, the SMBAs may make payments from their cash and foreign currency accounts. Payments may be made within the limits set by the approved/adjusted budget plan according to economic classifications. The Treasury, accepting the payment assignments, after appropriate controls, makes the mentioned payments, for which the accounting formulations must be carried out in the PSA module.

The conceptual description of the mentioned process is provided in 3.4.2. Implementation of Payments by SMBA section in GFMIS Implementation Module- Treasury Module.

The functional requirements of the CMBA/SMBA payments according to the MoSCoW classification are presented in Table AD-4.

Table AD-4

3. Payments by CMBA/SMBA		**MoSCoW classification**
3.1	Automatic receipt of payments in different currencies from PSA module, with opportunity for accepting individual and group payments. ** In case of integration with the PSA module.*	S
3.2	Formation, editing, removal and confirmation of payment assignments in different currencies. ** In case of integration, conduct transfer of data to the PSA module.*	M
3.3	Implementation of controls (the amount of payment should not exceed the corresponding amount approved by the budget) according to: ● the approved/adjusted budget plan (from the budgeting module) ● contracts (from PSA module) **In case of integration with Budget cost estimation methodology and PSA module*	S
3.4	Automatic receipt of exchange rates through combination with the Central Bank.	S
3.5	Ensuring the automation of the multi-level (in some specific cases, two-level) process of approvals in accordance with Appendix B, Section 2.3, Clause GF.1.1.	M
3.6	Opportunity for using electronic signature in the process of approvals. ** Electronic digital signature shall be made according to Appendix B, Section 2.3, Clause GF.4.1.*	M

3.7	Automatic processing of payment assignments after the implementation of approvals.	M
3.8	Automatic issuing of payment assignments to the relevant electronic systems of the Central Bank in order to ensure the implementation of payments.	M
3.9	Ensuring data exchange with respect to the amounts to be debited and credited with the PSA module.	M
3.10	Accounting of debited transactions, automatic updating of account balances.	M
3.11	Generation of a unique reference number for each debit transfer.	M
3.12	Acceptance and implementation of SWIFT transfers from a joint account (including RUR transfers).	M
3.13	Automatic rejection of payment assignments received after a certain time (for example, after 03:30 p.m. according to the current order). The specified time must be regulated.	M
3.14	Transfer of amounts incorrectly transferred or rejected by a commercial bank to an interim account until the appropriate reformulation.	M
3.15	Sending notification regarding the returned amounts to the PSA module to the corresponding SMBA environment.	S

4. Refund of Taxes, Duties and Other Charges

The return of duties, taxes and other charges paid by legal persons and natural persons in cases and according to the procedure established by law is carried out through the Treasury module, in some cases using the SRC web service.

4.1.Tax Refund Through SRC Web Service

Through the SRC web service, tax refunds from the joint tax account, as well as income tax refunds within the framework of mortgage loan servicing, are carried out. The data are transferred to the Treasury through the SRC web service and are processed automatically.

The conceptual description of the mentioned process is provided in 3.5.2. Tax Refunds from Joint Tax Account section in GFMIS Implementation Module- Treasury Module.

4.2. Refund of Taxes, Duties and Other Charges by the Treasury

The following taxes, duties and other charges are refunded by the Treasury, in accordance with the law.

- State levy
- Stamp duty
- Income tax paid from dividends
- Excise tax
- Income tax for students
- Refund of Value Added Tax to foreign citizens
- Refund of security funds under procurement law

The authorized employee of the Treasury shall carry out the refund in case of the presence of the bases defined by the law and their compliance with the requirements defined by the law.

The conceptual description of the mentioned process is provided in 3.5.1. Refund of state duty, certain types of taxes, procurement funds and 3.5.3. Income tax refund within the framework of mortgage loan servicing sections in GFMIS Implementation Module- Treasury Module.

The functional requirements of refund of taxes, duties and other charges according to the MoSCoW classification are presented in Table AD-5.

Table AD-5

4. Refund of Taxes, Duties and Other Charges		**MoSCoW classification**
4.1 Tax Refund Through SRC Web Service		
4.1.1	Automatic receipt of electronic payment assignments for tax refunds from SRC IT systems. ** The integration of the Treasury module with SRC IT systems, according to Appendix B, Section 3.1, Clause NF.1.3.2.*	M
4.1.2	Ensuring the automation of processing received electronic payment assignments (4.1.1) in accordance with Appendix B, Section 2.3, Clause GF.1.1. The following conditions are checked by the current order. ● If the balance of the sub-account is sufficient, and the refund amount does not exceed one billion AMDs, then the payment is made automatically. ● If the amount of the sub-account is insufficient, the payment is rejected. ● If the amount of the sub-account is sufficient, and the refund exceeds one billion AMDs, the assignment is transferred to the monitoring queue.	M

4.1.3	Opportunity to debit funds from the sub-accounts of the joint tax account (according to TINs), as well as from transit accounts, through electronic transfer.	M
4.1.4	Creation of electronic transfer and accounting of the payment made according to the TINs.	M
4.1.5	Ensuring data exchange on electronic payments with PSA Module.	S
4.1.6	Approval, rejection of the assignment from the monitoring queue by the authorized employee.	M
4.1.7	Automatic transfer of data on completed or rejected transactions to the SRC IT systems.	M
4.1.8	Generation of an identification number of transaction implementation.	M
4.1.9	Transfer of data to CBI IT systems by electronic message in appropriate format for implementation.	M
4.1.10	In case of rejection of transaction by the commercial bank ● automatic crediting of the fund to the sub-account with the given TIN if the TIN is properly mentioned. ● automatic anty of the fund to the account for unexplained payments, if the TIN is not mentioned.	M
4.1.11	Use of interim/transit accounts for the implementation of transactions and automatic transfer of funds between accounts according to pre-created adjustable rules.	M
4.1.12	Automatic transfer of funds from the general resources account to the income tax account (for accounting purposes) based on the data received from the SRC IT systems for the purpose of income tax refund within the framework of mortgage loan servicing. Automatic transfer of funds from the income tax account to the transit account.	M
4.1.13	Data transfer in the appropriate format to the CB for implementation, according to Appendix B, Section 3.1, Clause NF.1.3.3.	M
4.1.14	In case of refusal of the transfer by the bank, automatic entry of the fund to the income tax transit account.	M
4.2 Refund of Taxes, Duties and Other Charges by the Treasury		

4.2.1	Opportunity for forming electronic payment in different currencies (Drams, Euros, USD, Rubles).	M
4.2.2	Opportunity to debit funds from the revenue account opened for the given tax type, from the sub-accounts of the given account.	M
4.2.3	Opportunity for searching treasury accounts, including by transaction number or reference number.	M
4.2.4	Opportunity for making transfers between treasury accounts (from the general resources account to the account/sub-account of the given tax type, from the main account to the transit account and vice versa).	M
4.2.5	Opportunity for selecting an expenditure article in the case of a refund to SMBA.	M
4.2.6	Ensuring the automation of the multi-level (in some specific cases, two-level) process of approvals in accordance with Appendix B, Section 2.3, Clause GF.1.1.	M
4.2.7	Opportunity for creating an electronic group payment by downloading a structured data file (in xls, xlsx, csv, json, xml formats).	M
4.2.8	Opportunity for specifying TIN during making electronic transfer and accounting of the completed payment according to TIN.	M
4.2.9	Completeness check of the recipient's bank account with a verification digit number.	M
4.2.10	Data transfer in the appropriate format to the CB for implementation, according to Appendix B, Section 3.1, Clause NF.1.3.3.	M
4.2.11	In case of rejection of the transaction by the bank, automatic entry of funds to the transit account.	M
4.2.12	Opportunity for making more than one transaction with the same reference number.	M
4.2.13	Opportunity for making a transfer to the plastic payment card of a foreign citizen.	C
4.2.14	Transfer of notification on the amounts of transactions to PSA Module.	M

5. Collection of Payments

State budget inflows are collected to income or deposit accounts opened for this purpose. Payments are collected through transfers from commercial banks to treasury accounts, through the e-payments system of state payments (including through payment terminals), as well as as a result of operations carried out through cash register machines.

5.1. E-payments

Natural persons and legal persons of the Republic of Armenia may make the payments of the state tax, local tax, charges for the services provided by the state or local self-government bodies, or administrative penalties through the www.epayments.am electronic system. Payments may be made using ArCA, VISA or MasterCard payment cards, the MobiDram system, TellCell and EasyPay payment terminals, and in the case of consular services, the PayPal system.

The payments collected through the e-payments system of state payments, through the combination with the Treasury module, are entered into the treasury account of the body responsible for the collection of the given type of income.

The conceptual description of the mentioned process is provided in 3.6. Collection of e-payments section of GFMIS Implementation Module- Treasury Module.

5.2. Collection of Payments Through Cash Register Machines and Terminals

For the services provided by the SNCOs the funds of the transactions, made by using the plastic cards of the buyers through the new generation cash register machines or POS terminals, are entered into the relevant treasury accounts after passing the necessary checks. Ensuring the necessary technical prerequisites the funds are entered through a commercial bank.

The conceptual description of the mentioned process is provided in 3.7. Collection of Payments Through Cash Register Machines/ Terminals section of GFMIS Implementation Module- Treasury Module.

5.3 Inflows From Commercial Banks to Treasury Accounts

Commercial banks deposit various amounts into treasury accounts through the BankMail system. These transfers are carried out through correspondent accounts of the Central Bank of RA. The transferred amount is deposited in the respective correspondent account of the Treasury opened in the Central Bank of the Republic of Armenia. The deposited amount is transferred through the BankMail system to the Treasury joint account.

In the Treasury the received amounts are passed various verifications, in particular, TIN, transferor and recipient data, etc. If all the necessary verifications are correct, a withdrawal of funds in the amount

of the required amount is carried out. If the verification fails, the amount is transferred back to the CB correspondent account, which, in turn, transfers it back to the relevant commercial bank.

The conceptual description of the mentioned process is provided in 3.14. Collection of Inflows Through RA Commercial Banks section of GFMIS Implementation Module- Treasury Module.

The functional requirements of collection of payments according to MoSCoW classification are presented in Table AD-6.

Table AD-6

5. Collection of Payments		**MoSCoW classification**
5.1 Electronic Payments (E-payments)		
5.1.1	Opportunity for receiving individual and group payments from the Epayments system and distributing the funds according to account holders' accounts through transit accounts. ** Integration with Epayments system.*	M
5.2 Collection of Payments Through Cash Register Machines and Terminals		
5.2.1	Exchange of transaction data with SRC IT systems through cash register machines. ** The integration of the Treasury module with the SRC IT systems, according to Appendix B, Section 3.1, Clause NF.1.3.2.*	M
5.2.2	Ensuring automation based on the data received on the transaction (5.2.1) in accordance with the process of distribution of amounts of account holders according to Appendix B, Section 2.3, Clause GF.1.1. By the current order ● In case of a positive response from the SRC, the amount will be automatically credited to the treasury account of the relevant SNCO. ● Otherwise, keeping the money in an interim account.	M
5.2.3	Withdrawal and deposit of amount from the interim account by the authorized employee to the account of the relevant SNCO.	M
5.2.4	Ensuring the automation of the multi-level (in some specific cases, two-level) process of approvals in accordance with Appendix B, Section 2.3, Clause GF.1.1.	M
5.3 Inflows From Commercial Banks to Treasury Accounts		

5.3.1	Automatic receipt (transfer) of amount from the CB correspondent account to the relevant treasury account through the BankMail system.	M
5.3.2	Opportunity for carrying out verifications of transfer (5.3.1) data: TIN, transferor and recipient data, etc.	M
5.3.3	Opportunity for approval or return based on verification (5.3.2).	M
5.3.4	Automatic return of amount to the CB correspondent account in case of return (5.3.3).	M
5.3.5	Amount distribution (withdrawal) between necessary treasury accounts, in case of approval (5.3.3).	M
5.3.6	Notification of the operation to the necessary beneficiaries: CMBA, SMBA, SRC, etc.	M
5.3.7	Ensuring automation of the process according to Appendix B, Section 2.3, Clause GF.1.1.	M

6. Opening/Closing of Operational Day

According to the results of each working day, the Treasury system closes the given operational day and opens the next operational day. At the closing of operational day, verification, summary of financial operations, update of balances take place as of the given operational day. It is not possible to perform closing of the given operational day if there are unconfirmed transactions or incomplete forms in the system.

The conceptual description of the mentioned process is provided in 3.9. Opening/Closing of Operational Day section of GFMIS Implementation Module- Treasury Module.

The functional requirements of opening/closing of operational day according to MoSCoW classification are presented in Table AD-7.

Table AD-7

6. Opening/Closing of Operational Day		**MoSCoW classification**
6.1	Downloading of the excerpt from the treasury joint account, if the CB system provides the opportunity.	S
6.2	Automatic checking, consolidation, highlighting of differences between the excerpt from the treasury joint account received from the Central Bank and the data available in the Treasury system.	M

6.3	Automatic receipt of currency exchange rates from relevant CB systems.	M
6.4	Viewing, editing, removing, confirming, rejecting transactions in the system monitoring queues.	M
6.5	Automated identification and processing of the register of group transfers and payments received in the appropriate format. ** Receipt of data from CB according to Appendix B, Section 3.1, Clause NF.1.3.3.*	M
6.6	Blocking the operation of system users at the end of the operational day, and restoring work permissions after the opening of a new day.	M
6.7	Zeroing of revenue accounts and transfer of amount to the general resources account.	M
6.8	Execution of articles resets without account restrictions and zeroing of state duty accounts.	M
6.9	Equalization of the expenditure and financing of CMBA (financial appropriations from the general resources account in the amount of the spent amount).	M
6.10	Zeroing of administrative and fund budget accounts of communities (including Yerevan city)	M
6.11	Performing system checks and displaying mistakes if found. In some cases, if mistakes are found, an opportunity for closing the operational day.	M
6.12	After the closing of the operational day, automatic opening of a new operational day according to the business calendar, in accordance with Appendix B, Section 2.3, Clause GF.5.	M

7. Cash Flow Management

The treasury, based on the balance of the general resources account, the financing schedule, as well as other necessary data requested from the analytical-reporting module, will be able to manage the funds and calculate the most effective period and the amount to be deposited from the general resources account with the help of the system.

The conceptual description of the mentioned process is provided in 3.11. Cash Flow Management section in GFMIS Implementation Module- Treasury Module.

Functional requirements of cash flow management according to MoSCoW classification are presented in Table AD-8.

Table AD-8

7. Cash Flow Management		MoSCoW classification
7.1	Opportunity to view treasury account balances.	M
7.2	Based on the necessary data received from the analytical-reporting module, effective calculation of the deposited amount and term using analytical tools.	M
7.3	Ensuring the automation of the deposit request processing and formation, in accordance with Appendix B, Section 2.3, Clause GF.1.1.	M
7.4	Transfer of approved request data to the Central Bank.	M
7.5	Transfer of approved request data to PSA Module.	M

8. Distribution of Customs Duties and Countervailing Duties Among EEU States

The distribution of customs duties and countervailing duties among EEU states is carried out in accordance with the procedure established by Appendices 5 and 8 of the Treaty on the Eurasian Economic Union. Import customs duties, as well as countervailing duties, are collected in treasury accounts opened for this purpose and as of each working day, the collected customs duties, as well as countervailing duties, are distributed among the EEU member states according to the proportions (distribution percentages) defined in Appendix 5 of the Treaty on the Eurasian Economic Union. The necessary freezing and distributions are automatically carried out and the defined reports are formed by the system.

The conceptual description of the mentioned process is provided in 3.8. Distribution of customs duties and countervailing duties among EEU states section in GFMIS Implementation Module- Treasury Module.

Functional requirements of distribution of customs duties and countervailing duties among EEU states according to MoSCoW classification are presented in Table AD-9.

Table AD-9

8. Distribution of customs duties and countervailing duties among EEU states		MoSCoW classification
8.1	Automatic receipt of data on account freezing from SRC IT systems.	M

	** The integration of the Treasury module with SRC IT systems, according to Appendix B, Section 3.1, Clause NF.1.3.2.*	
8.2	Freezing/unfreezing of amounts from treasury accounts.	M
8.3	Opportunity for making automatic transfer of amounts between Treasury accounts, according to the defined rules.	M
8.4	During the closing of the operational day, transfer of amounts to be distributed to transit accounts with percentage proportions. Repeating the process until zeroing the accounts.	M
8.5	Automatic transfer of amounts from treasury accounts to cash accounts opened for EEU member states at the Central Bank after closing of the operational day.	M
8.6	Automatic transfer of refunds to the payers according to the data received from SRC IT systems.	M
8.7	Automatic entry of exchange rate information received from EEU member states in the appropriate format. ** Receipt of data from CB according to Appendix B, Section 3.1, Clause NF.1.3.3.*	S
8.8	Automatic calculation of penalties for days past due, suspension of penalties calculation.	M
8.9	Automatic formation of reports with the defined format.	M

9. Analysis and Reporting

For the effective implementation of the treasury functions, it is necessary to provide a methodology of analysis and reporting, which assumes the implementation of several processes, particularly:

- Data collection from all necessary modules and external systems,
- Formation of static, dynamic and ad-hoc reports,
- Availability of displaying data to be published in the public domain (for example, Information Portal) in special formats: tables, graphs, diagrams, etc.

It is planned to include an Analytical-Reporting module in GFMIS, which shall ensure the equivalent implementation of the aforementioned functions for all the GFMIS modules. The detailed description and functional requirements of the Analytical-Reporting module are presented in Appendix I.

The functional requirements related to the analysis and reporting according to the MoSCoW classification are presented in Table AD-10.

Table AD-10

9. The requirements of Analysis and Reporting		MoSCoW classification
9.1 Data Warehouse **According to the requirements of the 1st section of Appendix I.*		M
9.2 Data Modeling **According to the requirements of the 2nd section of Appendix I, particularly*		M
9.2.1	Development of static, dynamic and ad-hoc reports (Appendix I 2.2.2).	M
9.3 Directory Development **According to the requirements of the 3rd section of Appendix I*.		M
9.4 Data Prevision **According to the requirements of the 4th section of Appendix I* .		M

10. User Management

User management of the treasury functions shall comply with the principles defined in the GFMIS Conceptual Model. It is planned to implement a User Management Module which should provide centralized user management of all modules (Single Sign-On authentication must be applied - one user for all modules).

Detailed description and functional requirements of User Management Module are presented in Appendix K.

APPENDIX E. Public Debt Module

Content

Introduction

Public Debt Module shall provide opportunity for implementing all the functions of public debt:

- Public debt management (formation of an instrument, attracting, repayment and servicing),
- Organization and electronic sale of government bonds auction (Allocation auction, Buyback Auction, Switch auction),
- Management of primary and secondary registry of agents.

Public debt management sub-module is planned to be included to ensure the automation of formation of a debt instrument, attracting, repayment and servicing functions, as well as the "fulfillment of obligations undertaken in relation to participation in the capital of international financial organizations" function.

It is planned to include the sub-module of government bonds auction to ensure the organization, implementation, and registration of auctions of government treasury bonds (GTB) within the framework of the Public Debt Module. It shall ensure the procurement auction of government treasury bonds (PSTB (Public Short-Term Bonds), PMTB (Public Medium-Term Bonds), PLTB (Public Long-Term Bonds), index-linked, target, etc.) by primary agents. Retail Sales sub-module shall ensure the organization, implementation and registration of electronic sales (retail) of all types of bonds (SCB (Savings Coupon Bond), PSTB (Public Short-Term Bonds), PMTB (Public Medium-Term Bonds), PLTB (Public Long-Term Bonds), index-linked, target, etc.) within the framework of the Public Debt Module. It shall ensure the online procurement of the above-mentioned bonds by citizens (residents and non-residents of the Republic of Armenia).

The inclusion of primary agents and potential participants' registry shall provide Public Debt Management Department (PDMD) employees with the opportunity to conduct an assessment of the behavior of primary agents, as well as the management of primary agents and potential participants' registry.

The Public Debt Module is planned to be included to ensure the digitization of the functions defined by the Law of the Republic of Armenia "On Public Debt" and other legal acts.

The structural scheme of the Public Debt Module, the data flow, as well as the relation to the other modules of GFMIS and external systems are presented in Figure AE-1.

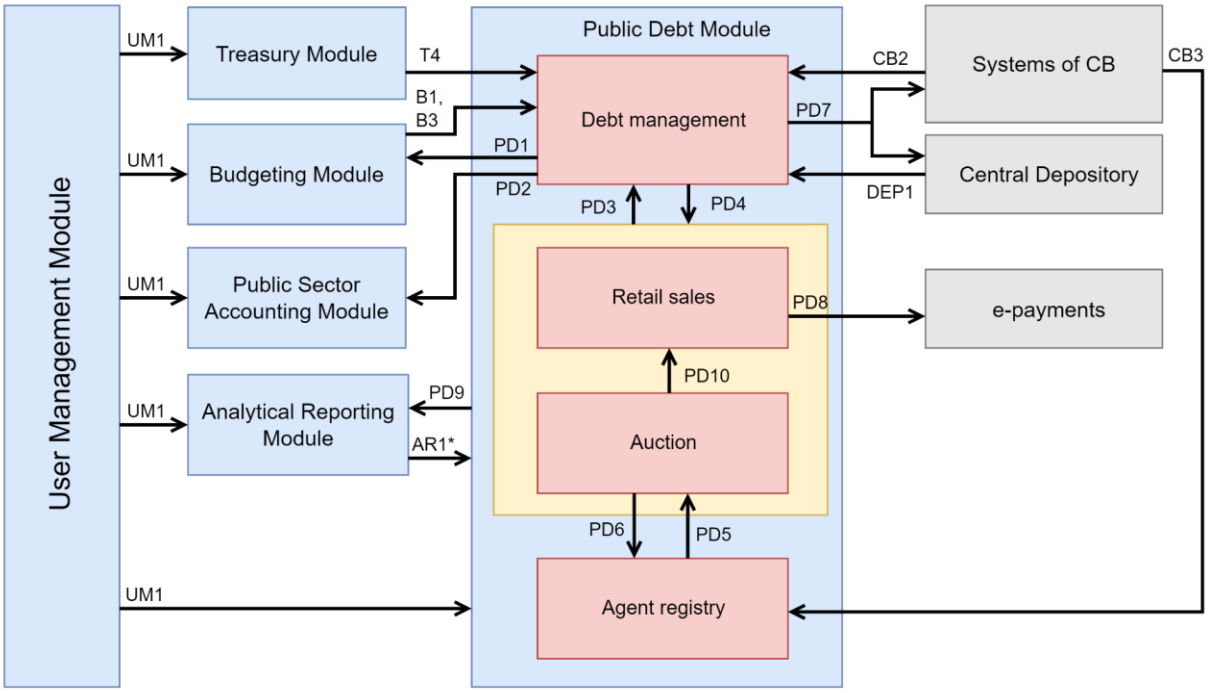


Figure AE-1. The structure of the public debt module, data flow, as well as the relationship with the other modules of GFMIS and external systems

Nature and flow of data exchange are described in Table AE-1 below.

Table AE-1. Public debt module data description

Data	Description	Source Module/Submodule	User Module/Submodule
PD1	Borrowings, debt repayments and service	Public Debt Module/ Debt management	Budgeting Module
PD2	Accounting of borrowings, Debt service and repayment 1. Contracts and conditions (appendix, schedule, other) of debt instruments (treasury bonds, foreign currency bonds, including Eurobonds, loans received from domestic and external sources) 2. Direct payments	Public Debt Module/ Debt management	Public Sector Accounting Module
PD3	1. Auction result 2. Retail sales result	Public Debt Module/ Auction and Retail sales	Public Debt Module/Debt management

PD4	Data on debt instrument	Public Debt Module/ Debt management	Public Debt Module/ Auction and Retail sales
PD5	Data on primary agents	Public Debt Module/ Agent registry	Public Debt Module/ Auction
PD6	Data of agents participated in the auction	Public Debt Module/ Auction	Public Debt Module/Agent registry
PD7	Data of Public Debt Module that will be provided to External Systems (M2*): 1. Application for granting ISIN code 2. Data on registering government bonds 3. Preliminary results of auction	Public Debt Module/ Debt management	1. Central Depository 2. Systems of CB
PD8	Data of Public Debt Module that will be provided to External Systems (M2*): 1. Data on retail sales (for electronic payment)	Public Debt Module/ Retail sales	E-payments
PD9	Analytical data of Public Debt module (M1*) 1. Analytical data (preliminary forecasts and/or timeline) for the formation of a debt instrument. 2. Data processed during auctions 3. Data processed during retail sales	Public Debt Module/ Debt management	Analytical Reporting Module
PD10	Announcement of the auction and preliminary data on the results of the auction	Public Debt Module/ Auction	Public Debt Module/ Retail sales
B1	Data on expenditures and budget withdrawal. 1. Approved budget CEO (Chief executive officer), SEO (Subordinate executive officer), program, event, classification) 2. Adjusted budget	Budgeting Module	Public Debt Module/Debt management

B3	Deficit part of the budget	Budgeting Module	Public Debt Module/Debt management
T4	Treasury inflows/outflows of public debt instruments	Treasury Module	Public Debt Module/Debt management
CB2	Data from external systems for Public Debt Module (ES1*) 1. Information on registration of bonds with the CB 2. Data of the final calculation of the auction result	Systems of CB	Public Debt Module/Debt management
CB3	Data from external systems for Public Debt Module (ES1*) 1. Activity of agents in the secondary market	Systems of CB	Public Debt Module/Agent registry
DEP1	Data from external systems for Public Debt Module (ES1*) 1. ISIN code	Central Depository	Public Debt Module/Debt management
AR1*	Analytical data generated from data from all modules and/or external systems 1. Analytical data necessary for the formation of debt instruments	Analytical Reporting Module	Public Debt Module/Debt management
UM1	1. User permissions 2. User data	User Management Module	Public Debt Module

The functional hierarchy, which shall be provided by the Public Debt Module, is presented in Figure AE-2.

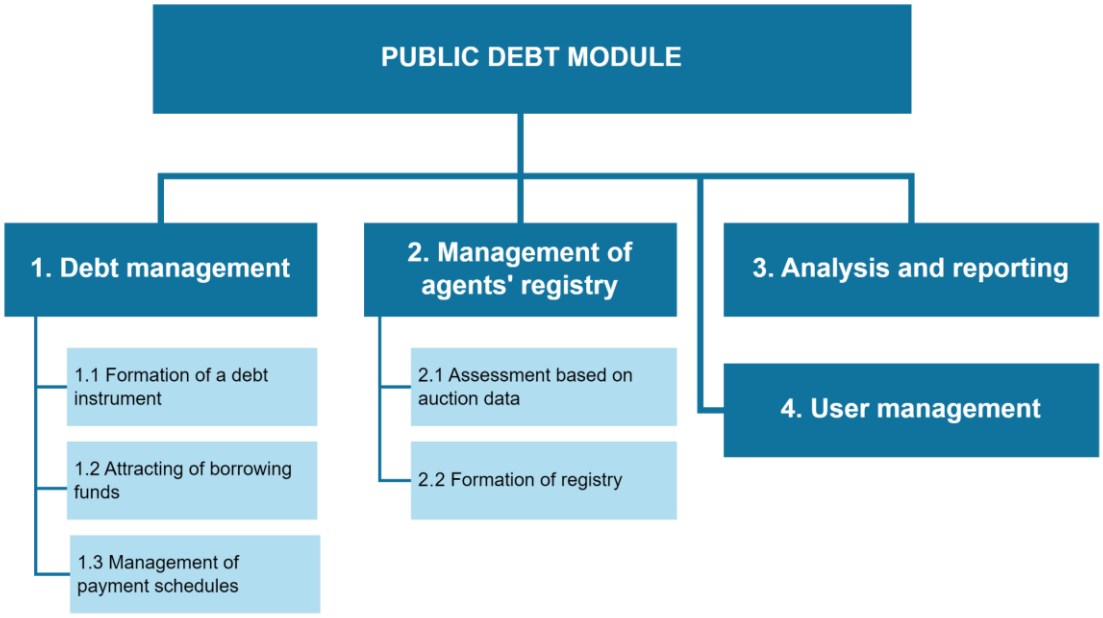


Figure AE-2. Functional Hierarchy of Public Debt Module

1. Debt Management

Public Debt Module shall provide the implementation of debt management by including in its activity:

- Formation of a debt instrument (clause 1.1),
- Attracting of borrowing funds (clause 1.2),
- Management of payment schedules (clause 1.3).

The conceptual description of the mentioned process is provided in 3.2. Attracting of Debt section of the GFMIS Implementation Module - Management of Public Debt and Obligations to the Budget Modules.

1.1 Formation of Debt Instrument

The process of formation of a debt instrument includes (Figure AE-3)

- Registration of debt instrument
- Issuance of government treasury bonds.

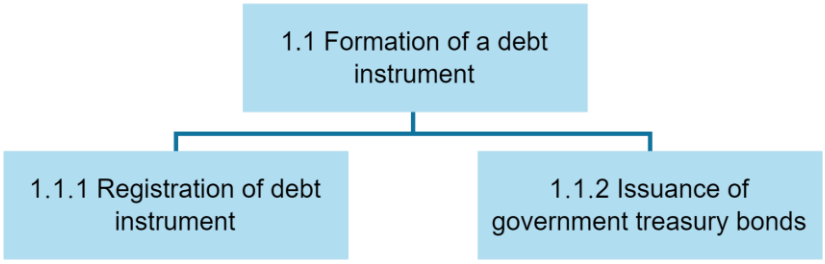


Figure AE-3. Functional Hierarchy of Formation of Debt Instrument

The conceptual description of the mentioned process is provided in the Formation of Debt Instrument section of the GFMIS Implementation Module - Management of Public Debt and Obligations to the Budget Modules.

1.1.1 Registration of Debt Instrument

To ensure the registration of a debt instrument (treasury and foreign currency bonds, domestic and external loans), first of all, it is necessary to complete the draft of the relevant order/agreement, which is then sent to the minister/deputy minister for approval/review. In case of approval, the function provided by the order is carried out.

Implementation of the process in the Debt Management sub-module shall ensure:

- Debt instrument data processing (formation, editing, removal, etc.),
- Joint work on the latter (subdivisions and minister),
- Presenting suggestions and comments to the projects,
- Processing and storage of information related to the project in a centralized electronic format, etc.

The debt management sub-module shall provide an opportunity for some automated analysis and decision-making (before approval of the order/agreement) based on the data available in the project. The implementation of this function shall be provided through the Analytical-Reporting module.

1.1.2 Issuance of Government Treasury Bonds

The process of issuing bonds shall take place in the case of approval of the order by the minister (registration of debt instruments). Then the ISIN code shall be obtained from the Depository and transferred to the Central Bank for registration. While in further processes, it shall be allowed to use only the data that is obtained from the Central Bank.

ISIN code is an international distinguishing code given to bonds and may be used as a unique identification code for trading and calculating the final payment of bonds and other financial instruments in RA and foreign bond markets, as well as for other cases.

1.2 Attracting of Borrowing Funds

The process of attracting of borrowing funds included (Figure AE-4)

- Treasury and foreign currency bonds,
- Domestic and external loans disbursement,
- Registration of communities' debt,
- Registration of SOEs' debt (50 and more percent).

The conceptual description of the mentioned process is provided in the Attracting of Borrowing Funds section of the GFMIS Implementation Module- Management of Public Debt and Obligations to the Budget Modules.

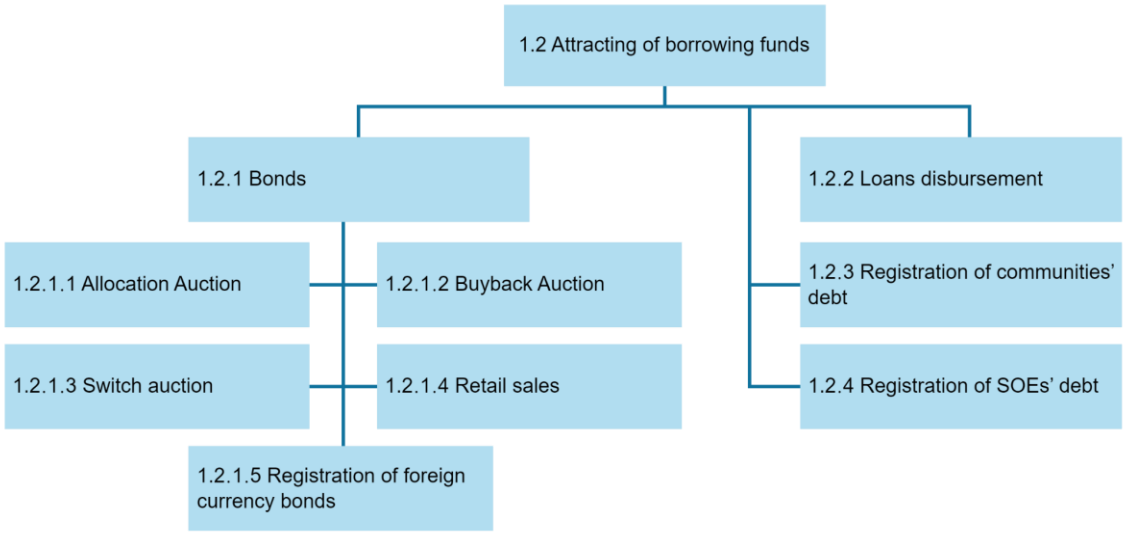


Figure AE-4 Functional Hierarchy Attracting of Borrowing Funds

1.2.1 Bonds

The following types of functions of treasury bonds, as attracting of borrowing funds, are carried out:

- Allocation auction
- Buyback Auction
- Switch auction
- Retail sales
- Foreign currency bonds

In case of allocation, buyback and switch auctions of government treasury bonds, primary agents shall have opportunity for submitting electronic requests to participate in the auction and to procure, sell or exchange bonds. Based on the results of the auctions, an evaluation shall be carried out later for managing primary agents' registry.

The retail sales shall provide opportunity for both RA resident and non-resident natural persons to purchase savings coupon bonds as well as other allocable government treasury bonds.

1.2.1.1 Allocation auction

The organization of auctions for the allocation of government treasury bonds (GTB) shall be carried out within the framework of the Public Debt Module. It shall ensure the procurement auction of government treasury bonds (PSTB (Public Short-Term Bonds), MTB (Medium-Term Bonds), LTB (Long-Term Bonds), index-linked, target, etc.) by primary agents. Information on primary agents and authorizations to participate in the allocation auction and other similar information shall be obtained from the "Agents' Registry" (Clause 2: Management of Primary Agents' Registry). There may arise a need for an additional auction, in which case actions must be performed in the same order. In the absence of an additional auction, the preliminary data must be transferred to the Central Bank for final calculation.

1.2.1.2 Buyback Auction

The functionality of the buyback auction is similar to allocation auction. However, the opposite process is carried out here: the primary agents sell back the bonds they previously obtained to the issuer through an auction. In this case, there is no opportunity for an additional auction.

1.2.1.3 Switch auction

In the case of Switch auction, the allocatable treasury bonds are exchanged for other bonds in circulation. Switch auction is the simultaneous execution of allocation and buyback auctions.

1.2.1.4 Retail Sales

Retail sales provides the sale of savings coupon bonds and other GTBs by natural persons (both RA residents and non-residents) both electronically (through the website and phone application) and with the help of representatives in commercial banks. In both cases, data verification with available balance data shall be carried out during the procurement phase to prevent the sale of unavailable bonds.

Then preliminary data is transferred to the Central Bank for the final calculation.

Data exchange with the E-payments system of state payments should be carried out at the procurement phase during Retail sales.

1.2.1.5 Registration of Foreign Currency Bonds

In relation to foreign currency bonds (including Eurobonds), registration, accounting, and later maintenance and repayment of the results of allocation implemented on international platforms are carried out.

1.2.2 Loans Disbursement

In a disbursement process a preliminary accounting of the request sent to the lender must be carried out. If it is planned that the amount must be received in the treasury account, confirmation of the fact of receiving the amount must be obtained from the Treasury Module and automatic accounting must be carried out. Otherwise (when the amount is transferred to a non-treasury account), confirmation and accounting of the receipt of the amount must be carried out by the PDMD employee by the method of entry.

The updated debt instrument data – contracts, appendix, schedule etc. must also be transferred to the Public Sector Accounting Module for accounting.

1.2.3 Registration of Communities' Debt

In terms of communities' debt, the Public Debt Management sub-module shall provide an opportunity for recording communities' debt instruments to form general reports on public debt.

1.2.4 Registration of SOEs' Debt

In terms of registration of SOEs' (50 and more percent) debt, the Public Debt Management sub-module shall provide an opportunity for only recording SOEs' (50 and more percent) debt instruments to form general reports on public debt.

1.3 Management of Payment Schedules

The compilation of schedules for repayment of ISIN codes of bonds, loans or obligations of the International Financial Organization provides the latters' generation according to a certain logic: daily, monthly, quarterly and by other calculations. In case of a change of working days or any other change, the debt instrument contracts shall be updated and sent to the Public Sector Accounting Module to arrange the scheduled payments for that day.

In case manual corrections in the schedules are needed, the schedule correction must be carried out by the PDMD authorized employee and the updated schedule must also be sent to the Public Sector Accounting Module to make the planned payments.

The conceptual description of the mentioned process is provided in the Repayment and Maintenance section of the GFMIS Implementation Module- Management of Public Debt and Obligations to the Budget Modules.

The functional requirements of Debt Management according to the MoSCoW classification are presented in Table AE-2.

Table AE-2

1. Debt Management		**MoSCoW classification**
1.1 Formation of Debt Instrument		
1.1.1 Registration of Debt Instrument		
1.1.1.1	Availability of users with appropriate roles in the system (the description of the functional requirements of roles and authorities is presented in the "User Management" section).	M
1.1.1.2	Ensuring the automation of the registration process of the debt instrument (treasury bonds, foreign currency bonds, including Eurobonds, loans received from domestic and external sources) in accordance with Appendix B, Section 2.3, Clause GF.1.1.	M
1.1.1.3	Receipt and application of necessary analytical data in the automated process.	M
1.1.1.4	Receipt and application of analytical data from the Analytical-Reporting module.	
1.1.1.5	Opportunity for using electronic digital signature in the automated process (1.1.1.2) according to Appendix B, Section 2.3, Clause GF.4.1.	M
1.1.1.6	Transfer of necessary processed data/documents to "Mulberry" system (integration).	S

1.1.2 Issuance of Government Treasury Bonds		
1.1.2.1	Data entry of the request for receiving ISIN code for the approved instrument (as a result of clause 1.1.1.2) in the defined format.	M
1.1.2.2	Interconnection (integration) of the system with the relevant electronic systems of the Depository to ensure ● the transfer of data necessary for the receipt of ISIN code, ● the receipt of ISIN code. **In the case of integration.* ***Integration is performed according to Appendix B, Section 3.1, Clause NF.1.3.2*	S
1.1.2.3	Interconnection (integration) of the system with the relevant electronic systems of the Central Bank to ensure ● the transfer of the received ISIN code data (for registration in the Central Bank), ● receipt of ISIN registration data. **In the case of integration.* ***Integration is performed according to Appendix B, Section 3.1, Clause NF.1.3.2 and 1.3.3.*	S
1.1.2.4	Publishing data on the issue.	M
1.2 Attracting of borrowing funds		
1.2.1 Bonds		
1.2.1.1 Allocation Auction		
1.2.1.1.1	Publication of an electronic announcement regarding the allocation auction.	M
1.2.1.1.2	Opportunity for completing an electronic application for participation in the allocation auction by primary agents (having the necessary permissions in the relevant registry).	M
1.2.1.1.3	Application of electronic digital signature during submission of requests in accordance with Appendix B, Section 2.3, Clause GF.4.1.	M
1.2.1.1.4	Opportunity for editing or, if necessary, canceling requests after approval.	M

1.2.1.1.5	Opportunity for forming optimal options of request data.	M
1.2.1.1.6	Selection of the preferred option from the optimal options by a user with appropriate powers.	M
1.2.1.1.7	Opportunity for conducting an additional auction, if necessary.	M
1.2.1.1.8	Interconnection (integration) of the system with the relevant electronic systems of the Central Bank to ensure ● the transfer of data necessary for the receipt of the final calculation to the Central Bank, ● receipt of the final calculation from the Central Bank. **In the case of integration.* ***Integration is performed according to Integration is performed according to Appendix B, Section 3.1, Clause NF.1.3.2 and 1.3.3.*	S
1.2.1.2 Buyback Auction		
1.2.1.2.1	Publication of the announcement of the buyback auction.	M
1.2.1.2.2	Opportunity for completing an electronic application for participation in the buyback auction by primary agents (having the necessary powers in the relevant registry).	M
1.2.1.2.3	Application of electronic digital signature during submission of requests in accordance with Appendix B, Section 2.3, Clause GF.4.1.	M
1.2.1.2.4	Opportunity for editing or, if necessary, canceling requests after approval.	M
1.2.1.2.5	Opportunity for forming optimal options of request data.	M
1.2.1.2.6	Selection of the preferred option from the optimal options by an employee with appropriate powers.	M
1.2.1.2.7	Interconnection (integration) of the system with the relevant electronic systems of the Central Bank to ensure ● the transfer of data necessary for the receipt of the final calculation to the Central Bank, ● receipt of the final calculation from the Central Bank. **In the case of integration.* ***Integration is performed according to Appendix B, Section 3.1, Clause NF.1.3.2 and 1.3.3.*	S

1.2.1.3 Switch auction		
1.2.1.3.1	Publication of the announcement of the buyback auction.	M
1.2.1.3.2	Opportunity for completing an electronic application for participation in the switch auction by primary agents (having the necessary permissions in the relevant registry).	M
1.2.1.3.3	Application of electronic digital signature during submission of requests in accordance with Appendix B, Section 2.3, Clause GF.4.1.	M
1.2.1.3.4	Opportunity for editing or, if necessary, canceling requests after approval.	M
1.2.1.3.5	Opportunity for forming optimal options of request data.	M
1.2.1.3.6	Selection of the preferred option from the optimal options by an employee with appropriate powers.	M
1.2.1.3.7	Interconnection (integration) of the system with the relevant electronic systems of the Central Bank to ensure ● the transfer of data necessary for the receipt of the final calculation to the Central Bank, ● receipt of the final calculation from the Central Bank. **In the case of integration.* ***Integration is performed according to Appendix B, Section 3.1, Clause NF.1.3.2 and 1.3.3.*	S
1.2.1.4 Retail sales		
1.2.1.4.1	Conducting retail sales of bonds in public environments through a website and mobile application. ** The technological requirements of the website and mobile application will be discussed in the preliminary study phase.*	M
1.2.1.4.2	Automatic formation of a statement on the retail sale of bonds in public environments, upon approval of the relevant debt instrument.	M
1.2.1.4.3	Submission (quantitative) of the electronic application for the procurement of bonds by users.	M
1.2.1.4.4	Automatic checking of data against available balance to prevent exceeding the limit.	M

1.2.1.4.5	Opportunity for electronic payment for the procuring bonds through the state electronic payment system (e-payments.am) in accordance with Appendix B, Section 2.3, Clause GF.2.1.	M
1.2.1.4.6	Opportunity for integration of platforms necessary for data exchange, for example, identification of users using ID card and MID at the registration stage with the data of the State Register of Legal Entities and Population of the RA Ministry of Justice, through the Government Interoperability Platform (GIP). ** According to Appendix B, Section 3.1, Clause NF.1.3.2.*	M
1.2.1.4.7	Opportunity for implementing functions for residents and non-residents. ** The procedure for registering non-resident users and managing usernames is presented in Appendix K "User management module".*	M
1.2.1.4.8	Interconnection (integration) of the system with the relevant electronic systems of the Central Bank to ensure ● the transfer of data necessary for the receipt of the final calculation to the Central Bank, ● receipt of the final calculation from the Central Bank. **In the case of integration.* ***Integration is performed according to Appendix B, Section 3.1, Clause NF.1.3.2 and 1.3.3.*	S
1.2.1.5 Registration of Foreign Currency Bonds		
1.2.1.5.1	Opportunity for manual accounting (entry) of the results of allocation of foreign currency bonds by a user with appropriate powers. ** The allocation process of foreign currency bonds is implemented on various external platforms.*	M
1.2.2 Loans Disbursement		
1.2.2.1	Accounting/correction of the request sent to the lender by ensuring automation, according to Appendix B, Section 2.3, Clause GF.1.1.	M
1.2.2.2	Automatic implementation of accounting in case of receipt of the amount to the relevant treasury account. ** In the case of integration with the Treasury Module.*	S
1.2.2.3	Implementation of manual accounting by a user with appropriate powers.	M

	** In case of receipt of disbursement amount to a non-treasury account.*	
1.2.2.4	Accounting-based, update of debt instrument data: contract, appendix, schedule.	M
1.2.2.5	Updated data transfer to Public Sector Accounting Module for accounting. ** In the case of integration.*	S
1.2.3 Registration of Communities' Debt		
1.2.3.1	Opportunity for manual registration (entry) of communities' debt by a user with appropriate powers.	M
1.2.3.2	Approval of debt already registered (by communities) through the formation of a debt instrument. ** In case the communities will register the debts according to the same principle as presented in clause 1.1.1.*	C
1.2.4 Registration of SOEs' (50 and more percent) Debt		
1.2.4.1	Opportunity for manual registration (entry) of SEOs' debts (50 percent or more) by a user with appropriate powers.	M
1.2.4.2	Approval of debt already registered (by SEOs (50 percent or more) through the formation of a debt instrument. ** In case SEOs (50 percent or more) will register the debts according to the same principle as presented in clause 1.1.1.*	C
1.3 Management of Payment Schedules		
1.3.1	Automatic generation of schedules according to a certain logic: daily, monthly, quarterly and by other calculations. ** Automatic generation shall be implemented taking into account the predefined calendar data of the system (Appendix B, Section 2.3, Clause GF.5).*	M
1.3.2	Opportunity for manual corrections and updates to schedules if needed.	M
1.3.3	Sending formed/modified schedules to the Public Sector Accounting Module to make scheduled payments for the given day.	S

	** In the case of integration.*	

2. Management of Agents' Registry

The management of agents´ registry implies

- the assessment of agents based on the data obtained as a result of auctions.
- the assessment of agents based on data available in the Central Bank and Depository on agents' behavior.
- the formation of primary agents' list based on the above assessments.

The registry data shall be used by the Auction sub-module, allowing only agents included in the primary agent list to submit electronic applications and participate in the auction.

The conceptual description of the mentioned process is provided in Assessment of primary agents' behavior section of the GFMIS Conceptual Module- Management of Public Debt and Obligations to the Budget Modules.

2.1 Assessment Based on Auction Data

Based on the data of the agents participating in the auction, PDMD carries out a subjective assessment of agents.

2.2 Formation of Registry

The formation of the registry implies the formation of lists of primary agents and potential participants, which is formed as a result of auctions and the assessments carried out on the basis of auctions, as well as the behavioral data obtained from the Depository and the Central Bank.

An indicator characterizing the agent's activity in the primary market, as well as data on violations of agents' quotation rules, must be obtained from the Armenia Securities Exchange (Depository).

And quarterly assessments shall be obtained from the Central Bank as indicators characterizing the activity of potential participants in the secondary market.

As a result of the assessments, the list of primary agents who have the opportunity to participate in government bond auctions of the given year, as well as the list of potential participants, is formed.

The opportunity to participate in government treasury bond auctions of the given year shall be provided only to participants included in the list of primary agents.

The functional requirements of Management of Registry according to MoSCoW classification are presented in Table AE-3.

Table AE-3

2. Management of Registry		MoSCoW classification
2.1 Assessment Based on Auction Data		
2.1.1	Entering subjective assessment of agents.	M
2.2 Management of Registry of Primary Agents		
2.2.1	Interconnection (integration) of the system with the relevant electronic systems of the Central Bank to ensure ● the receipt of quarterly assessments from the Central Bank. **In the case of integration.* ***Integration is performed according to Appendix B, Section 3.1, Clause NF.1.3.2.*	S
2.2.2	Interconnection (integration) of the system with the relevant electronic systems of the Depository to ensure ● the receipt of indicators characterizing agents' activity in the primary market, ● the receipt of data on violations of agents' quotation rules **In the case of integration.* ***Integration is performed according to Appendix B, Section 3.1, Clause NF.1.3.2.*	S
2.2.3	Processing of subjective assessment (2.1.1), data obtained from the Central Bank (2.2.1) and Depository (2.2.2) to form the list of potential participants and the list of primary agents.	M
2.2.4	Among the potential participants, the automatic inclusion of the participant with the most points in the list of primary agents for the next year.	M
2.2.5	Automatic removal of the last place primary agent from the list.	M
2.2.6	Automatic limitation of the number of participants included in the list (minimum 5 participants and maximum 7 by operation of the current order). ** If the number of primary agents for the current year is 5 and there are no new potential participants, the list remains unchanged.*	M

3. Analysis and Reporting

For the effective implementation of the Public Debt process, it is necessary to provide a methodology of analysis and reporting, which assumes the implementation of several processes, particularly:

- Data collection from all necessary modules and external systems,
- Conduct analyses based on collected data, e.g.
    - Development of a medium-term debt raising strategy,
    - Various forecasts, including cash flows.
- Formation of static, dynamic and ad-hoc reports, e.g.:
    - Annual Public Debt report,
    - Medium-term strategy for management of government debt,
    - Monthly statistical bulletins,
    - Reports of Order N 426-L of the Ministry of Finance of the Republic of Armenia dated on December 28, 2020.
    - Other reports.
- Availability of displaying data to be published in the public domain (for example, Information Portal) in special formats: tables, graphs, diagrams, etc.

It is planned to include an Analytical-Reporting module in GFMIS, which shall ensure the equivalent implementation of the aforementioned functions for all the GFMIS modules. The detailed description and functional requirements of the Analytical-Reporting module are presented in Appendix I.

The functional requirements related to the analysis and reporting of according to the MoSCoW classification are presented in Table AE-4.

Table AE-4

3. Analysis and Reporting		**MoSCoW classification**
3.1	**Data Warehouse** **According to the requirements of the 1st section of Appendix I.*	M
3.2	**Data Modeling** **According to the requirements of the 2nd section of Appendix I, particularly*	M
3.2.1	Development of at least the following types of report: static, dynamic and ad-hoc reports (Appendix I. 2.2.2). ● Annual Public Debt report, ● Medium-term strategy for management of government debt, ● Monthly statistical bulletins, ● Reports of Order N 426-L of the Ministry of Finance of the Republic of Armenia dated on December 28, 2020. ● Other reports.	M
3.2.2	Development of models/algorithms for making at least the following types of decisions. (Appendix I. 2.2.3). ● Development of a medium-term debt raising strategy,	M

	• Cash flow forecasts.	
3.3	**Directory Development** **According to the requirements of the 3rd section of Appendix I.*	M
3.4	**Data Prevision** **According to the requirements of the 4th section of Appendix I.*	M

4. User Management

The functions of user management of the functions of Public Debt shall comply with the principles defined in the GFMIS Conceptual Model. It is planned to implement a User Management Module which should provide centralized user management of all modules (Single Sign-On authentication must be applied - one user for all modules).

Detailed description and functional requirements of User Management Module are presented in Appendix K.

Appendix F. Obligations to the budget module

Content

Introduction

The Module of Management of the Obligations to the Budget must provide the Department of Management of the Obligations of the State Budget with the opportunity to implement the following processes:

- Provision and management of budgetary guarantees
- Provision and management of budget loans and debts
- Provision and management of promissory notes

The structural diagram of the Module of Management of the Obligations to the Budget, data flow, as well as the relations to the other modules of GFMIS and external systems are presented in Figure AF-1.

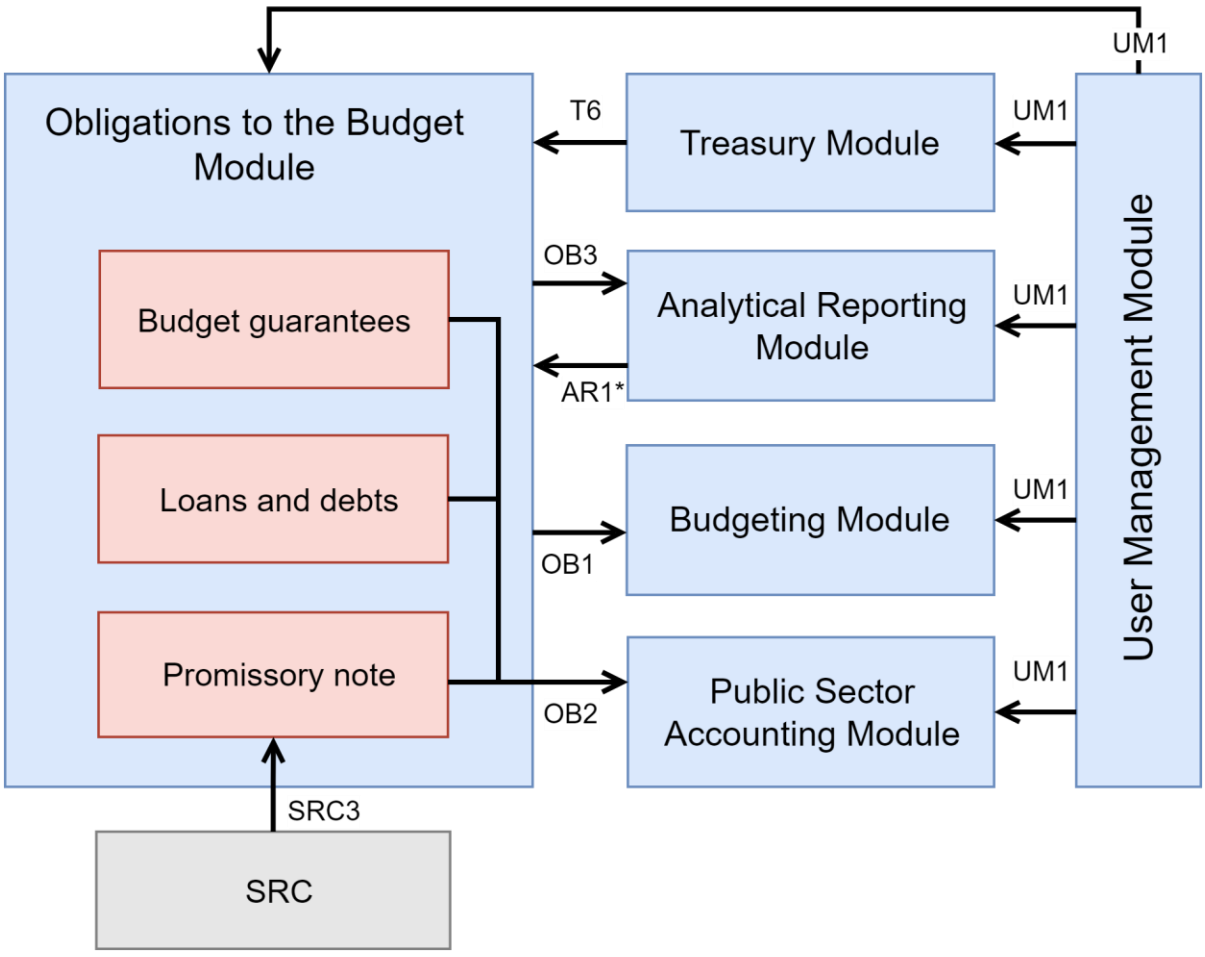


Figure AF-1. Structure of the Obligations to the budget module, data flow, and the relations to the other modules of GFMIS and external systems

The description of the data exchanged within the scope of the Obligations to the budget module, as well as exchanged with external systems, is presented in Table AF-1.

Table AF-1 Obligations to the budget module data description

Data	Description	Source Module/Submodule	User Module/Submodule
OB1	Data on issued promissory notes, loans and debts, budgetary guarantees	Obligations to the Budget Module	Budgeting Module
OB2	Accounting for promissory notes, loans and debts, issuance and repayment of budgetary guarantees	Obligations to the Budget Module	Public Sector Accounting Module
OB3	Analytical data developed in the Obligations to the Budget module (M1*) 1. Data on issued promissory notes, loans and debts, budgetary guarantees	Obligations to the Budget Module	Analytical Reporting Module
T6	Treasury inflows/outflows of budget obligation instruments	Treasury Module	Obligations to the Budget Module
SRC3	Data from external systems for Obligations to the Budget Module (ES1*) 1. Information about the possibility of settlement and state duty	SRC	Obligations to the Budget Module/Promissory note
UM1	1. User permissions 2. User data	User Management Module	Public Debt Module
AR1*	Analytical data generated from data from all modules and/or external systems	Analytical Reporting Module	Public Debt Module/Debt management

The functional hierarchy, which must be provided by the Module of Management of the Obligations to the Budget, is presented in Figure AF-2.

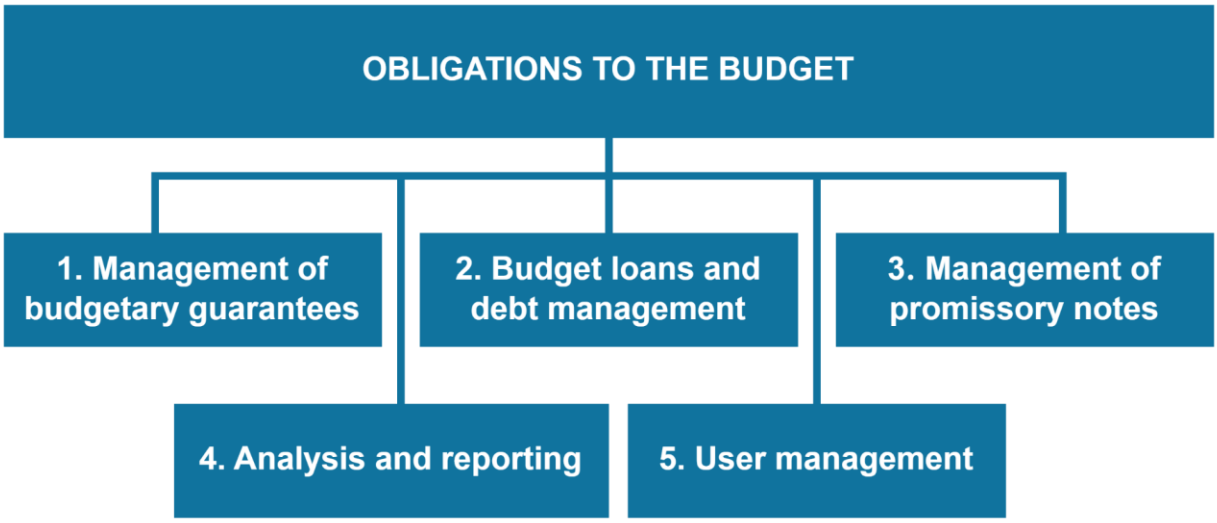


Figure AF-2. Functional Hierarchy of the Obligations to the budget module

1. Management of Budgetary Guarantees

Budgetary guarantees are a means of ensuring the fulfillment of obligations to other persons within the framework of the specified programs of local self-government bodies investing for the development of social infrastructures, or persons included in targeted programs approved by the law of national significance, or by the Government of the Republic of Armenia. The provision and management of budgetary guarantees implies receipt of the request for providing budgetary guarantee, development of the draft government decision, provision and management of guarantee.

The conceptual management of the mentioned process is provided in 3.6. Provision of Budgetary Guarantees section in the GFMIS Conceptual Module- Management of Public Debt and Obligations to the Budget Modules.

The functional requirements of Budgetary Guarantees are presented on Table AF-2.

Table AF-2

1. **Management of Budgetary Guarantees**		**MoSCoW Classification**
1.1	Entry of requests for providing budgetary guarantees.	M
1.2	Sending back the application for editing or adding a document.	M
1.3	Entering and approval of the processed and agreed draft of the government decision.	M
1.4	Data entry of pledge agreement, mortgage of real estate and chattel property.	M

1.5	Entry of the writ of removal of pledged object from attachment.	M
1.6	Accounting of budget guarantees, management of contracts.	M
1.7	Risk assessment.	M
1.8	Generating notification on guarantee/loan repayment terms, amount, or overdue obligations.	M
1.9	Ensuring the automation of the management process of budget guarantees according to Appendix B, Section 2.3, Clause GF.1.1.	M

2. Budget Loans and Debt Management

Provision and management of budget loans and debts implies the function of provision, accounting and management of loans from the state budget of the Republic of Armenia (Government Decision N 168 dated on March 9, 1998).

The conceptual description of the mentioned process is provided in 3.5. Provision of Loans, Sub-loans and Debt Management to the Budget section of the GFMIS Conceptual Module- Management of Public Debt and Obligations to the Budget Modules.

The functional requirements of Management of budget loans and debts are presented in Table AF-3.

Table AF-3

2. Management of Budget Loans and Debts		**MoSCoW Classification**
2.1	Entering requests for budget loans/sub-loans.	M
2.2	Sending back the request for editing or adding a document.	M
2.3	Calculating/entering the forecast of state budget inflows in terms of income from loans.	M
2.4	Entering the draft of the processed and agreed government decision.	M
2.5	Data entry of pledge agreement, mortgage of real estate and chattel property/ removal of pledged object from attachment.	M
2.6	Accounting, contract management.	M
2.7	Risk assessment.	M
2.8	Generating notification on guarantee/loan repayment terms, amount, or overdue obligations.	M
2.9	Ensuring the automation of the management process of budget loans and debts according to Appendix B, Section 2.3, Clause GF.1.1.	M

3. Management of Promissory Notes

Provision and management of promissory notes implies the implementation of the processes of issuance, provision and accounting of negotiable promissory notes for the amounts subject to confiscation from the state budget of the Republic of Armenia on the basis of judicial acts (Government decision N 436 dated on August 7, 2000), as well es the processes of issuance, provision and accounting of simple promissory notes by the Ministry of Finance of the Republic of Armenia based on the relevant decisions of the Government of the Republic of Armenia.

The conceptual description of the mentioned process is provided in 3.4. Provision of Simple and Negotiable Promissory Notes section of the GFMIS Conceptual Module- Management of Public Debt and Obligations to the Budget Modules.

The functional requirements of Management of promissory notes are presented in Table AF-4.

Table AF-4

3. Management of Promissory Notes		**MoSCoW classification**
3.1	Entry of agreed CES Decision (negotiable promissory note).	M
3.2	Entry of agreed RA government decision (simple promissory note).	M
3.3	Confirmation of conditions of validity.	M
3.4	Ensuring the automation of the promissory note management process according to Appendix B, Section 2.3, Clause GF.1.1.	M

4. Analysis and Reporting

For the effective implementation of the Obligation to the budget module, it is necessary to provide a methodology of analysis and reporting, which assumes the implementation of several processes, particularly:

- Data collection from all necessary modules and external systems,
- Formation of static, dynamic and ad-hoc reports, e.g.:
  - ➢ Issued budgetary guarantees by recipient and schedule
  - ➢ Budget loans and debts by recipients and schedule
  - ➢ Expected budget inflows from budget loans and debts
  - ➢ Amount and schedule of payments in the next financial year for promissory notes
- Availability of displaying data to be published in the public domain (for example, Information Portal) in special formats: tables, graphs, diagrams, etc.

It is planned to include an Analytical-Reporting module in GFMIS, which shall ensure the equivalent implementation of the aforementioned functions for all the GFMIS modules. The detailed description and functional requirements of the Analytical-Reporting module are presented in Appendix I.

The functional requirements related to the analysis and reporting of according to the MoSCoW classification are presented in Table AF-5.

Table AF-5

Requirement of Analysis and Reporting		MoSCoW classification
4.1 Data Warehouse **According to the requirements of the 1st section of Appendix I.*		M
4.2 Data Modeling **According to the requirements of the 2nd section of Appendix I, particularly*		M
4.2.1	Development of at least the following types of report: static, dynamic and ad-hoc reports (Appendix I. 2.2.2). ● Issued budgetary guarantees by recipient and schedule ● Budget loans and debts by recipients and schedule ● Expected budget inflows from budget loans and debts ● Amount and schedule of payments in the next financial year for promissory notes.	M
4.3 Directory Development **According to the requirements of the 3rd section of Appendix I.*		M
4.4 Data Prevision **According to the requirements of the 4th section of Appendix I.*		M

5. User Management

The functions of user management of the management of the obligations to the Budget shall comply with the principles defined in the GFMIS Conceptual Model. It is planned to implement a User Management Module which should provide centralized user management of all modules (Single Sign-On authentication must be applied - one user for all modules).

Detailed description and functional requirements of User Management Module are presented in Appendix K.

Appendix G. Public Sector Accounting Module

Content

Introduction

Public sector accounting is the measurement, processing and communication of financial and non-financial information of organizations.

The accounting is expected to be conducted with the accounts of the relevant chart of accounts (see the documents Study of the Structure of the PSA (Public Sector Accounting) Chart of Accounts and Economic Classifications and Proposals for Revisions or Adding Additional Elements and Alignment of the Accounts of the PSA Chart of Accounts With the Classes of Economic Classifications, which in Turn are Aligned With the Accounts of the CFS 2014 Manual) according to the accrual principle of the Standards of the PSA of RA.

Accounting consists of main and related activities.

The main functions of accounting are:

- Accounting of Tangible Assets (TA)
- Accounting of Fixed Assets (FA)
- Partners accounting
- Purchases
- Contracts
- Sales/Disposals
- Human Resources
- Payroll
- Cash Flow

In order to ensure the integrity of public sector accounting, there are related activities that are carried out with other systems, including:

- E-invoicing
- SRC
- SRP
- State Property Management Committee, Cadastre, Police
- CSIP

For the complete assurance of the public sector accounting process, it is necessary to provide also the specialists management, testing and training functions. It must also be possible to carry out the testing and later training processes of the persons who applied for the qualification of public sector accountant, and the data must be entered in the Registry. For this purpose, it is necessary for the Public Sector Accounting module to be interconnected with several modules of GFMIS: Management, Testing, Training of Specialists. The specialists' management process is the maintenance of a registry of public sector accountants based on the results of testing and training.

The structural scheme of Public Sector Accounting Module, the data flow, as well as the relation to the other modules of GFMIS and external systems are presented in Figure AG-1.

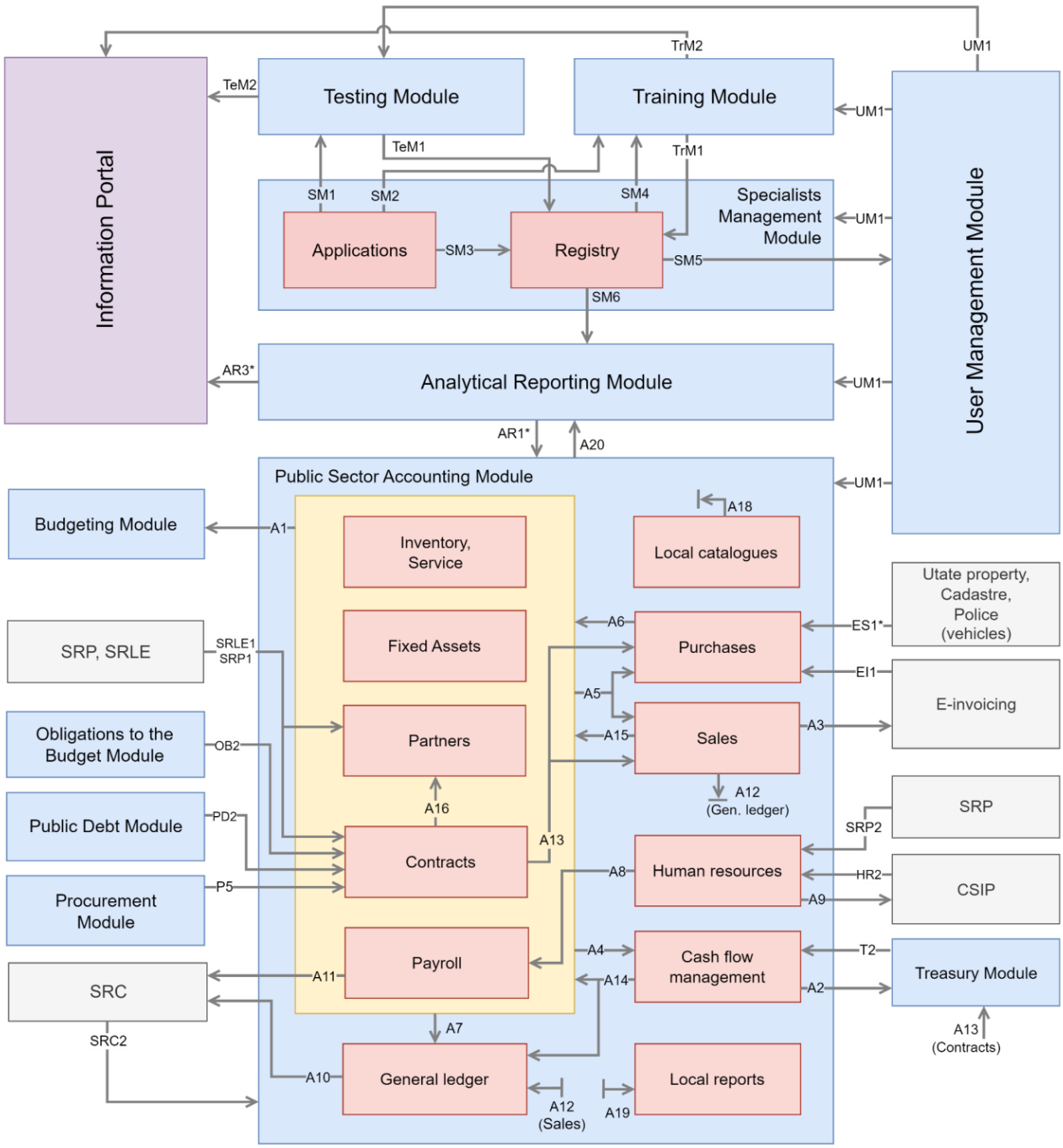


Figure AG-1. The structure of the Public Sector Accounting module, data flow and the relation to the other GFMIS modules and external systems

The data description of the Public Sector Accounting system is presented in Table AG-1.

Table AG-1. Data Description of Public Sector Accounting Module

Data	Description	Source Module/Submodule	User Module/Submodule
PD2	Accounting of borrowings, Debt service and repayment	Public Debt Module	Public Sector Accounting Module/ Contracts
P5	Procurement or Grant contracts	Procurement Module	Public Sector Accounting Module/ Contracts
OB2	Accounting for promissory notes, loans and debts, issuance and repayment of budgetary guarantees	Obligations to the Budget Module	Public Sector Accounting Module/ 1. Contracts 2. Partners
T2	Data of treasury accounts: 1. Treasury account, annual and quarterly limits of the CMBAs' account, SMBAs' account estimations and payment schedule 2. cash in/out 3. balance 4. rejected transaction data 5. exchange rates 6. EEU customs duty and countervailing duty liability data	Treasury Module	Public Sector Accounting Module/ Cash flow management
EI1	Data from external systems for Public Sector Accounting Module (ES1*) 1. Purchases made by the organization	E-invoicing	Public Sector Accounting Module/ Purchases
SRP2	Data from external systems for Public Sector Accounting Module (ES1*) 1. Personal data	SRP	Public Sector Accounting Module/ Human resources
HR2	Data from external systems for Public Sector Accounting Module (ES1*) 1. Data on employees	CSIP	Public Sector Accounting Module/ Human resources

A2	1. Summary data of certificates, obligations 2. Application for financing 3. Payment orders 4. Application for reformulation	Public Sector Accounting Module/ Cash flow management	Treasury Module
A3	Data of Public Sector Accounting Module that will be provided to External Systems (M2*): 1. Data on sales made by the organization	Public Sector Accounting Module/ Sales	E-invoicing
A9	Data of Public Sector Accounting Module that will be provided to External Systems (M2*): 1. Data on employees	Public Sector Accounting Module/ Human resources	CSIP
A1	Registered data on the basis of which the cost estimation is carried out: 1. Inventory 2. Contracts (annexes, schedules, etc.) 3. Fixed assets 4. Payroll 5. Sales 6. Partners 7. Data on cash flow	Public Sector Accounting Module: 1. Inventory 2. Contracts 3. Fixed assets 4. Payroll 5. Sales 6. Partners	Budgeting Module/ Cost estimation
A4	1. Employee debt 2. Partners debt 3. Contract management	Public Sector Accounting Module: 1. Payroll 2. Partners 3. Contracts	Public Sector Accounting Module/ Cash flow management
A5	Analytical data	Public Sector Accounting Module: 1. Inventory, Services 2. Fixed assets 3. Partners 4. Contracts	Public Sector Accounting Module: 1. Purchases 2. Sales
A6	Data on purchases	Public Sector Accounting Module/ Purchases	Public Sector Accounting Module: 1. Inventory, Services, 2. Fixed assets 3. Partners 4. Contracts

A7	Synthetic formulations and summary data: 1. Inventory 2. Services 3. Partners 4. Contracts 5. Fixed assets 6. Sales 7. Payroll	Public Sector Accounting Module: 1. Inventory, Services, 2. Partners 3. Contracts 4. Fixed assets 5. Sales 6. Payroll	Public Sector Accounting Module/ General ledger
A10	Data of Public Sector Accounting Module that will be provided to External Systems (M2*): 1. Tax reports	Public Sector Accounting Module/ General ledger	SRC
A8	Data on employees	Public Sector Accounting Module/ Human resources	Public Sector Accounting Module/ Payroll
A12	Summary data on sales	Public Sector Accounting Module/Sales	Public Sector Accounting Module/ General ledger
A14	Data on cash changes	Public Sector Accounting Module/ Cash flow management	Public Sector Accounting Module: 1. Partners 2. Contracts 3. General ledger
A11	Data of Public Sector Accounting Module that will be provided to External Systems (M2*): 1. Monthly calculation of income tax and social contributions	Public Sector Accounting Module/ Payroll	SRC
A13	Contracts and payment schedules	Public Sector Accounting Module/ Contracts	1. Treasury Module 2. Sales (PSA Module) 3. Purchases (PSA Module)
SRLE1	Data from external systems for Public Sector Accounting Module (ES1*) 1. Legal entity data	SRLE	Public Sector Accounting Module: 1. Partners 2. Contracts
SRP1	Data from external systems for Public Sector Accounting Module (ES1*): 1. Personal data	SRP	Public Sector Accounting Module: 1. Partners 2. Contracts

ES1*	Data from external systems for Public Sector Accounting Module: 1. Fixed assets property numbers and other data	External Systems 1. State property, 2. Cadastre, 3. Police (vehicles)	Public Sector Accounting Module/ Sales
AR1*	Analytical data generated from data from all modules and/or external systems 1. financial statements 2. budget performance statements (actual part) 3. GFS reporting 4. others	Analytical Reporting Module	Public Sector Accounting Module
AR3*	Public analytical or reporting data	Analytical Reporting Module	Information Portal
A15	Data on partners and contracts formed as a result of the sales	Public Sector Accounting Module/ Sales	Public Sector Accounting Module: 1. Partners 2. Contracts
A16	Data on contracts	Public Sector Accounting Module/ Contracts	Public Sector Accounting Module/ Partners
A18	Catalogues data	Public Sector Accounting Module/ Local catalogues	Public Sector Accounting Module/ all submodules
A19	Reporting data	Public Sector Accounting Module/ all submodules	Public Sector Accounting Module/ Local reports
A20	Analytical (complete) data of Public Sector Accounting Module (M1*)	Public Sector Accounting Module	Analytical Reporting Module
SRC2	Data from external systems for Public Sector Accounting Module (ES1*) 1. sales/return identification data (cash register machine receipt identification number)	SRC	Public Sector Accounting Module: 1. Cash flow management 2. Partners
TeM1	Data on tested specialists	Testing Module	Specialists Management Module/ Registry
TeM2	Public data on tested specialists	Testing Module	Information Portal

SM1	Testing applications/requests	Specialists Management Module	Testing Module
SM2	Training applications/requests	Specialists Management Module	Training Module
SM3	Data confirming the certificate or qualification accepted by the authority	Specialists Management Module/Applications	Specialists Management Module/ Registry
SM4	Data on specialists to be trained	Specialists Management Module/ Registry	Training Module
SM5	User management data on specialists - status, certification, etc.	Specialists Management Module/ Registry	User Management Module
SM6	Analytical data on specialists (M1*)	Specialists Management Module/ Registry	Analytical Reporting Module
TrM1	Data on trained specialists	Training Module	Specialists Management Module/ Registry
TrM2	Public data on trained specialists	Training Module	Information Portal
UM1	1. User permissions 2. User data	User Management Module	GFMIS Modules

The functional hierarchy, which must be provided by the module, is presented in Figure AG-2.

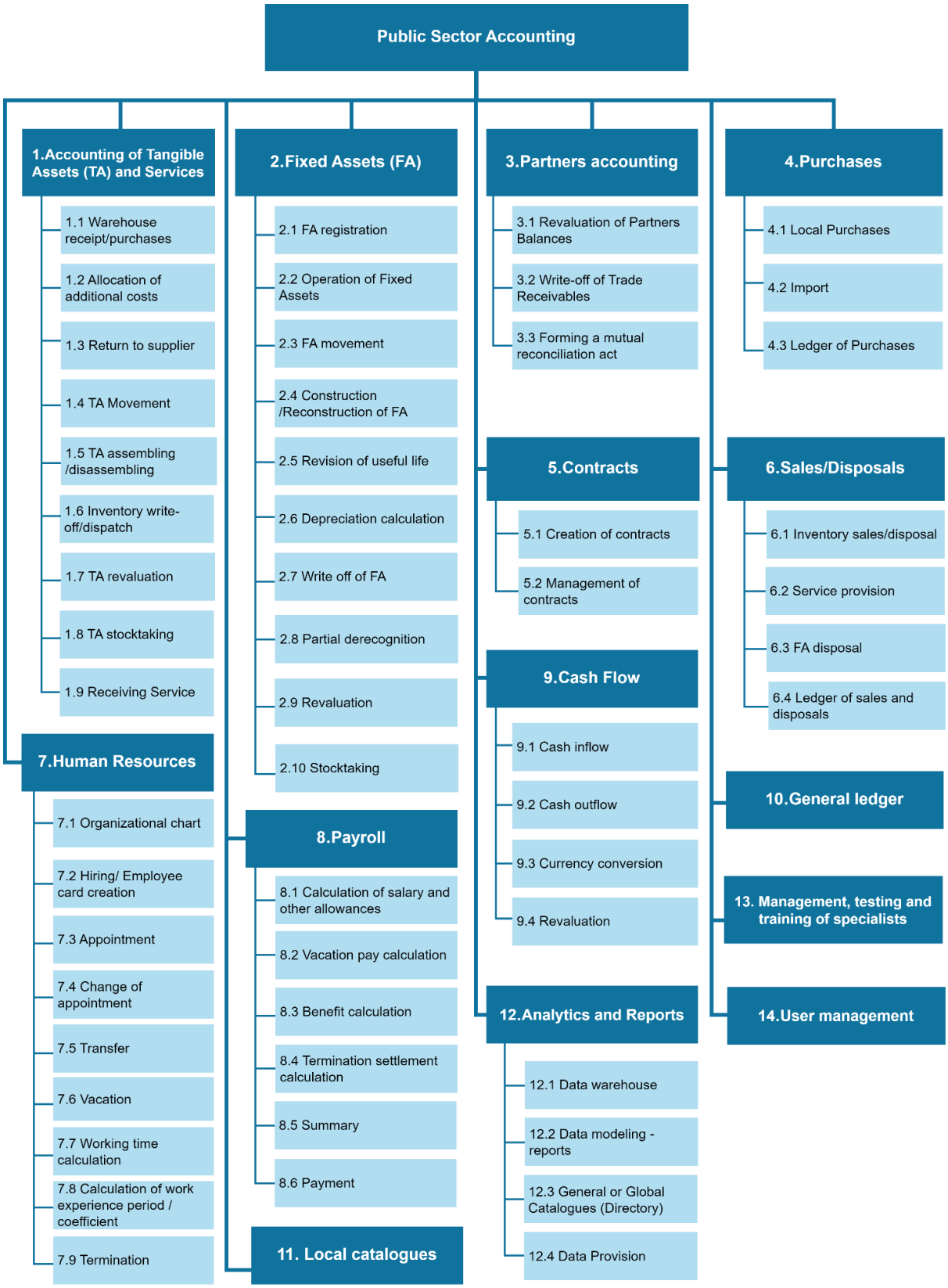

Public Sector Accounting
1.Accounting of Tangible Assets (TA) and Services
1.1 Warehouse receipt/purchases
1.2 Allocation of additional costs
1.3 Return to supplier
1.4 TA Movement
1.5 TA assembling /disassembling
1.6 Inventory write-off/dispatch
1.7 TA revaluation
1.8 TA stocktaking
1.9 Receiving Service
2.Fixed Assets (FA)
2.1 FA registration
2.2 Operation of Fixed Assets
2.3 FA movement
2.4 Construction /Reconstruction of FA
2.5 Revision of useful life
2.6 Depreciation calculation
2.7 Write off of FA
2.8 Partial derecognition
2.9 Revaluation
2.10 Stocktaking
3.Partners accounting
3.1 Revaluation of Partners Balances
3.2 Write-off of Trade Receivables
3.3 Forming a mutual reconciliation act
4.Purchases
4.1 Local Purchases
4.2 Import
4.3 Ledger of Purchases
5.Contracts
5.1 Creation of contracts
5.2 Management of contracts
6.Sales/Disposals
6.1 Inventory sales/disposal
6.2 Service provision
6.3 FA disposal
6.4 Ledger of sales and disposals
7.Human Resources
7.1 Organizational chart
7.2 Hiring/ Employee card creation
7.3 Appointment
7.4 Change of appointment
7.5 Transfer
7.6 Vacation
7.7 Working time calculation
7.8 Calculation of work experience period / coefficient
7.9 Termination
8.Payroll
8.1 Calculation of salary and other allowances
8.2 Vacation pay calculation
8.3 Benefit calculation
8.4 Termination settlement calculation
8.5 Summary
8.6 Payment
9.Cash Flow
9.1 Cash inflow
9.2 Cash outflow
9.3 Currency conversion
9.4 Revaluation
10.General ledger
11. Local catalogues
12.Analytics and Reports
12.1 Data warehouse
12.2 Data modeling - reports
12.3 General or Global Catalogues (Directory)
12.4 Data Provision
13. Management, testing and training of specialists
14.User management

Figure AG-2. Functional Hierarchy of Public Sector Accounting module

1. Accounting of Tangible Assets (TA) and Services

Analytical accounting of tangible assets (TA) in public sector organizations is quantitative accounting by locations, contracts, partners, materially responsible persons, costs, program-events, economic classifications, functional classifications and CPV codes, type of TA (raw material, fuel, stationery, etc.), individual batches, method of purchases (exchangeable/non-exchangeable). And accounting of services is accounting according to volume, amount, contracts, partners, program-events, economic classifiers, functional classifications and CPV codes.

Accounting for material assets (or stocks) includes the following functions:

1. TA purchase/warehouse receipt
2. Allocation of additional costs
3. Return to supplier
4. TA Movement
5. TA assembling/disassembling
6. Inventory write-off/dispatch
7. TA revaluation
8. TA stocktaking
9. Receiving Service

1.1 Warehouse Receipt

Warehouse receipt is the entry of tangible assets into the organization's warehouse, the data of which was formed during the purchase (see section 4. Purchase). Tangible assets are entered into the organization's warehouse/s according to individual names, types (raw materials, stationery, fuel, etc.), CPV codes, quantities and purchase costs, materially responsible person, economic classification, functional classification, program-event, method of receipt (exchangeable and non-exchangeable transaction), supplier, contract/invoice.

1.2 Allocation of Additional Costs

According to the PSA standards, the organization must include in the initial cost of the inventory all the costs related to purchases, processing, and bringing the inventory to its current location and condition. Among these costs are transportation costs, unloading, cargo insurance, customs duty, etc.

The following case may be considered as an example of allocation of additional cost. The tangible assets obtained by the organization, for which cargo transportation was carried out, the cost of the latter, by the operation of additional cost allocation, is added to the tangible assets cost and an appropriate formulation with synthetic accounts is made.

The allocation of additional costs is carried out for the tangible asset entered into the warehouse. The allocation may be made according to the selected option, on the basis of amounts, weights, volumes or quantities of goods.

1.3 Return to Supplier

In case of non-compliance with the quality, quantity, retention period, other terms of the contract, the purchased products may be returned to the supplier fully or partially. In such cases reverse entries of purchase entries are made in the accounts. In relation to each purchase, the return of tangible assets to the supplier is carried out on the basis of the relevant purchase document to ensure the correct accounting of liability to partners and quantities and amounts of tangible assets.

1.4 TA Movement

TA movement is intended to ensure the movement of tangible assets from one location to another location. During the movement of tangible assets, the materially responsible person, the economic classification, the functional classification and the program-event may also be changed.

1.5 TA Assembling/Disassembling

TA assembling is used to record the results of the production process. As a result of the process, a specified amount of tangible assets are entered into the specified location as product, and raw materials, services that are part of the product, depreciation of fixed assets and labor costs are withdrawn. The sum of the cost of tangible assets and/or services, depreciation of the fixed asset (according to the description of 2.6 Depreciation calculation), and labor remuneration as a result of the release of the product must be equal to the cost of the released product.

In the production process, disassembling is the process opposite to the assembling, it is separation of the manufactured product, obtaining raw materials from the product again. The disassembling is implemented based on released product, as a result of which the tangible assets (raw materials) are entered into the given location according to the data based on which the product was formed.

1.6 Inventory Write-off/Dispatch

Dispatch intended to ensure the expenditure recording and quantity accounting of tangible assets.

According to Standards of the PSA of RA, dispatch must be implemented by ‘’first in, first out’’ FIFO principle (FIFO method assumes that the units of inventory that are purchased or produced first are withdrawn first and therefore the units that remain in inventory at the end of the accounting period are the last purchased or produced.)

1.7 TA Revaluation

TA revaluation is carried out to ensure change of tangible assets value, pursuant to the following:

- Since being recognized as an asset, inventories must be measured at their initial cost, except for strategic inventories.
- Since being recognized as an asset, strategic inventories must be measured at fair value at the end of each reporting period.

The listed are the clauses of the standards of the PSA of RA (17.23 and 17.24). However, the change in the cost of tangible assets may be carried out according to the decisions of the Government of the Republic of Armenia as well.

1.8 TA Stocktaking

TA stocktaking is intended to carry out a quantitative comparison of the balance obtained as a result of the accounting of tangible assets in organizations and the actual balance.

Central and working commissions for stocktaking are formed in the organization for conducting inventory.

In order to regulate the deviations discovered by the stocktaking of the actual availability of assets and the data reflected in the accounting, the recommendations of the central stocktaking committee are presented to the head of the organization to make an appropriate decision.

1.9 Receiving Service

Data of Service receipt was formed during the purchase (see section 4). Services received, processed and registered in the organizations according to the service name (type), CPV codes, economic classifications, functional classifications, program-events, counterparty data, contracts, units of measure, volume and value.

1. Inventories and Services		MoSCoW classification
1.1 Warehouse Receipt		
1.1.1	Provision of tangible asset inventory entry with at least filling the following fields: ● Date (manually or automatically based on import or local procurement data - clause 4.1, 4.2) ● Document number (which must be unique for the year) ● Storage location/storage (selection from directory) ● Supplier (partners from directory) ● Contracts (contracts from directory) ● Supplier account from chart of accounts ● Purchase method (exchangeable/non-exchangeable) * ● Attached document number ● Date of attached document	M

	• VAT calculation form (without VAT, with VAT, including VAT, zero VAT) • Tangible accет code and name (selection from the directory or based on purchase) • CPV code (selection from the directory) • Economic classification (selection from the directory) • Functional classification (selection from the directory) • Program-event (selection from directory) • Unit of measurement • Quantity (manually or automatically based on import or local procurement quantitative data - clause 4.1, 4.2) • Unit of measurement (manually or automatically based on import or local procurement quantitative data - clause 4.1, 4.2) • Amount (manually or automatically based on import or local procurement data - clause 4.1, 4.2) • Net weight (for allocation of additional costs in case of import, optional field) • Volume (for allocation of additional costs in case of import, optional field) • Account of chart of accounts for tangible assets accounting (selection from directory) • Current assets deferred revenue account of chart of accounts • Current Assets revenue account of chart of accounts • Comments ** If the purchase method is non-exchangeable, a deferred revenue arises and the formulation is created with the corresponding synthetic accounts, which must be automatically formulated as the revenue of the given period during the subsequent expensing of that tangible asset.*	
1.1.2	Opportunity for registration of correspondence with synthetic (chart of accounts) accounts of warehouse receipt according to the accounts of the chart of accounts specified in clause 1.1.1. Without completing these accounts, there must not be opportunity to approve the operation.	M
1.1.3	Creation of warehouse receipt orders[32], export in xlsx, docx, PDF, xml format and printing.	M

[32] The forms are described in the order of the Minister of Finance of the Republic of Armenia No. 37 "On defining the sample forms of the initial accounting documents and accounting registers of public sector organizations" dated on February 1, 2016)

1.2 Allocation of Additional Costs		
1.2.1	Opportunity to allocate additional costs for each purchase according to any of the following option: ● Amount ● Quantity ● Net weight ● Volume	M
1.2.2	Opportunity to enter the following data for each additional cost: ● Date ● Document name ● Base document (data and serial number) ● Supplier ● Contract/invoice ● Supplier's account of chart of accounts ● Amount ● Allocation option	M
1.2.3	Ensuring correspondence with the synthetic accounts (chart of accounts) of the allocation of additional costs according to the filled-in data.	M
1.3 Return to Supplier		
1.3.1	Ensuring the return of tangible assets with at least the following data: ● Date ● Document number ● Base document ● Base document serial number ● Date of issue of the base document ● Supplier ● Contract ● Supplier's account of chart of accounts ● Place of storage of tangible asset ● VAT calculation form (without VAT, with VAT, including VAT, zero VAT) ● Tangible asset code and name (selection from directory) ● Unit of measurement (selection from directory) ● Quantity ● Unit cost ● Amount	M

	● Tangible asset account of chart of accounts (obtained automatically from warehouse receipt data)	
1.3.2	Opportunity for registration of correspondence with synthetic (chart of accounts) accounts according to the accounts specified in clause 1.3.1. Without completing these accounts, there must not be opportunity to approve the operation.	M
1.4 TA Movement		
1.4.1	Ensuring the transfer of tangible values, at least with the following data: ● Date ● Document number ● Exit location ● Entry location ● Responsible person (receiver and handover) ● Economic classifications (exit and entry) ● Functional classifications (exit and entry) ● Program-events (exit and entry) ● Accounts of Chart of Accounts	M
1.4.2	Formation of print form of the TA Movement document, print, as well as export in xlsx, docx, PDF, xml format.	M
1.4.3	Possibility of registration of correspondence with synthetic (chart of accounts) accounts of TA Movement.	
1.5 TA Assembling/Disassembling		
1.5.1.	Opportunity to reflect the results of production with at least the following data: ● Date ● Document number ● Exit location ● Entry location ● Released product ● Released product chart of accounts account ● Quantity of released products ● Expensed Tangible asset ● Service (service received by the supplier, work performed by an employee of the organization)	M

	● Tangible asset quantity ● Scope of service ● Fixed assets depreciation ● Amount	
1.5.2	To carry out the product assembly process, at least the following data are necessary to fill: ● Product ● Product quantity ● Type of component (service, raw material, fixed asset depreciation) ● Component ● Component quantity ● Allocation ratio/percentage	M
1.5.3	The sum of the cost of tangible assets and (or) services, works issued as a result of the product release must be equal to the cost of the released product.	M
1.5.4	Ensuring released product separation process, disassembling with at least the following data. ● Date ● Document number ● Exit location ● Entry location ● Released product ● Tangible asset ● Quantity ● Amount	M
1.5.5	Opportunity for registration of correspondence with synthetic (chart of accounts) accounts of the product release and separation result.	
1.6 Inventory Write-off/Dispatch		
1.6.1	Ensuring TA write-off in the warehouse with at least the following data: ● Date ● Document number (which must be unique for the year) ● Warehouse (selection from directory) ● Tangible asset	M

	● Quantity of tangible assets ● Cost (filled automatically), ● Economic classification (selection from the directory) ● Functional classification(choice from directory) ● Program-event (selection from directory) ● Expenditure Account of Chart of accounts.	
1.6.2	Ensuring ‘’first in, first out’’ FIFO method of inventory write-off.	M
1.6.3	When registering the activity, correspondence with the relevant synthetic (chart of accounts) accounts must be formed according to the filled-in data. In warehouse receipt specified in clause 1.1.1., if the purchase method is non-exchangeable and at the time of purchase, revenue is not recognized, then at the time of dispatch, the relevant revenue recognition with synthetic accounts must also be formed.	M
1.6.4	Opportunity to design the print form of the TA warehouse write-off document, print, as well as export in xlsx, docx, PDF, xml format.	M
1.7 TA Revaluation		
1.7.1	Opportunity for revaluation of tangible assets value with at least the following data: ● Date ● Document number ● Tangible asset ● Quantity ● Existing cost ● New value ● A chart of accounts account for a tangible asset ● The indicator by which the cost will be changed ● The appropriate expenditure/revenue chart of accounts account	M
1.7.2	When registering the activity, correspondence with the relevant synthetic (chart of accounts) accounts must be formed according to the filled-in data.	M
1.8 TA Stocktaking		

1.8.1	For the stocktaking of tangible assets, at least the following data is necessary to be filled-in: ● Date ● Document number ● Unit of measurement ● Accounting quantity ● Actual quantity ● Deviation ● Accounting amount ● Actual amount	M
1.8.2	After comparing the actual and accounting data, the correspondence with synthetic (chart of accounts) accounts of surplus and/or deficit must be made automatically.	M
1.8.3	Formation of the printing form of the TA stock taking list, the summary comparative documents; possibility to print, as well as export in xlsx, docx, PDF, xml formats.	M
1.9 Receiving Service		

1.9.1	Receiving service with at least the following data: ● Date ● Document number (which must be unique for the year) ● Supplier (partners from directory) ● Contract (contracts from directory) ● Supplier account from chart of accounts ● Purchase method (exchangeable/non-exchangeable) ● VAT calculation form (without VAT, with VAT, including VAT, zero VAT) ● Service code and name (selection from directory or based on purchase) ● CPV code (selection from the directory) ● Economic classification (selection from the directory) ● Functional classification (selection from directory) ● Program-event (selection from directory) ● Unit of measurement ● Volume (manually or automatically form purchase, clause 4.1, 4.2) ● Unit value (manual or automatically form purchase, clause 4.1, 4.2) ● Amount (manually or automatically form purchase, clause 4.1, 4.2) ● Current assets deferred revenue account ● Current assets revenue account ● Expenditure assount ● Comment	M
1.9.2	When registering the received service operation, generation of correspondence with synthetic (chart of accounts) accounts based on pre-filled data.	M

2. Fixed Assets

Fixed assets is intended to insure analytical accounting of each unit of non-current assets: fixed assets, high-value assets, non-produced (naturally occurring) assets, biological assets, investment property, intangible assets and other non-current assets (except for financial instruments) (hereinafter FA). Calculation must be carried out according to identified individual assets, economic classifications, functional classifications, program-events, CPV, depreciation indicator (depreciable or non-depreciable), locations, responsible persons, types of FA, useful life periods.

For each unit of fixed assets and other non-current assets, at least two analytical accountings are carried out in parallel: financial and tax (which must at least include the gross book value, accumulated depreciation, useful life, normative useful life of each unit).

In organizations, fixed assets may be obtained as a result of non-exchangeable transaction, with some terms and condition, for which deferred revenue should be recognised. In terms of the recording of the deferred revenues, the analytic recording shall at least include the gross amount of the deferred revenue for each asset unit received with a condition, the cumulative value of the amounts recognized as revenue, the conditions stipulated for the assets.

For each fixed asset or other non-current asset, the depreciable or non-depreciable indicator of that asset is defined, so that it is possible to implement different approaches to calculating depreciation for the same asset unit in different analytic recordings.

Activities carried out with fixed assets are:

1. FA registration
2. Operation of Fixed Assets
3. FA movement
4. Construction and Reconstruction of FA
5. Revision of useful life
6. Depreciation and amortization calculation
7. Write off / derecognition / partial derecognition of FA
8. Revaluation of FA
9. FA Stocktaking

2.1 FA Registration

Fixed assets registration in the organization is carried out on the basis of the purchase document, the data of which are formed in advance during the Purchase (see section 4. Purchase). The registration data are according to supplier, contract, FA name, method of purchase, property numbers, names, values, tangible responsible persons, location, FA types, useful life, economic classifications, functional classifications, CPV codes, program-events, depreciation indicator.

In order to carry out effective management of fixed assets, a unique number is issued for each fixed asset , which is not subject to change during the history of the fixed asset, and after liquidation of the fixed asset, the unique number may not be used for another fixed asset.

2.2 Operation of Fixed Assets

In organizations, fixed assets may be in different conditions: operational and non-operational. The fixed asset may not be operated from the moment of purchase. Changing the condition associated with it is carried out by the following functions:

- FA start of use

- Withdrawal from use
- Restart of use

2.2.1 FA Start of Use

FA start of use is carried out for those fixed assets that have not been put into operation since the moment of purchase. It is carried out on the basis of the purchase of the fixed asset, as well as based on the data of the current location. The data of the responsible person, economic classification, functional classification, program-event, method of purchase (exchangeable and non-exchangeable transaction), etc. are also registered.

2.2.2 Withdrawal from Use

Withdrawal from use is carried out to change the condition of the fixed assets of the organization, to temporarily withdraw from use. Depreciation indicator of fixed assets may be changed (depreciable, non-depreciable) during the withdrawal of fixed assets from use, if necessary.

2.2.3 Restart of Use

Restart of use is carried out for those fixed assets that are temporarily withdrawn from use and the restart of use is implemented. During the withdrawal from use, it is possible to change the depreciation indicators of fixed assets (depreciable, non-depreciable).

2.3 FA Movement

FA movement is the movement of fixed assets from one location to another location. During the movement of fixed assets, the responsible person, the economic classification, the functional classification and the program-event may be changed.

2.4 Construction/Reconstruction of FA

Fixed assets in organizations may be formed both through purchase and through self-construction. Reconstruction is being carried out to upgrade the fixed assets that have already been formed.

2.4.1 Construction of FA

Fixed assets may be constructed in organizations. In order to ensure this, the function of construction of FA is carried out, in which tangible assets, services, works may be a constituent part of the fixed asset according to the corresponding amount. During the creation of a new fixed asset, all the data filled-in in the analytic recording card of the FA during the FA purchase shall be filled in as well (property number, name, location, tangible responsible person, economic classification, functional classification, program-event, type of the asset, social security, depreciation indicator (depreciable or non-depreciable) etc.).

2.4.2 Reconstruction of FA

Reconstruction of FA is designed to ensure the recording of a capital expenses curried out which increase value of an already existing fixed asset in the organization. If necessary, the expenses incurred on the fixed asset may be attached to the fixed asset as a constituent part of the given fixed asset, which will make it possible to visualize the expenses incurred on the given fixed asset (tangible assets and (or) services) according to their values. As a result of the reconstruction, the useful life may be changed.

2.5 Revision of Useful Life

The useful life is the period during which the asset is expected to be available for use by the organization. The revision of UL is designed to ensure the change in the useful life of each fixed asset (the change in the accounting evaluations) (section 11. Standards of the PSA of RA).

2.6 Depreciation Calculation

Depreciation calculation is the equal allocation of the value of each fixed asset during its useful life. The calculation of depreciation is carried out according to the following separate accounting methods: financial, tax and obtained with a condition. As a result of the operation, formulations with synthetic accounts are issued according to the corresponding accounts of the chart of accounts specified in the card.

At each change of the fixed asset (movement, reconstruction, revaluation, withdrawal from use, etc.) depreciation is calculated.

2.7 Write-off of FA

Write-off of FA is the removal of fixed assets from the accounting records. As a result of this operation, current tangible assets may be registered in the warehouse. The write-off operation is also carried out with respect to fixed assets being disposed of/sold.

2.8 Partial Derecognition

Partial derecognition is the change or removal of components that are part of fixed assets. During partial derecognition, the constituent part/s of the FA may be derecognized, and the remaining part may continue to be operated with a new value and useful life. During the partial derecognition, if there are components attached to the fixed asset, the respective component/s may be modified according to their values. Otherwise, only a change in the value of the fixed asset is carried out. For example, as a result of partial derecognition, it is possible to change, remove the part attached to the fixed asset and add a tangible asset.

2.9 Revaluation

Revaluation is the change of fixed asset value and UL. Regardless of the number of revaluations of fixed assets, revaluation results are formulated in net assets or in the surplus or deficit of the given period, according to the Standards of the PSA of RA.

2.10 Stocktaking

The stocktaking is the accounting of the balance obtained as a result of the accounting of fixed assets in organizations, the actual quantitative balance and their comparison.

Central and working commissions for stocktaking are created in the organization for implementing stocktaking.

For the difference between actual and accounting balances of fixed assets, i.e. for the settlement of deviations revealed by the stocktaking, the central commission of the stocktaking submits the recommendations to the head of the organization to make an appropriate decision.

2. Fixed assets		MoSCoW classification
2.1 FA Registration		
2.1.1	Opportunity for obtaining each unit of non-current assets: fixed assets, high-value assets, non-produced (naturally occurring) assets, biological assets, investment property, intangible assets and other non-current assets (except financial instruments) with at least the following fields: ● Property number (which must be a unique, non-repeating number, not only for an individual organization, but also for all RA public sector organizations) ● Name ● Full name ● Corresponding CPV code ● Location (selection from directory) ● Materially responsible person (from the employee directory) ● Supplier (partner directory) ● Contract (directory of contracts) ● Name, number, date of issue of purchase document ● VAT calculation form (with VAT, without VAT, zero VAT) ● Method of purchase (selection from the list) ○ FA purchase without condition ○ An asset obtained conditionally from the budget in kind ○ An asset obtained conditionally in the form of financing from the budget ○ An asset obtained in kind from other organizations ○ An asset obtained conditionally in the form of financing from other organizations	M

	○ An asset obtained without the requirement of fulfillment of conditions (ex gratia). ● FA type (directory) ● FA group for tax accounting (directory) ● UL (for accounting of financial, tax and conditionally obtained FA), ● The periodicity, period, and total amount of revenue recognition for the FA obtained with a condition, for later automatic calculation and formulation of revenue. ● Depreciation indicator (depreciable or non-depreciable) ● Correspondent accounts from the chart of accounts of the public sector (for accounting of initial cost of FA, depreciation, expense, supplier, revenue according to purchase method, deferred revenue, current part of deferred revenue) ● Economic classification (from directory) ● Functional classification (from directory) ● Program-event (from directory)	
2.1.2	Group registration of similar FAs. Automatic generation of property numbers based on specified range (in case of manual filling or on the basis of purchase, clause 4.1, 4.2).	M
2.1.3	Generation of automatic formulations with corresponding synthetic (chart of accounts) accounts when registering the operation of purchase of FA, on the basis of pre-filled data.	M
2.1.4	Formation of the printing form of FA purchase document, printing, as well as the opportunity to export in xlsx, docx, PDF, xml format.	M
2.2 Operation of Fixed Assets		
2.2.1 FA start of use		
2.2.1.1	FA start of use with at least the following data: ● Start of use date ● Location ● Materially responsible person ● UL (financial, tax and obtained by condition).	M

2.2.1.2	When registering the act of FA start of use, the formulations with the corresponding synthetic (chart of accounts) accounts must be automatically formed based on the pre-filled data.	M
2.2.1.3	Formation of the printing form of FA start of use document, printing, as well as the opportunity to export in xlsx, docx, PDF, xml format.	M
2.2.2 Withdrawal from use		
2.2.2.1	FA temporary withdrawal from use with at least the following data: ● Date ● Location/structural unit ● Marerially responsible person ● Depreciable or non-depreciable indicator	M
2.2.2.2	When registering the act of FA withdrawal from use, the formulations with the corresponding synthetic (chart of accounts) accounts must be automatically formed based on the pre-filled data.	M
2.2.2.3	Formation of the printing form of FA withdrawal from use document, the opportunity to print, as well as export in xlsx, docx, PDF, xml format.	M
2.2.3 Restart of use		
2.2.3.1	Restart of use with at least the following data: ● Date ● Location/structural unit ● Tangible responsible person ● Depreciable or non-depreciable indicator	M
2.2.3.2	When registering the act of restart of use, the formulations with the corresponding synthetic (chart of accounts) accounts must be automatically formed based on the pre-filled data.	M
2.2.3.3	Formation of the printing form of restart of use document, the opportunity to print, as well as export in xlsx, docx, PDF, xml format.	M
2.3 FA Movement		

2.3.1	FA movement with at least the following data: ● Date ● Code of FA ● Name ● Exit location ● Responsible person ● Entry location ● Responsible person ● Economic classification (exit and entry) ● Functional classification (exit and entry) ● Program-event (exit and entry)	M
2.3.2	When registering FA movement operation, the FA depreciation is calculated as of that date and the formulation of correspondence with appropriate synthetic (chart of accounts) accounts are automatically issued based on the pre-filled data.	M
2.3.3	Formation of the printing form of FA movement document, printing, as well as the opportunity to export in xlsx, docx, PDF, xml format.	M
2.4 Construction/Reconstruction		
2.4.1 Construction		
2.4.1.1	Formation (construction) of the fixed asset with at least the following data: ● Property number (which must be a unique, non-repeating number, not only for an individual organization, but also for all RA public sector organizations) ● Name ● Full name ● Corresponding CPV code ● Location (directory) ● Materially responsible person (from the employee directory) ● Supplier (partner directory) ● Contract (directory of contracts) ● Name, number, date of issue of purchase document ● VAT calculation form (with VAT, without VAT, zero VAT) ● Method of purchase (selectation from the list) ○ FA purchase without condition ○ An asset obtained conditionally from the budget in kind	M

	○ An asset obtained conditionally in the form of financing from the budget ○ An asset obtained in kind from other organizations ○ An asset obtained conditionally in the form of financing from other organizations ○ An asset obtained without the requirement of fulfillment of conditions (ex gratia). ● FA type (directory) ● FA group for tax accounting (directory) ● UL (for accounting of financial, tax and conditionally obtained FA), ● The periodicity, period, and total amount of revenue recognition for the FA obtained with a condition, for later automatic calculation and formulation the revenue. ● Depreciation indicator (depreciable or non-depreciable) ● Correspondent accounts from the chart of accounts of the public sector (for accounting of initial cost of FA, depreciation, expense, supplier, revenue according to purchase method, deferred revenue, current part of deferred revenue) ● Economic classification (from directory) ● Functional classification (from directory) ● Program-event (from directory)	
2.4.1.2	Formation of the constituent part of the fixed asset with at least the following data: ● Property number ● Name ● Type of component (tangible asset, service) ● Expensed tangible asset ● Service received ● Unit of measurement ● Quantity ● Amount	M
2.4.1.3	Generation of automatic correspondence with synthetic (chart of accounts) accounts when registering the operation of FA construction , based on pre-filled data.	M
2.4.1.4	Formation of the printing form of the FA construction document, the opportunity to print, as well as export in xlsx, docx, PDF, xml format.	M
2.4.2 Reconstruction		

2.4.2.1	The FA reconstruction must include at least the following data: ● Date ● Document number ● Property number ● Name ● UL (Tax Accounting, Financial Accounting and Deferred Revenue Accounting) ● Old data ● New data ● Depreciation indicator (depreciable or non-depreciable) ● Economic classification (selection from the directory) ● Program-event (selection from the directory), ● Method of operation (exchangable/non-exchangable). ● Constituent part	M
2.4.2.2	When registering the FA reconstruction, the FA depreciation as of that date is calculated and the formulations with the corresponding synthetic (chart of accounts) accounts are automatically issued based on the pre-filled data.	M
2.4.2.3	Formation of the printing form of the FA reconstruction document, printing, as well as the opportunity to export in xlsx, docx, PDF, xml format.	M
2.5 Revision of useful life		
2.5.1	Change of useful life of fixed assets with at least the following data: ● Date ● Document number ● Property number ● UL (Tax, Financial Accounting and Deferred Revenue Accounting)) ● Depreciation indicator (depreciable or non-depreciable)	M
2.5.2	When registering the operation of FA UL change, the FA depreciation as of that date is calculated and the formulations with the corresponding synthetic (chart of accounts) accounts are automatically issued, based on the pre-filled data.	M
2.5.3	Formation of the printing form of the FA UL revision document, printing, as well as the opportunity to export in xlsx, docx, PDF, xml format.	M

2.6 Depreciation calculation		
2.6.1	Depreciation calculation must be implemented by applying the linear method. With at least two UL: for financial and tax accounting. To perform the operation, at least the following data is needed: ● Date ● Document number ● Property number ● Name ● Expense account ● Revenue account	M
2.6.2	For each change in fixed assets (movement, reconstruction, revaluation, withdrawal from use, etc.), depreciation is calculated as of the given moment.	M
2.6.3	Separate accounting for non-current assets obtained with a condition.	M
2.6.4	As a result of the depreciation calculation operation, formulations with synthetic (chart of accounts) accounts are issued automatically according to the corresponding accounts of the chart of accounts specified in the card.	M
2.7 Write-off of FA		
2.7.1	At least the following data is required for write-off of FA: ● Date ● Document number ● Property number ● Name ● Reason for write-off ● A corresponding expense account in the chart of accounts.	M
2.7.2	When registering the write-off operation, correspondence with the relevant synthetic (chart of accounts) accounts is automatically generated based on the filled-in data (depreciation calculation, book value cost expence).	M
2.7.3	Formation of the printing form of the FA write-off documents, printing, as well as the opportunity to export in xlsx, docx, PDF, xml format.	M

2.8 Partial derecognition of FA		
2.8.1	The derecognition/partial derecognition of fixed assets must include at least the following data: ● Date ● Document number ● Property number ● Name ● UL (Financial, Tax and Deferred Revenue Accounting) ● Old data ● New data ● Constituent part	M
2.8.2	When registering the partial derecognition operation, automatic generation of statements with corresponding synthetic (chart of accounts) accounts based on pre-filled data.	M
2.9 Revaluation		
2.9.1	Revaluation of fixed assets with at least the following data: ● Date ● Document number ● Property number ● Name ● UL (Tax, Financial Accounting and Deferred Revenue Accounting)) ● Depreciation indicator (depreciable or non-depreciable) ● Old initial value ● Old calculated depreciation ● New revalued value ● New revalued depreciation	M
2.9.2	Regardless of the number of revaluations of fixed assets, the corresponding synthetic formulation of the revaluation result must be automatically formed, recognized in net assets, or in the surplus or deficit of the given period, according to the standards of the PSA of RA.	S
2.10 Stocktaking		

2.10.1	To carry out the stocktaking process, stocktaking list of existing fixed assets as of a given date (as of the end of the day) with at least the following data is needed: ● Date ● Document number ● Accounting quantity ● Actual quantity ● Deviation ● Gross book value	M
2.10.2	Enter actual data manually or import from Excel.	M
2.10.3	After entering the actual data, comparing it with the accounting data, the surplus and/or deficit formulations are created automatically.	M
2.10.4	stocktaking list of fixed assets, comparative summary, design of the printing form of documents, opportunity to print, as well as export in xlsx, docx, PDF, xml format.	M

3. Partners Accounting

Partners accounting is intended to manage, create and modify data related to partners, as well as summarizing these changes and remaining balances according to synthetic accounting formulations, relevant accounts and currencies.

In order to carry out the partners accounting, a directory of partners is formed based on the data obtained from Procurement, State Debt and Obligations to the Budget. For those partners, whose data is not formed from contracts obtained from Procurement, State Debt and Obligations to the Budget, the partner data is formed manually. The data obtained from the State Debt and obligations regarding the Budget is intended for the accounting of the partners at the state level, and the data obtained from the Procurement processes is for the organization. The same partner may have different functions in different currencies, the data of which is recorded in the personal card of the partner by different accounts of the chart of accounts. In order to ensure the management of partners' data, accounting is carried out on the basis of the fulfillment of the terms of the contract, the recorded data of the schedule of payments related to them.

Partner accounting includes:

1. Revaluation of partners obligations
2. Write-off of trade receivables
3. Forming act of mutual reconciliation verification

The conceptual description of partners accounting is presented in the section 3.1 Partners Accounting of GFMIS Conceptual Model - Public Sector Accounting Module.

3.1 Revaluation of Partners Obligations

Revaluation of an obligation is carried out for partners' obligations denominated in foreign currency as of the date of each transaction (payment, purchase, other recovery etc.) and as of the end of the accounting period. The revaluation of partners obligations is carried out based on the balances of the accounts denominated in foreign currency, with the average exchange rate of the dram against the foreign currency of the given day, which is published by the Central Bank of Armenia.

3.2 Write-off of Trade Receivables

As a result of partners accounting implemented by each contracts, in case of overdue obligations, according to the order N 309-N of the RA Minister of Finance "On approving the procedure for formation of accounts receivable reserve for potential losses, recognition of receivables as bad debts, writing-off and reflecting in the accounting records" dated on June 25, 2021, the appropriate formation of provision and/or write-off of the bad debt is implemented on the basis of these data.

The receivable is considered overdue

- since the calendar day following the date of non-payment within the period specified in the contract, or
- since the calendar day following the date of non-payment within the new period in case of extending the specified term by agreement of the parties until the expiration of the repayment term specified in the contract.

In case the parties have not contractually defined the due date of the payment, the due date is considered to be the 60th day following the date of the transaction.

Based on the number of overdue days, receivables are classified into 5 classes: standard, non-standard, doubtful, risky, unreliable.

Receivables recognized as unreliable are subject to write-off only when the debtor has been declared bankrupt (insolvent) in accordance with the law "On Bankruptcy" or the impossibility of repaying the debt has been established in accordance with the law.

3.3 Formation of Act of Mutual Reconciliation Verification

The formation of the act of mutual reconciliation verification is intended to ensure the accuracy and validity of the results of the stocktakings of reconciliation with partners (debtors and creditors). It may be implemented in drams and foreign currency.

3. Partners accounting	MoSCoW classification
3.1 Revaluation of Partners Obligations	

3.1.1	Revaluation of partners obligations as of the current day by the different accounts of the chart of accounts and for the different foreign currencies (USD, EUR, RUB, etc.).	M
3.1.2	Automatic formation of the correspondence with appropriate synthetic (chart of accounts) accounts when registering the revaluation of partners obligations, based on pre-filled data.	M
3.2 Write-off of Trade Receivables		
3.2.1	Partners accounting according to the contract.	S
3.2.2	Recognition of overdue receivables ● Since the calendar day follows the date of non-repayment within the period specified by the contract. ● if the due date of the receivables is not defined according to the contract, then the due date of the receivable is considered to be the 60th day following the day of the transaction.	S
3.2.3	Write-off of bad debt.	S
3.2.4	Automatic formation of the correspondence with appropriate synthetic (chart of accounts) accounts when recording writing-off bad debts and when recording formation of provision for possible losses of receivables.	S
3.3 Forming Act of Mutual Reconciliation Verification		
3.3.1	Forming the act of verification of mutual reconciliation of debtors and creditors in drams and foreign currency.	S

4. Purchase

The purchase is the formation of assets in organizations and the receipt of services. According to the degree of realization, assets are divided into current (inventory) and non-current (fixed) assets. Purchase may be carried out in the territory of RA and from other countries.

Purchase options are:

1) Local purchase
2) Import

The local purchase process is based on invoice and return documents obtained from the e-Invoicing system. On the basis of the obtained data, inventory purchase and/or FA purchase and/or received service are formed.

The conceptual description of the purchase process is provided in the section 3.2 Purchase Process of the GFMIS Conceptual Model - Public Sector Accounting Module.

4.1 Local Purchase

In case of local purchase, data import is carried out directly on the basis of invoices obtained from the e-Invoicing system. In the purchase process, information is processed according to contracts, data of the partner, economic and functional classifications, program-event, CPV codes, etc. Local purchase is implemented in AMD. If the data is absent in the e-Invoicing system, then in such a case data input is performed manually using the appropriate function (for example, in the case of inventory received free of charge, based on the order).

4.2 Import

Purchase from other countries is considered an import. Data processing is carried out according to the data specified in the invoice, contracts, partners. In this case, the purchase price is indicated in foreign currency and at the appropriate exchange rate, by which the value of the product or service was fixed in dram. In case of import, data processing is carried out manually.

At the time of import, additional costs (cargo transportation, cargo insurance, expertise expenses, cardo loading, customs duty, etc.) are allocated (see clause 1.2 Allocation of additional costs), each one according to a pre-selected indicator, based on the amounts, weights, volumes or quantities of the imported goods.

4.3 Ledger of Purchases

The history of documents related to purchases is recorded in the ledger of purchases. For the specified period, it is recorded according to the type of document, date, partner, contract, economic and functional classification, program-event, CPV code, amount, currency, etc.

4. Purchase		MoSCoW classification
4.1 Local purchase		
4.1.1	Downloading the appropriate invoice (received invoices) from the E-invoicing system.	M
4.1.2	Data processing according to the data of the invoice (partner, contracts, inventory and/or FA and/or service (adjustment or addition to the inventory, service directory are made).	M

4.1.3	Selection of the appropriate function based on the obtained data (purchase of inventory, FA purchase and received service).	M
4.2 Import		
4.2.1	Import data input (date, inventory list, unit of measurement, counterparty, foreign currency, etc.).	M
4.2.2	Attachment of import documents (invoice, customs declaration, etc.).	M
4.3 Ledger of Purchases		
4.3.1	Registration of purchases (local purchase and import) with at least the following data (Ledger of Purchases): ● Date ● Document type ● Document number ● Partner ● TIN ● Currency ● Amount	M
4.3.2	The ability to export the Ledger of Purchases in at least the following format: xlsx, docx, PDF.	

5. Contracts

A contract is a legally binding agreement between two or more parties that outlines the terms of rights and obligations of each party. Defining the terms of the contract provides a framework for each party to resolve disputes or resolve potential violations of the agreement.

Formed (signed/approved) contracts (for example, contracts formed from procurement, public debt modules) are planned to be managed in one environment, which implies recording of the conditions of contracts, timely fulfillment of the conditions.

The schedule of work execution or purchase of goods, the list of CPV, as well as the payment schedule, are considered parts of the contract.

- Creation of contracts
- Management of contracts.

5.1 Creation of Contracts

Creation of contracts involves the process of forming a legally binding agreement between two or more parties. Organizations may have functions (leases provide by the organization, loan agreements, etc.) for which the contracts created in the below version (see clause 5.2) may not be obtained automatically, These contracts must be created manually to ensure accounting.

5.2 Management of Contracts

Management of contracts is designed to ensure compliance with the terms of the contract execution and management process between two or more parties. It covers the entire life cycle of the contract, and up to continuous monitoring, performance assessment, final termination or renewal.

Management of contracts may be at the level of any organization or state. The creation of contracts at the level of organizations is carried out in the procurement process, and at the level of the state, from the Public Debt and Obligations to Budget Management module. After the creation/receipt of the contract, the data on the performance of the contract is formed as a result of purchase, payment and other transactions.

5. Contracts		**MoSCoW classification**
5.1 Creation of Contracts		
5.1.1	Creation of contracts with at least the following data: ● Date of contract ● Start of contract execution ● End of contract execution ● Data of the counterparty (Name, bank account, TIN, address, etc.) ● Amount ● Payment schedule ● Made payment ● CPV list ● Subject of the contract	M
5.2 Management of contracts		
5.2.1	Automatic recording of the contracts formed in the Procurement module **In case of integration with the Purchase module.*	S

5.2.2	Automatic loading/accounting of the contracts from the Public Debt module in order to ensure the contract management related to public debt. **In case of integration with the Public Debt module.*	S
5.2.3	Automatic loading/accounting of the contracts from the Obligations to Budget Management module in order to ensure the contract management related to public debt. **In case of integration with the Obligations to the Budget module.*	S
5.2.4	Ensuring compliance with purchase, payment and other terms of contract performance.	M

6. Sales/Disposals

Sale is the transfer by the organization of ownership rights and other property rights, exclusive rights to the results of intellectual activity (intellectual property), provision of services to another person. It is implemented in the following versions: wholesale and retail.

Wholesale is a process of selling goods and services to legal entities. The seller provides the buyer with a invoice for the sale made.

Retail sale is a process of selling goods and services to physical persons (individuals) in small quantities. In case of retail sales, the seller issues a cash receipt to the buyer.

6.1 Sale of Inventory

Inventory disposal is the registration of the wholesale and retail sale of inventory by organizations, as well as the functions of free-of-charge provision.

The wholesale of inventories is carried out on the basis of data processing according to contracts, partners, type of sale (inventory, service, fixed asset), method of sale. When selecting an inventory, the balance of that inventory by batch is visible. In the case of wholesale, the data is transferred to the E-invoicing system to register the sale in the tax system, except for free-of-charge provision of inventories. In this case, specifying the method of sale as free-of-charge, data processing is carried out according to the order and/or contracts, partners.

In the case of retail sales, inventory analytical data is filled in by code, name, unit of measurement, etc., and also, by selecting the inventory, the balance of the specified inventory at the given time may be seen by batch. In the case of retail sale, filling out the contract field and maintaining the personal card of individuals at the partner level is not mandatory. In the case of retail sales, integration with the cash register machine is implemented to print a cash receipt at the time of sale.

The conceptual description of the processes of wholesale and retail sale is provided in sections 3.3 Wholesale and 3.4 Retail sale of the GFMIS Conceptual Model - Public Sector Accounting Module.

6.2 Service Provision

The provision of services by organizations is carried out by wholesale and retail sale processes. In the case of wholesale, the services provided by the organization are conducted according to the contracts, partners, sale method, data of the services provided (from the service directory). In case of wholesale, the data is transferred to the E-invoicing system to register the sale in the tax system, except for free-of charge provision. In this case data processing is carried out according to the order and/or contracts, partners specifying the method of sale as free-of charge.

Analytical data to be filled in case of retail sales are service code, name, unit of measurement, scope of service, amount, etc. In the case of retail sale, filling out the field of the contract is not a mandatory, as well as managing the personal card of physical persons at the partner level. In the case of retail sales, integration with the cash register device is implemented to print an automatic cash register receipt at the time of sale.

6.3 FA Sales

Sales of Fixed Assets by organizations is intended to perform FA selling and the function of free-of charge provision. The FA sales shall be done through wholesale. The registration of the FA sale is carried out according to the partners, contracts, method of sale, data on FA from the list of written-off Fixed Assets. In case of Fixed Assets sale, the data is transferred to the E-invoicing system in order to register the sale in the tax system, except for free-of charge provision. In this case, specifying the method of sale as free-of charge, data processing is carried out according to the order and/or contracts, partners.

6.4 Ledger of Sales and Disposals

The sales logbook reflects the history of the sales made by organizations. For the indicated period, it is reflected according to the document type, date, partner, amount, currency, economic and functional classifications, program-events, etc.

6. Sales/Disposals		MoSCoW classification
6.1 Inventory sales		
6.1.1	Registration of inventory sales with at least the following data ● Date ● Document number ● In case of wholesale, serial number ● Partner ● Method of sale ● Contract	M

	• VAT recording attribute • Inventory code • Name • Unit of measurement • Quantity • Unit value • Amount • Accounts of chart of accounts • Economic classification • Functional classification • Program-event	
6.1.2	Generation of automatic correspondence with synthetic (chart of accounts) accounts when registering the inventory disposal, based on pre-filled data.	M
6.1.3	Data transfer to E-invoicing system in case of wholesale.	S
6.1.4	In case of retail sale, integration with a cash register machine for printing a cash receipt.	S
6.2 Service Provision		
6.2.1	Service provision with at least the following data • Date • Document number • In case of wholesale, serial number • Partner • Method of sale • Contract • VAT recording attribute • Service code • Name • Unit of measurement • Volume • Unit value • Amount • Accounts of chart of accounts • Economic classification • Functional classification • Program-event	M
6.2.3	When registering the service provision process, generation of automatic correspondence with synthetic (chart of accounts) accounts based on pre-filled data.	M

6.2.4	Data transfer to E-invoicing system in case of wholesale.	S
6.2.5	In case of retail sale, integration with a cash register machine for printing a receipt.	M
6.3 FA disposal		
6.3.1	Sale of fixed assets with at least the following data ● Date ● Document number ● In case of wholesale, serial number ● Partner ● Method of sale ● Contract ● VAT recording attribute ● FA code ● Name ● Unit of measurement ● Quantity ● Unit value ● Amount ● Accounts of chart of accounts ● Economic classification ● Functional classification ● Program-event	M
6.3.2	Generation of automatic correspondence with synthetic (chart of accounts) accounts when registering the FA sales, based on pre-filled data.	M
6.3.3	Data transfer to E-invoicing system.	S
6.4 Ledger of sales and disposals		
6.4.1	Registration of ledger of sales and disposals with at least the following data: ● Date ● Document number ● Serial number ● Partner ● Contract ● VAT recording attribute ● Type of operation (sale, disposal) ● Type of sale (retail, wholesale) ● Code (FA, inventory and service) ● Name	M

	• Unit of measurement • Quantity • Unit value • Amount • Accounts of chart of accounts • Economic classification • Functional classification • Program-event	

7. Human Resources Accounting

In public sector accounting processes, human resources accounting is the processing of necessary employee data with minimal internal human resources management processes that will will facilitate the automated calculation of wages and receipt of reports..

The calculation of salary and formation of the necessary reports is possible based on the results of the following functions:

- Organization structure (departments and positions)
- Hiring
- Appointment to position
- Change of position
- Shift/Transfer/Business trip
- Vacation
- Work time calculation
- Work experience calculation/ Coefficient calculation
- Dismissal

The "Civil Service Information Platform" (CSIP) was developed and implemented by the RA government, which enables state administration bodies to access to recording personnel information about their imployees (position passport, code, vacancy information, etc.), as well as performing the above functions. If possible (i.e. only in the case of public administration bodies), the data processed in the CSIP may be used for salary calculation. For those organizations that do not have a system performing such functions, it is necessary to process the mentioned information to calculate a salary.

The conceptual description of the human resources accounting process is provided in the 3.5 Human Resources Accounting section of GFMIS Conceptual Model - Public Sector Accounting Module.

7.1 Organizational Chart

The Organizational chart contains information on departments and positions on a hierarchical basis. The hierarchy of the organization's precisely formed divisions, the formation of positions within the department, the designation of positions and appointments (details in clause 7.3) allow employees to receive various reports according to the specified hierarchy levels, types of positions, etc.

7.2 Hiring

Hiring is carried out on the basis of signing the contract. By signing the contract, the employee accepts the conditions offered by the organization. For hiring, employee data collection (personal and passport data, date of hiring, work experience period, profession, etc.) and appointments (clause 7.1) are carried out.

7.3 Appointment

The selection of the type of salary of the employee is carried out by the appointment function. The types of wage are as following:

- fixed monthly salary,
- coefficient salary,
- hourly wage,
- transactional wage.

In case of an appointment with a fixed monthly salary, the monthly salary value for the given position is set by the employer, which may be changed subsequently.

The calculation of the coefficient and its change is carried out according to the current legislation (the RA law “On remuneration of persons holding public positions and public service positions”, the RA Labor Code, the RA law “On Civil Service”), according to the position, rank, work experience period, etc. The coefficient is set to calculate the wage of public position holders, which is carried out by multiplying the basic salary by the coefficient.

In case of an hourly paid position, the value of one hour for given position is defined. The salary calculation for this type of position is made by multiplying the worked hours by the value of one hour.

In case of a transactional wage, the value of work unit of the given position is defined (it may be changed subsequently). The wage calculation for this type of position is made by multiplying the work performed by the employee (quantitative) by the value set for the work unit.

The same employee may be assigned to one or more types of wages.

7.4 Change of Appointment

The change of salary is the change of the value and/or coefficient defined by the given position as of any date, based on which it will be possible to make an accurate salary calculation, separating the values before and after the change.

7.5 Transfer/ Business Trip

7.5.1 Shift/Transfer

Each employee, at a specific moment, may be assigned to only one position.

According to RA law “On Civil Service” it is possible shifing among the civil servant holding equal civil service positions within the structural units of the same organization. In the result of the action, it shall be possible to form the order automatically in the system.
If a vacant position occurs, an employee of the same or another structural division may be transferred to the vacant position within several working days. As a result of the operation, a transfer order is formed. The transfer may result in changing of salary (clause 7.4) or assigning new type of wage (clause 7.3).

7.5.2 Business Trip/Secondment

The types of business trip are are the followings:

- Secondment to another public sector organization for temporary work
- Business trip

7.5.2.1 Secondment to Another Public Sector Organization for Temporary Work

Pursuant to the RA law “On Civil Service”, in case of arising of a vacant or temporary vacant position, within a one month period, the official that possesses the authority for appointment to positions can send the civil servant, with the latter’s agreement, on a secondment to another relevant body to hold an equal position for a term of up to three years, through the mutual agreement of the heads of the relevant bodies. In this case, the civil servant shall perform works similar to the works it implemented prior to secondment. In this case, no settlement is carried out with the civil servant, and upon the end of the established term, the civil servant returns to its previous position without carrying out a settlement.

7.5.2.2 Business Trip

Service mission business trip is considered (on the basis of the relevant legal act of an official with the authority to appoint a position) the departure of a civil servant from his/her permanent service location for a certain period of time to another location in order to perform certain service duties.

7.6 Vacation

According to the Labor Code, the employee may be granted vacation days during work to rest and recover capacity to work, the types and forms of compensation of which are also defined by the legislation.

Vacation is carried out on the basis of a formed order, which specifies the period of the employee's vacation and the type of vacation (annual, additional, targeted, paid or unpaid). The minimum annual vacation duration is 20 working days for a five-day working week and 24 working days for a six-day working week (information about the five-day or six-day working week must be indicated in the individual card of each employee). The annual additional vacation, upon the agreement of the parties, may be combined with the minimum annual vacation or provided separately (Decision of the Government of the Republic of Armenia on defining the list of employees of a separate category entitled to additional annual vacation, the minimum duration of that vacation and the procedure for providing it).

At the end of each year the calculation of the unused annual vacation days of the employees of the organization and the calculation of the obligation made to form/revise reserve for the unused vacation of the employees. The formation of the reserve is carried out on the basis of the calculation of days accumulated as of the end of each accounting period starting from the date of the employee's hiring, which must be reflected in the organization's financial statements.

7.7 Working Time Calculation

Working time calculation is the calculation of the total hours actually worked and absences of an employee during a certain period of time. It includes calculating of time spent and missed on work-related activities, including regular work hours, overtime, breaks, absences, etc. It is conducted for each month. Based on working time calculation, the average daily/monthly data of the previous months of the employee is formed in order to ensure the calculation of vacation, final calculation, benefit.

7.8 Calculation of Work Experience Period/ Coefficient

Calculation of work experience period/ coefficient is designed to ensure the calculation of work experience period of the organization's employees and as a result salary coefficient or supplements according to the legislation (for example, work experience period-dependent supplements for judges according to the law "On remuneration of persons holding public positions and public service positions" adopted on December 12, 2013). Starting from the employee's hiring date, the work experience period/coefficient is calculated for each employee (hiring date according to clause 7.2).

7.9 Termination

Termination of an employee is the end of the employment relationship as of a specific date, by which the employee is dismissed from the position and the specified appointment/s. Based on these data, the termination settlement of the employee is carried out.

7. Human Resources		MoSCoW Classification
7.1 Organizational Chart		
7.1.1	Formation of the structure of departments and positions in them on a hierarchical basis.	M
7.2 Hiring		
7.2.1	Opportunity for employee registration/hiring with at least the following data: ● number ● Name, surname, father’s name ● Gender	M

	• Date of Birth • Passport data (issue date, authority, etc.) • Position • Start of position • Working under special working conditions (yes/no) • Structural unit • Profession • Date of being hired • Work experience period before being hired • Social card number • Address • Bank details • Knowledge of foreign languages	
7.3 Appointment		
7.3.1	Formation of salary type (appointment) with at least the following options and data: *Options* • fixed monthly salary, • coefficient salary, • hourly wage, • transactional salary. *Data* • Code • Name • Coefficient • Amount • Partisipate in the Average amount calculation (yes/no) • Revenue tax withholding (yes/no) • Deductible revenue (yes/no) • Accumulated pension withholding (yes/no)	M
7.3.2	Appointment of an employee as of a date.	M
7.4 Change of Appointment		
7.4.1	Change of appointment (clause 7.3.1.) data as of a date.	M

	** The changes made on the given date should be taken into account when performing calculations carried out as of the date.*	
7.5 Transfer/ Business Trip		
7.5.1 Transfer		
7.5.1,1	Appointment of an employee from one position to another as of date. *The transfer may result in changing an appointment (clause 7.4) or assigning an appointment (clause 7.3).	M
7.5.2 Business Trip		
7.5.2.1	Business trip registration with at least the following data ● Date ● Employee number ● Employee name ● Type of business trip ● Location of business trip ● Start of business trip ● End of business trip ● Purpose of business trip	M
7.5.2.2	Registration of business trip expenses limits by country as defined by RA Government Desicion 2335-N, as a parameter to correctly calculate business trip expenses and taxes.	M
7.6 Vacation		
7.6.1	Designing at least the following types of vacation: ● Minimum annual vacation ● Additional annual vacation ● Extended annual vacation ● Targeted vacation ○ Pregnancy and maternity vacation ○ Vacation provided for the care of a child up to three years old ○ Educational vacation ○ Vacation granted for the performance of state or public duties. ○ Unpaid vacation ○ Paternity vacation Defining the method of calculation for each type of vacation.	M

7.6.2	Dynamic calculation of vacation days of all employees as of the date for different types of vacations.	M
7.7 Working Time Calculation		
7.7.1	Recording daily working hours of employees.	M
7.7.2	Automatic calculation of working hours for a period of time according to: ● Employee number ● Name, surname, father's name ● Position ● Department ● Social card number ● Total days/hours worked ● Total idle time days/hours	M
7.7.3	Automatic calculation of average daily/monthly data based on working time for the period.	M
7.8 Calculation of Work Experience Period/ Coefficient		
7.8.1	Calculation of employee's work experience period/ coefficient from the date of being hired based on interval working time. ** If the calculation of the coefficient is available in the CSIP system, it must be downloaded from there, otherwise it is calculated according to the RA law "On remuneration of persons holding public positions and public service positions", using the data available in the system.*	M
7.9 Termination		
7.9.1	Termination with at least the following data: ● Employee number ● Termination date ● Termination order number	M

8. Payroll

"Payroll" is intended for calculating the salary and other benefits of the organization's employees, in accordance with the current legislation (Labor Code of the Republic of Armenia, Law of the Republic of Armenia on Temporary Disability Benefits, etc.). Payroll includes the following processes:

- Calculation of salary and other supplements
- Vacation calculation
- Benefit calculation
- Termination settlement
- Payments

The conceptual description of the payroll process is provided in 3.6 Payroll Process section of GFMIS Conceptual Model - Public Sector Accounting Module.

8.1 Calculation of Salary and Other supplements

The calculation of salary and other supplements is designed to ensure accounting of salary, bonuses, supplements and other benefits of each employee. The salary of each employee is calculated based on the employee's working hours, salary type and other data filled in Human Resources. For each employee more than one type of salary may be calculated.

8.2 Vacation Pay Calculation

The employee's vacation pay is calculated according to the type of vacation (annual, additional, targeted, etc.) and the number of days, which are counted by human resources department. The calculation for each type is carried out according to the latter's characteristics, which are defined by the current legislation. In organizations, if necessary, it is possible to recall the employee from the annual vacation. Recall from annual vacation is allowed only with the employee's consent, with the exception of employees of state, regional administration and local self-government bodies, state and community organizations and institutions, as well as organizations and institutions that are under the control of the authorized body of the state administration of any sphere conditioned by martial situation, in case of declaration of martial situation. In case of recall from vacation, the employee engaged in the work is paid a salary, regardless of the fact that the payment for the annual vacation has been made. In case of later use of paid but unused annual vacation days, the employer shall pay an average salary for these days in accordance with the procedure established by the Labore Code. In case of recall, the calculation of unused vacation days is adjusted in human resources department (clause 7.6). In case of recall from vacation, the history mut be saved in the system, for formation of a report later.

8.3 Benefit Calculation

Benefits calculation is the calculation of benefits provided by the RA Law on Temporary Incapacity and Maternity Benefits. Through these benefits, the salary (revenue) lost as a result of temporary incapacity of employees is partially compensated. According to the type of benefit (sickness benefit, pregnancy and childbirth benefit, etc.), calculation is carried out in accordance with the current legislation. The calculation is carried out on the basis of the average daily/monthly data of previous months.

8.4 Termination Settlement Calculation

Termination settlement calculation is carried out in case of termination of the employment contract of the employees. Termination settlement calculation is made based on the unused vacation days of the employees which calculated in Human Resourses (clause 7.6).

8.5 Summary

From the accumulated gross income of the employee's salary and other supplements, vacation pay, benefits, termination settlements and other income, adjustment of the employee's salary and other similar cases calculated deductions (income tax, cumulative pension payment, stamp duty, trade union, SIA, etc.) and the difference from the accumulated gross income and deductions as the amount payable to the employee. Deductions are summarized as of the end of each reporting month by each type of deduction.

As of the end of each month, the result of all the mentioned actions related to the employees is summarized in the accounting formulations with the corresponding accounts of the chart of accounts.

8.6 Payments

Based on the calculations defined in clause 8.5 difference from the accumulated gross income and deductions is the amount payable to the employee. The formed obligation to employee must be paid in cash or in other ways defined by the legislation of the Republic of Armenia.

8. Payroll		**MoSCoW Classification**
8.1 Calculation of salary and other allowances		
8.1.1	Automatic calculation of each employee's salary based on working time (clause 7.7) and type of salary, taking into account such parameters as: ● minimum monthly salary without taxes ● minimum monthly salary with income tax ● minimum monthly salary with income tax and other mandatory fees.	M
8.1.2	Automatic calculation of wages for each employee with more than one salary type.	M
8.1.3	The calculation of salary and other supplements must include at least the following data: ● Date ● Calculation type (fixed salary, hourly rate, etc.) ● Employee number ● Department	M

	• Calculated amount	
8.1.4	Validation of the calculated salary against the minimum salary.	M
8.2 Vacation Pay Calculation		
8.2.1	Automatic calculation of vacation payment for each employee for the given period according to the type of vacation and the number of days. The number of days is formed according to clause 7.7. ** Available types of leave are: annual, additional, targeted, etc.*	M
8.2.2	Automatic calculation of the number of vacation days based on the days recorded in human resources department (clause 7.6): • Minimum number of annual vacation days • Also, the number of additional, extended and recalled annual vacation days for specific positions ** The minimum annual vacation duration is 20 working days for a five-day working week and 24 working days for a six-day working week. Additional annual vacation may be combined with the minimum annual vacation or provided separately, upon agreement of the parties.*	M
8.2.3	Automatic formation of the average salary for the calculation of vacation payment, based on the following data: • Number of months for average calculation • Coefficient for calculating the daily average in case of a five-day working week • Coefficient for calculating the daily average in the case of a six-day working week	M
8.3 Benefit calculation		
8.3.1	Automatic calculation of benefits for the employee for the given period, according to the type of benefit, the average daily/monthly amount (clause 7.7), taking into account such quantities as: • Coefficient for calculating the daily average for calculating disability benefits • Coefficient for calculating the daily average for calculating the maternity allowance • Maximum average salary for calculating disability benefit	M

	• Maximum average salary for calculating maternity allowance • Average monthly salary coefficient (%) for disability benefits	
8.3.2	Separation of the number of calculated days and benefit amount according to those paid by the employer and the state.	M
8.4 Termination Settlement Calculation		
8.4.1	Automatic termination settlement calculation of an employee as of a date according to the number of unused vacation days, average daily/monthly salary. **Accounting of the number of unused days is carried out in the human resources department (clause 7.6).*	M
8.5 Summary		
8.5.1	Formed deductions for each month - the tax and other obligations arised from the employee's gross income (income tax, social payment, stamp duty, trade union membership fee, compulsory enforcement of court decrees, etc.), taking into account the predefined in the system scale and/or percentage, and/or fixed amounts such as: • income tax percentage • targeted social contribution scale • stamp duty scale	M
8.5.2	Calculation of amount to be paid to the employee.	M
8.5.3	Summary-based generation of automatic correspondene with synthetic (chart of accounts) accounts based on pre-filled data.	M
8.6 Payment		
8.6.1	Formation of payment instructions for all types of obligations.	M
8.6.2	When registering a payment operation, generating automatic correspondence with synthetic (chart of accounts) accounts based on pre-filled data.	M

9. Cash Flow

Cash flow shows how much money inflow to and is outflow from an organization over a period of time. The difference between inflow and outflow is called net cash flow.

The bank accounts of the organizations are located in the Treasury, where the changes related to funds (outflows and inflows) are carried out.

9.1 Cash Inflow

Cash inflow is the funds that enters in the bank accounts of the organization. Cash inflows divided by operational, investment and financial flows. Based on entry of funds into the treasury accounts, in case of integration with the Treasury Module, accounting formulations are carried out in PSA Module as well.

The conceptual description of the mentioned process is provided in section 3.7 Cash inflows process of GFMIS Conceptual Model - Public Sector Accounting Module.

9.2 Cash Outflow

Cash outflows divided by operating, investing and financing.

CMBAs/SMBAs perform the following steps for cash outflow:

1. A request is formed for payment with both purchasing and non-purchasing items, for the financing of budgetary expenses. The payment request is sent to the Treasury, where checks are made. In case of compliance, the request is approved, as a result of which the amount specified in the request is transferred to the treasury account of the organization.
2. Then, the payment instructions are sent to the Treasury, where, after appropriate controls, the specified payments are made, accounting forms are compiled, otherwise the function and the corresponding forms are not confirmed.

Except for CMBAs/SMBAs, other public sector organizations perform only the second step for cash outflow.

The conceptual description of the mentioned process is provided in section 3.8 Cash Outflow process of GFMIS Conceptual Model - Public Sector Accounting Module.

9.3 Currency Conversion

Cash flows arising from transactions in foreign currency are recorded in the organization's functional currency by applying to the foreign currency the exchange rate between the functional currency and the foreign currency approved by the Central Bank for the given day. Currency conversion is an operation in which the currency of one state is exchanged for the functional currency of another country. For Armenia functional currency is AMD.

9.4 Revaluation

Revaluation is the adjustment of data expressed in foreign currency to the functional currency at the exchange rate approved by the Central Bank as of the date.

9. Cash Flow		MoSCoW Classification
9.1 Cash inflow		
9.1.1	Obtaining information on receipts in treasury accounts from the Treasury module. ** In the case of integration with the Treasury module.*	S
9.1.2	Accounting of inflow of funds in the treasury account with at least the following data: ● Date ● Document number ● Bank account number and name ● Account of the chart of accounts of the bank account ● An appropriate account of the chart of accounts for the inflow class ● Partner ● Partner´s account of chart of accounts ● Contract ● Economic classification ● Functional classification ● Program-event ● Purpose ● Currency ● Amount	M
9.1.3	Cash inflow accounting for petty cach with at least the following data: ● Date ● Document number ● Bank account number and name ● Account / sub-account of the corresponding chart of accounts of the bank account ● An account of the appropriate chart of accounts for the inflow class ● Partner ● Partner´s account of chart of accounts ● Contract ● Economic classification ● Functional classification ● Program-event ● Purpose ● Amount	M

9.1.4	Automatic generation of correspondence with the synthetic (chart of accounts) accounts when registering the operation of cash inflows based on pre-filled data.	M
9.2 Cash Outflow		
9.2.1	Forming and submitting a payment request to the Treasury module. * In the case of integration with the Treasury module (Expenditure Financing on a Daily Basis).	S
9.2.2	Cash outflow accounting and payment order formation with at least the following data: ● Date ● Document number ● Bank account number and name ● Account of the chart of accounts of the bank account ● An appropriate account of the chart of accounts for the outflow class ● Partner ● Partner´s account of chart of accounts ● Contract ● Economic classification ● Functional classification ● Program-event ● Name ● Purpose ● Bank account number of the partner ● Amount ● Condition* **Until the payment has been processed by the Treasury module and notified, the output accounting status must be "unconfirmed".* *** Outflow accounting (forming of correspomdence) should be possible only in case of actual withdrawal of the amount from the treasury account.*	M
9.2.3	Provision of the calculated cash outflow (payment order - 9.2.2) to the Treasury module. **Issue of a payment order to Treasury module must be possible in case of sufficient balance in the funds account of the chart of accounts.*	M
9.2.4	In the case of confirmation of payment in the Treasury module, automatic change of the status of cash outflow and payment order ("confirmed"), as well	M

	as automatic generation of correspondence with synthetic (chart of accounts) accounts based on pre-filled data. In case of not confirming the payment in the Treasury module, automatic change of the status of payment order ("unconfirmed").	
9.2.5	Ability to print and export payment order in xlsx, PDF, xml formats.	M
9.3 Currency conversion		
9.3.1	Accounting for currency conversion at the exchange rate of the given day, with at least the following data. ● Date ● Document number ● Current account (where the money is entered) ● Currency (input) ● Amount in given currency ● Current account (from where the money is withdrawn) ● Currency (output) ● Amount in given currency ● Exchange rate ** Accounting for all types of foreign currency conversion is carried out in the given currency and functional currency (Armenian drams).* *** The current exchange rate is taken from the Treasury module.*	M
9.3.2	Automatic generation of correspondence with synthetic (chart of accounts) accounts when registering a currency conversion operation based on pre-filled data.	M
9.4 Revaluation		
9.4.1	Revaluation of foreign currency account balances as of date with at least the following data: ● Document number ● Currency ● Current account ● Account of chart of accounts ● Currency exchange rate ** The current exchange rate is taken from the Treasury module.*	M

9.4.2	When registering the revaluation operation, generation of automatic correspondence with the synthetic (chart of accounts) accounts based on pre-filled data.	M

10. General ledger

In the general ledger reflected summary data by accounts of the chart of accounts, economic classifiers, functional classifiers, program-events. All the monetary data collected as a result of accounting registration of transactions, activities and other events carried out by the organization are reflected in general ledger. In the general ledger, accounting correspondence is also performed: accruals, deferrals, closing of accounting accounts, and other necessary accounting correspondence (which are not performed in the above transactions (in other sub-modules)). The closing function is performed for accounts of chart of accounts, such as revenue and expense, to reset the the balances of accounts to zero at the end of accounting period. Based on the summarized data, various reports are obtained.

10. General ledger		MoSCoW Classification
10.1 Summary of synthetic accounts		
10.1	The general ledger must include at least the following data: ● Date ● Account of chart of accounts ● Economic classification ● Functional classification ● Program-event ● Amount	M

11. Local catalogues

Catalogues specific to individual organizations, which are developed and used only by the given organization, are considered local. The unified use of such catalogues is impossible, because different organizations may use the same data with different content. Such catalogues may be considered:

- tangible assets, their groups,
- warehouses,
- location of fixed assets,
- services.

11. Local Catalogues	MoSCoW Classification

11.1	Tangible Assets catalogues with at least the following data: ● Code ● Name ● Group of tangible assets (clause 11.2) ● Unit of measurement ● Description ● CPV code (see the description in the ToR of the Electronic Procurement System - Appendix 2, clause 5.3.1) ● FEA (Foreign economic activity) code (selection from local catalogues) ● Account of chart of accounts (selection from local catalogues) ● Economic classification (for description, see Appendix C - Budgeting module, 5.3.4 - global catalogues)	M
11.2	Catalogue of tangible assets groups with at least the following data: ● Code ● Name	M
11.3	Catalogue of storage locations/warehouses with at least the following information: ● Code ● Name ● Responsible person (selection of employees from the catalogue) ● Address (region, city, community, street, building)	M
11.4	Location of fixed assets catalogue with at least the following data: ● Code ● Name ● Address: region, city, street ● Responsible person (selection of employees from the catalogue)	M
11.4	Service catalogue with at least the following data: ● Code ● Name ● Unit of measurement ● Chart of Accounts expense account ● Chart of Accounts Revenue Account	M

12. Analytics and Reports

For the effective implementation of public sector accounting process, it is necessary to provide a methodology of analysis and reporting, which assumes the implementation of several processes, particularly:

- Data collection from all necessary modules and external systems,
- Forming local reports such as those presented in section 12.1.
- Forming global reports such as those presented in section 12.2.

- Availability of displaying data to be published in the public domain (for example, Information Portal) in special formats: tables, graphs, diagrams, etc.

It is planned to include an Analytical-Reporting module in GFMIS, which shall ensure the equivalent implementation of the aforementioned functions for all the GFMIS modules. The detailed description and functional requirements of the Analytical-Reporting module are presented in Appendix I.

The functional requirements related to the analysis and reporting of the public sector accounting module according to the MoSCoW classification are presented in Table AC-6.

Table AC-6

12. The Requirements of Analysis and Reporting		MoSCoW classification
12.1 Data Warehouse **According to the requirements of the 1st section of Appendix I.*		M
12.2 Data Modeling **According to the requirements of the 2nd section of Appendix I, particularly*		M
12.2.1	Local reports described in section 12.1	M
12.2.2	Global reports described in section 12.2	M
12.2.3	The GFS reports described in section 12.2	M
12.2.4	Treasury account reports/statements described in section 12.3.	M
12.2.5	Formation-generation of other static, dynamic and ad-hoc reports (Appendix I, 2.2.2) at the level of accounts of chart of accounts and analytics.	M
12.3 Development of global catalogues **According to the requirements of the 3rd section of Appendix I.*		M
12.3.1	**Chart of accounts** Chart of accounts catalogue must contain at least the following fields: ● Chart of accounts account code (numeric field), ● Chart of accounts account name ● Indicator of being a accumulated ● Accumulation account of the given account (if any) ● Type (active, passive, active or passive)	M

	• Indication of being off-balance sheet account • Indicator of accounting with partners • Currencies • Economic classificator • GFS classificatot	
12.3.2	**Catalogue of partners** • Partner code • Name • Name in a foreign language • TIN • Indicators of the level in hierarchy • Partner in a higher level in hierarchy • Identification of a physical person/or legal entity • Data of a physical person (passport, social card) • Legal Address • Business address • Phone • Responsible person position • Name, surname of the responsible person • Contracts • etc	M
12.3.3	**Contracts** • Contract number • Date of sign of the contract • Expiration date • Payment date • CPV code • Partner • etc	M
12.3.4	**GFS classifications** • CFS code (numeric field), • Name • Indicator of being an accumulator • Accumulation classificator of the given account (if any) • Economic classificator • Account of chart of accounts • etc	M
12.4 Data Provision **According to the requirements of the 4th section of Appendix I.*		M

12.1 Local reports

Local reports are the reports of the individual public sector organizations that are typical for all organizations.

12.1.1 Reports on inventories

The inventory and other current tangible assets report provides detailed information on the organization's inventory and other tangible assets.

The types of reports related to inventories are as follows:

- Availability of inventories and other current tangible assets as of the selected date.
- Turnover of inventories and other current tangible assets in the selected period.
- Actions related to inventories and other current tangible assets in the selected period.
- Quantity- and amount-wise movement in the card of an individual (specific) inventory and other current tangible assets in the selected period.

12.1.2 Reports on fixed assets

The types of reports on fixed assets are as follows:

- Availability of fixed assets and other non-current assets as of the selected date (initial value, depreciation, residual value, normative useful life, residual useful life).:
- Turnover of fixed assets and other non-current assets in the selected period.
- Depreciation (amortization) of fixed assets, intangible assets and other depreciable assets in the selected period.:
- Actions related to fixed assets and other non-current assets in the selected period.

12.1.3 Reports on partners

Partners reports are important financial management tool that helps organizations monitor and manage their receivables and payables. Information is important to manage cash flow, monitor payments. By tracking outstanding balances, overdue recognition classification and payment statuses, organizations can optimize cash flow, minimize risk.

The types of reports on parters are as follows:

- Partners balance as of the selected date.
- Turnover of receivables and payables for the partners in the selected period.
- Actions related to partners in the selected period.
- Movements in the cards of individual (specific) partners in the selected period.
- Report on overdue receivables.

12.1.4 Reports on management of contracts

Contract management reports provide comparative information on the actual performance and contractual (expected) obligations. Reports help identify potential risks and ensure effective contract management.

The Contract management reports are:

- Differences between the actual performed works, provided services or the purchase of tangible assets, non-current assets and the ones envisaged by the contract, according to CPV codes.
- Deviation of the time schedule for the actual performed works, provided services or purchased tangible assets, non-current assets from the time schedule envisaged by the contract.
- Difference between the actual execution of payments and the planned payments in the contract, according to the payment schedule recorded in the contract.

12.1.5 Reports on payroll and human resources

The types of reports on payroll and human resources are as follows`

- Payroll calculation sheet for the employee, by calculation months,
- Payroll, salary supplements and withholdings in the selected period (checkered report),
- Summary data by types of salaries, salary supplements and withholdings, in the selected period
- Reports required by the tax legislation; in particular,
    - the monthly calculation of income tax,
    - generation of the Employees registration application,
- Work time calculation bulletin,
- Number of employees hired and dismissed in the given period,
- Information on vacant positions as of the selected date,
- Information on average monthly payroll.

12.1.6 Sales and alienation, disposals Report

The sales book reflects the history of sales and alienation made by organizations.

12.1.7 General ledger reports

The reports generated in the General Ledger are as following:

- Balances of various level accounts of the chart of accounts as of the selected date, in AMD and (or) foreign currency,
- Turnover of various level accounts of the chart of accounts in the selected period, in AMD and (or) foreign currency,
- Actions performed with the lowest level accounts of the chart of accounts in the selected period, in AMD and (or) foreign currency,
- Keeping the card of a specific account of the chart of accounts, by currencies,
- Formation of the financial statements developed for the public sector organizations,
- Formation of the reports required by the tax legislation.

12.1 Local reports	**MoSCoW Classification**

12.1.1 Reports on inventories		
12.1.1.1	Availability of inventories and other current tangible assets as of the selected date with at least following data: ● Date ● TA code ● TA name ● Location ● Account of Chart of accounts ● Group of TA ● Economic classification ● Functional classification ● Program-event ● Individual batches, ● Method of purchases (exchangeable/non-exchangeable) ● Source of financing ● Measurement ● Quantity ● Cost of unit ● Amount	M
12.1.1.2	Turnover of inventories and other current tangible assets in the selected period with at least following data: ● Period ● TA code ● TA name ● Location ● Account of Chart of accounts ● Group of TA ● Economic classification ● Functional classification ● Program-event ● Individual batches, ● Method of purchases ● Source of financing ● Measurement ● Quantity as the beginning ● Amount as of beginning ● Entered quantity ● Entered amount ● Outgoing quantity ● Outgoing amount ● Quantity as of end of the period ● Amount as of end of the period	M

12.1.1.3	Actions related to inventories and other current tangible assets in the selected period with at least following data: ● Date ● TA code ● TA name ● Location ● Account of Chart of accounts ● Group of TA ● Economic classification ● Functional classification ● Program-event ● Individual batches ● Method of purchases ● Source of financing ● Type of Action ● Measurement ● Quantity ● Cost of unit ● Amount	M
12.1.1.4	Quantity- and amount-wise movement in the card of an individual (specific) inventory and other current tangible assets in the selected period with at least following data: ● Period ● TA code ● TA name ● Location ● Account of Chart of accounts ● Group of TA ● Economic classification ● Functional classification ● Program-event ● Method of purchases ● Source of financing ● Measurement ● Quantity as the beginning ● Amount as of the beginning ● Entered quantity ● Entered amount ● Outgoing quantity ● Outgoing amount ● Quantity as of end of the period ● Amount as of end of the period	M

12.1.2 Reports on fixed assets		
12.1.2.1	Availability of fixed assets and other non-current assets as of the selected date (initial value, depreciation, residual value, normative useful life, residual useful life) with at least following data: ● Date ● Property number ● Name ● Location ● Materially responsible person ● Accounts from the chart of accounts of the public sector (for initial cost of FA, depreciation, expense) ● FA type ● FA group for tax accounting ● Economic classification ● Functional classification ● Program-event ● Depreciation indicator (depreciable or non-depreciable) ● Method of depreciation calculation (financial, tax) ● Method of purchases ● Source of financing ● Initial cost ● Accumulated depreciation ● Book value ● Normative UL ● Residual UL ● Date of purchase ● Supplier (for each FA) ● Name, number, date of issue of purchase document	M
12.1.2.2	Turnover of fixed assets and other non-current assets in the selected period with at least following data: ● Period ● Property number ● Name ● Location ● Materially responsible person ● Accounts from the chart of accounts of the public sector (for initial cost of FA, depreciation, expense) ● FA type ● FA group for tax accounting ● Economic classification ● Functional classification ● Program-event	M

	● Depreciation indicator (depreciable or non-depreciable) ● Method of depreciation calculation (financial, tax) ● Method of purchases ● Source of financing ● Initial cost at the beginning ● Book value at the beginning ● Initial value surplus from purchase ● Initial value surplus from reconstruction/ repairment ● Initial value surplus from revaluation ● Initial value decrease from revaluation ● Decrease of initial value due to disposal/partial derecognition ● Accumulated depreciation amount at the beginning ● Calculated depreciation for the period ● Decrease in depreciation amount due to disposal/partial derecognition ● Accumulated depreciation increase due to revaluation ● Accumulated depreciation decrease due to revaluation ● Accumulated depreciation as of the end of the period ● Book value as of the end of the period ● Normative UL ● Residual UL at the end of the period	
12.1.2.3	Depreciation (amortization) of fixed assets, intangible assets and other depreciable assets in the selected period with at least following data: ● Period ● Property number ● Name ● Location ● Materially responsible person ● Accounts from the chart of accounts of the public sector (for initial cost of FA, depreciation, expense) ● FA type ● FA group for tax accounting ● Economic classification ● Functional classification ● Program-event ● Depreciation indicator (depreciable or non-depreciable) ● Method of depreciation calculation (financial, tax) ● Method of purchases ● Source of financing ● Initial cost ● Accumulated depreciation at the beginning ● Calculated depreciation for the period	M

	• Decrease of depreciation due to disposal/partial derecognition of FA • Accumulated depreciation increase due to revaluation • Accumulated depreciation decrease due to revaluation • Accumulated depreciation as of end of the period • Normative UL • Residual UL	
12.1.2.4	Actions related to fixed assets and other non-current assets in the selected period. with at least following data: • Date • Property number • Name • Accounts from the chart of accounts of the public sector (for initial cost of FA, depreciation, expense) • FA type • FA group for tax accounting • Economic classification • Functional classification • Program-event • Depreciation indicator (depreciable or non-depreciable) • Method of depreciation calculation (financial, tax) • Method of purchases • Source of financing • Initial cost before action • Surplus to initial cost • Decrease in initial cost • Accumulated depreciation before action • Increase in depreciation amount • Decrease in depreciation amount • Entry location • Entry materially responsible person • Exit location • Exit Materially responsible person • Normative UL • Residual UL • Date of purchase • Expenses account from Chart of Accounts	M
12.1.3 Reports on partners		

12.1.3.1	Partners balance as of the selected date.with at least following data: ● Date ● Partner code ● Partner name ● Partners account in the Chart of Account ● Currency ● Economic classification ● Functional classification ● Program-event ● Amount in foreign currency (if exists) and in AMD	M
12.1.3.2	Turnover of receivables and payables for the partners in the selected period with at least following data: ● Period ● Partner code ● Partner name ● Partners account in the Chart of Account ● Currency ● Economic classification ● Functional classification ● Program-event ● Amount in foreign currency (if exists) and in AMD (at the beginning, debit turnover, credit turnover and balance as of the end of the period)	M
12.1.3.3	Actions related to partners in the selected period with at least following data: ● Date ● Document number ● Type of action ● Debit- Partners group ● Debit- Partner code ● Debit- Partner name ● Debit account from Chart of Accounts ● Kredit- Partners group ● Kredit- Partner code ● Kredit- Partner name ● Kredit account from Chart of Accounts ● Currency ● Amount in foreign currency ● Amount in AMD ● Economic classification ● Functional classification ● Program-event ● Comment	M

12.1.3.4	Movements in the cards of individual (specific) partners in the selected period with at least following data: ● Period ● Partner code ● Partner name ● Partners account in the Chart of Account ● Currency ● Economic classification ● Functional classification ● Program-event ● Amount in foreign currency and in AMD (at the beginning) ● Date of transaction ● Corresponding account of Chart of Accounts ● Amount in foreign currency and in AMD (debit turnover) ● Amount in foreign currency and in AMD (credit turnover) ● Document number ● Comment ● Total Debit and Credit turnover ● Balance as of the end of the period (in currency and AMD)	M
12.1.3.5	Report on overdue receivables, by the time overdue, as of the selected date with at least following data: ● Date ● Partner code ● Partner name ● Partners account in the Chart of Account ● Currency ● Economic classification ● Functional classification ● Program-event ● Cntract ● Overdue classification ● Overdue amount for each classification ● Total overdue amount for each partner ● Total Overdue amount for all partners by each overdue classificator **using the payment schedules indicated in the contracts attached to the partners.*	M
12.1.4 Reports on management of contracts		
12.1.4.1	Differences between the actual performed works, provided services or the acquisition of tangible assets, non-current assets and the ones envisaged by the contract, according to CPV codes.	M

12.1.4.2	Deviation of the time schedule for the actual performed works, provided services or acquired tangible assets, non-current assets from the time schedule envisaged by the contract.	M
12.1.4.3	Difference between the actual execution of payments and the planned payments in the contract, according to the payment schedule recorded in the contract	M
12.1.5 Reports on payroll and human resources		
12.1.5.1	Payroll calculation sheet for the employee, by calculation months with at least following data: ● Period ● Employee details ● Payroll ((salary, salary supplements, bonuses, calculation components (hours, days…)) ● Withholdings, (income tax,stamp duty, union membership fee, etc) ● Paid amount ● Amount due to the employee.	M
12.1.5.2	Payroll, salary supplements and withholdings in the selected period (checkered report) with at least following data: ● Employee details (code, name, social card number) ● Department ● Position ● Type of salaries, salaries supplements and withholdings ● Amount ● Total amounts for each employee and for each type of salaries, salaries supplements and withholdings	M
12.1.5.3	Summary data by types of salaries, salary supplements and withholdings, in the selected period with at least following data: ● Period ● Type of salary, salary supplements ● Total amount by each type of salary, salary supplements ● Types Withholdings, (income tax,stamp duty, union membership fee, etc) ● Total amount for each type of withholding ● Total paid amount to employees ● Total Amount due to employees.	M
12.1.5.4 Reports required by the tax legislation; in particular:		
12.1.5.4.1	Monthly calculation of income tax with at least following data:	

	● Employee name ● Employee surname ● Employee social card number ● Position ● Payroll ● Gross amount according to civil contract ● Amount of payment according to the temporary disability or maternity certificate (with separate parts of compensation by the Employer and by State Budget) ● Other benefits (by each employee and total) ● Income tax calculated (by each employee and total) ● Social payment calculated (by each employee and total) ● Actual worked hours (by each employee and total) ● Passive income type ● Passive income ● Percentage for passive income tax ● Number of passive income receivers by type of income ● Income tax on passive income ● Total calculated income tax for all types of passive income ● Total calculated Income and social tax	
12.1.5.4.2	Generation of the Employees registration application with at least following data: ● Employee name, surname, father's name ● Social card number ● Passport type ● Passport number ● Date of birth ● Registered address ● Residential address ● Date of start of employment ● Date of end of employment ● Date of start of the position ● Date of end of the position ● Position ● Working mode (Full time or no) ● If no then working hours per week	
12.1.5.5	Work time calculation bulletin, with at least following data: ● Employee name, surname, father's name ● Social card number ● Position	M

	• Hours worked for each day (In case of vacation should be mentioned V, in case of business travel T, in case of disability B, in case of other absence A) • Total worked hours during month • Total worked days during month	
12.1.5.6	Number of employees hired and dismissed in the given period, according to the grounds, with at least following data: • Period • Number of employees at the beginning of the period • Hired employees list (by names and Social card numbers, positions) • Terminated employees list (by names and Social card numbers, positions) • Total number of hired employees • Total number of dismissed employees • Number of employees at the end of the period	M
12.1.5.7	Information on vacant positions as of the selected date with at least following data: • Date • Department • Position • Start of position became vacant	M
12.1.5.8	Information on average monthly payroll with at least following data: • Period • Employee details • Position • Department • Monthly payroll during the period (split by months) • Average amount	M
12.1.6 Sales and alienation, disposals Report		

12.1.6.1	The sales book in the given period with at least following data: ● Date ● Type of action (sales, disposals, alienations) ● Type of sale (retail, wholesale) ● Type of object of sale (FA, Service, TA) ● Name of object ● Code ● Measurement ● Quantity ● Sales price per unit ● Sales amount ● Partner (customer) ● Location ● Accounts of Chart of accounts (for sold FA, TA, for partners, for expenses, for revenue) ● Method of sale ● Economic classification ● Functional classification ● Program-event ● Information on purchase of sold TA (Purchase date, supplier, contract purchase method, Source of financing) ● Cost of sale	M
12.1.7 General ledger reports		
12.1.7.1	Balances of various level accounts of the chart of accounts as of the selected date, in AMD and (or) foreign currency,	M
12.1.7.2	Turnover of various level accounts of the chart of accounts in the selected period, in AMD and (or) foreign currency,	M
12.1.7.3	Actions performed with the lowest level accounts of the chart of accounts in the selected period, in AMD and (or) foreign currency.	M
12.1.7.4	Keeping the cards of a each account of the chart of accounts, by currencies.	M
12.1.7.5	Formation of the financial statements developed for the public sector organizations **According to the order N27-N of RA Minister of Finance issued in 2017*	M
12.1.7.6	Formation of the reports required by the tax legislation	M

12.1.7.7	Formation of the printing form of report, printing, as well as the opportunity to export in xlsx, docx, PDF, formats. For Tax Reports also opportunity to export in xml format, for subsequent upload to the Tax Reporting System.	M

12.2 Global reports

Global reports are the consolidated reports that are formed at the level of the state, ministry or at another level of hierarchy of the public sector organizations.

12.2.1 Consolidated financial statements

Taking into account the hierarchy of controls among the public sector organizations, the PSA module shall enable the automatic formation of consolidated financial statements pursuant to the PSAS, at the ministry and state level, and, if necessary, for other levels in the hierarchy of controls (e.g., SNCOs, regional governor's offices, communities).

Consolidated financial statement would includeConsolidated statement of changes in funds

- Consolidated statement of financial position: as of end of accounting period,
- Consolidated statement of income: for the accounting period,
- Consolidated statement of changes in equity: for the accounting period,
- Consolidated statement of cash flows: for the accounting period,
- Notes to the financial reports.

When forming consolidated financial statements at any level, the financial statements formed for the final controlling organization at the given level and the individual organizations below shall be combined, adding up the like items of assets, liabilities, net assets (equity), revenues and expenses line by line. At the consolidation phase, the following actions of elimination shall be carried out automatically:

- The carrying amount of the controlling organization's investments In each controlled organization and the controlling organization's portion of the net assets (equity) of the controlled organization,
- Consequences of the intra-group transactions; moreover, the system shall enable automatic checks in the accounting data of any two public sector organizations, with a pre-established frequency, of the transactions between them and the balances, for the selected date and period. The accountants of both organizations (and, if necessary, the persons with the function of consolidation process monitoring) will receive a notification on the discrepancies discovered in the result of the above-mentioned checks. All received notifications shall be reviewed and closed by the accountants through adjustments; otherwise, the system shall block the approval and submission of the relevant financial statement in case of inconsistency of mutual reconciliation.
- If, pursuant to the methodology for preparation of consolidated financial statements, there are partially eliminated transactions (unrealized profit/loss), then the system should automatically generate corresponding calculations and mutual exclusion adjustments for these, which will be available for verification and approval to the accountants responsible for consolidation: from the record book of special purpose mutual exclusion regarding the given transaction. For example, in

case of gain or loss from sale of a fixed asset, only the automatic elimination of the receivables or payables is not sufficient; it is also necessary to calculate and reflect the following additional adjustments: elimination of gain/loss from sale at the expense of the new initial value of the sold asset in the buyer's balance, cancellation of the accrual of the additional portion of depreciation cost calculated based on the new initial value, or calculation of additional depreciation if new value is lower.

In order to implement such eliminations, the PSA module shall have a single list of partners under the GFMIS, where the public sector organizations will be separated, presented with correct hierarchy, which will be based on the group structures, created on the basis of the analysis of control attributes by the persons responsible for the consolidation process at various levels, and on the directories establishing these structures in the recording system (the example is presented in Figure AG-3). This structural interconnectedness will allow eliminating the transactions between each other without errors.

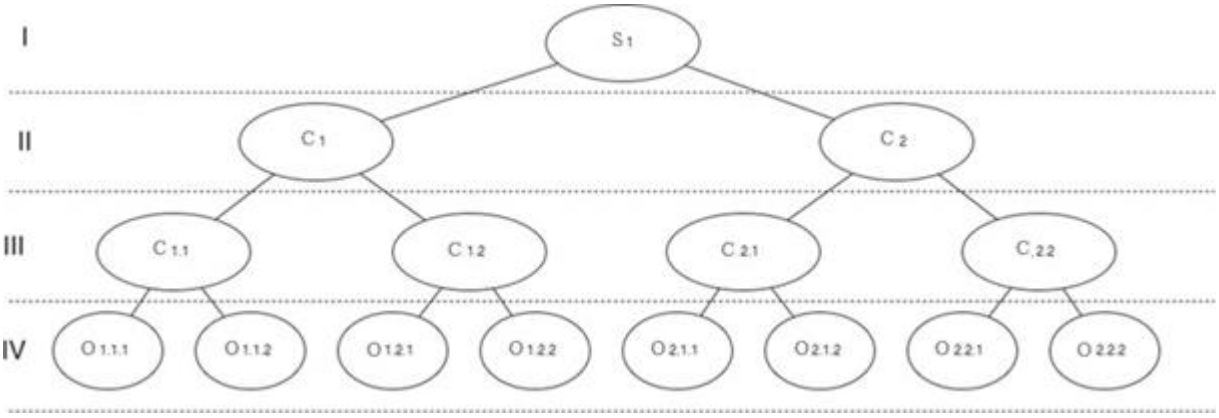


Figure AG-3. Structure example

Thus, the consolidation process for the financial statements will be carried out for the groups and levels reflected in the control hierarchy, through the following sequence of steps:

1. The “controlled” organization at the IV hierarchy level forms, checks and validates its individual financial statements through the system (Form 1 to Form 5). The checking and validation process must include checking of the amounts of the mutual balances/transactions with all other public sector organizations, adjustment, if necessary, and approval pursuant to the established methodology.
2. The statements validated by the IV level organization become available to the III level “controlling” organization at the next level, which checks the received statements and, in case of discovering discrepancies, returns the statement to the submitter for correction. In case of absence of discrepancies, the statements are approved and become available to the controlling organization at the next, II level, together with the financial statements prepared by the III level controlling organization, which have passed through the same checking and validation processes as at the previous level (including the approval of the mutual transactions/balances). If the legislation or the authorized body regulating the accounting have stipulated a requirement to form consolidated

financial statements at the given level, the system shall provide the possibility to do it automatically, applying the consolidation procedures stipulated by PSAS and the eliminating journal entries for all organizations included under the given level, for elimination.

3. The organization at the II level of control hierarchy receives the statements formed and validated at the previous levels and performs the actions described in the 2nd point.
4. The I level of control hierarchy receives the statements formed at all previous levels. The authorized body – the Ministry of Finance, prepares the financial statements of the Republic of Armenia, as a single unit, consolidating the statements of all organizations that are under its control and the control of the state, and separating, if necessary, the public administrative institutions, SNCOs and communities, as well as adding the balances and flows for the accounts that exist only at the state level and are recorded separately by the RA MoF.

Please see the attached "Methodology for preparation of interim consolidated financial statements at the ministries level" document for a more detailed methodology of financial statements consolidation., functional requirements for consolidation in the "Functional requirement for consolidation of financial statements" document, and the formats of the reports are in the order No. 27-N, issued in 2017 by the RA Minister of Finance. The changes proposed by the consultant in the order No. 27-N, in the formats of consolidated reports at the ministry and state level, in the "Consolidation at the Ministry and State Level" document.

Consolidated financial statements are saved in the system in a signed (approved) version. After approving the reports, the possibility to make changes in the data of the given reporting period is blocked. In the case of detection of errors related to previous periods, the accounting records necessary for their correction must be submitted by the accountant of each organization to the relevant financial controller for consideration and approval, in addition to the financial statements of the given period. If the corrections relate to already closed periods, the financial controllers should be able to include these corrections in the financial statements during their preparation, ensuring compliance with the provisions of RA PSAS.

12.2.2 Budget execution reports

The budget execution reports are collected, consolidated and summarized by the Ministry of Finance on a quarterly (cumulative) and annual basis and are subject to publication on the website of the Ministry of Finance.

Budget execution reports include:

- Data on revenues
- Data on expenditures
- Data on deficit (by financing sources)

Moreover, the above-mentioned data shall be obtained both in summary and separated by the state and community budgets. debt)

- Data on public debt (by currencies, separated by the Government debt and the Central Bank)
- Data on performance indicators.

The budget expenditures execution report shall be obtained for at least the following indicators:

1. CBAM
2. Program
3. Event
4. SBAM
5. Economic classifier
6. Functional classifier
7. Performance indicator.

The system shall provide the possibility to obtain the reports with indicators 1-7 in any combination; for example, only for programs, or only for economic classifiers, or only for CBAM + programs for each CBAM, or CBAM + program + event + SBAM + economic classifier, in case of which the subtotals data shall be obtained at each level as well by the following structure:

- CBAM
    - Program
        - Event
            - SBAM
                - Economic classifier
                - Economic classifier
                - …..
            - SBAM
                - Economic classifier
                - Economic classifier
                - ……..

The system also shall enable obtaining reports by both the functional classifiers only (section, group, class) and by the breakdown of each functional classifier by economic classifiers.

For indicators 1-7, there shall be a possibility to select (filter) by the program-events marked (tagged) in the Budgeting module (e.g., by the event related to the mitigation of the economic consequences of COVID, program-events related to the budgetary expenditures in relation to the sustainable development goals) or by the nature of the program-events (e.g., related to capital expenditures). (Please see the Budgeting module for more details on tagging).

The published budget execution reports shall contain the following data by each indicator:

- Annual plan
- Annual adjusted plan
- Plan for Reporting Period (in case of quarter)

- Adjusted plan for Reporting Period (in case of quarter)
- Actual
- Execution % against the annual adjusted plan
- Execution % against the adjusted plan for the period (in case of quarter).

Moreover,

1. In case of (capital) expenditures for non-financial assets, each of the above-mentioned data on annual plan, annual adjusted plan, actual data, data on execution % distributed also by:

- Construction works
- Reconstruction, repair works
- Design and research, geodetic works
- Acquisition of non-financial assets.

2. For the loan programs and events implemented with the support of the foreign states and international organizations, each of the data on annual plan, annual adjusted plan, actual data, data on execution % distributed also by:

- Loan funds
- Co-financing.

3. In case of the grant programs and actions implemented with the support of the foreign states and international organizations, each of the data on annual plan, annual adjusted plan, actual data, data on execution % distributed also by:

- Grant funds
- Co-financing.

It shall be possible to add in these reports also at list the actual data for the same period of the previous year by the relevant indicators, as well as the percentage ratio against the indicators of the given year.

In order to obtain the published budget execution reports, as well as to conduct data analysis, the SBAMs and CBAMs shall prepare and send the following reports (in case of community reports will be formed automatically by the Ministry Finance):

- On the budgetary expenditures made by the institution and the budgetary debts,
- On the receivables, payables and stored items of the institution,
- On the non-financial performance indicators for the events of each program,
- On the collection of revenues of public institutions,
- On the community budget execution.

The formats and the procedure for completion of the above-mentioned reports are described in the Order of the RA Minister of Finance N 254-N "On the general conditions for compilation, submission, summarization of the budget execution reports, as well as the reports related to the financial activities of

the public and local self-governance bodies and their subordinate institutions, and on the specificities of compilation and submission of specific types of reports" issued on 13 March 2019.

Those reports shall be compiled separately for each program-event, CBAM and SBAM.

1. Report on the executed budgetary expenditures and the budgetary debts of the institution (Sample form H-2)

The report format is as follows:

Line NN	Budget expenditures economic classification elements		Approved at the beginning of the year	Changes in the annual cost-estimate			Annual adjusted cost-estimate	Financing	Cash expenditures	Actual		Payments subject to be paid, but not paid (debts)		Cash balance
	Names	NN	Annual cost-estimate	RA law (Community council decree)	By the RA Government (Head of community decree)	By the superior				Current expenditures	Acquisition of non-current non-financial assets, expenditures capitalized	Total	of which more than 30 days overdue	
A	B	C	D	E	F	G	H=D+E+F+G	I	J	JA	JA1	JB	JC	JD

The data for column JA/JA1 is calculated by the following formula, which includes data from the H-4 report:

$$AE = CE + R_{beg} - R_{end} - P_{beg} + P_{end} + SI_{beg} - SI_{end} + D$$

Where:

AE – actual expenditures

CE – cash expenditures

R_{beg} – Receivables at the beginning of the year

R_{end} – Receivables at the end of the year

P_{beg} – Payables at the beginning of the year

P_{end} – Payables at the end of the year

SI_{beg} – Stored items at the beginning of the year (under the given economic classifier, if available)

SI_{end} – Stored items at the end of the year (under the given economic classifier, if available)

D – deviation is a flow under the given budget line, which has not stemmed from any operation (acquisition or sales), for example: revaluation due to change in foreign currency rate, write-off of stored items due to loss or due to being unfit for use, discovery through inventory, reclassification to another

classifier, write-off of receivables, etc. In frames of the given report, the deviation is the same data as data of the 9th class accounts /Other economic flow/ of GFS reports. The Deviation field is not envisaged in the approved format of the report; however, it shall be filled in to obtain the actual (accrued) expenditures in the system to enable check of amounts on consistency.

The JB and JC data of the report will be obtained from the Contract Management sub-module of the PSA module, where all contracts and payment schedules will be kept. The JD column of the report will be obtained from the PSA module, from the balance of the appropriate account for petty cash in the Chart of Accounts, which shall be kept according to the economic classifiers.

2. Report on the receivables, payables and stored items of the institution (Sample form H-4).

The report format is as follows:

Line NN	Budget expenditures economic classification elements		Receivables				Payables				Other flows**							
	Names	NN	Beginning of year		End of year		Beginning of year		End of year		Total	of which						
			total	including from budget	total	including from budget	total	including from budget	total	including from budget		increase / decrease in value due to revaluation	from write-off of materials	from write-off of receivables	Tangible assets provided with or without a condition (gratuitous)	Surplus / deficit discovered by inventory	Sorting among the economic classifiers	Other
A	B	C	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

In this report, a sub-line for stored items is separated for the economic classifiers that imply acquisition of tangible assets.

In order to obtain the amount in the “Actual expenditures” column of H-2 report, the data of the “including from budget” column of H-4 report are used, which is the balances arising due to the operations through budget financing.

3. Report on the performance indicators for the event of a program (Sample form H-8)

The **financial** indicators of this report shall be filled in automatically based on the data available in the Budgeting and PSA modules of the GFMIS, while the **actual non-financial** performance indicators shall be filled in **manually,** if data on these indicators are missing in the system, and their **planned** indicators shall be filled in **automatically** from the GFMIS Budgeting module. The non- financial performance indicators are divided into the following types:

- term,

- quantitative,
- qualitative,
- coverage,

which shall be filled in numerically so that the difference between the planned and actual numerical non-financial performance indicators can be obtained automatically. The reasons for those differences, as well as the difference in the financial indicators of the given event, are also filled in manually. In the case of quantitative indicators, the consolidation of relevant data should also be ensured automatically.

4. Report on the collection of revenues of public institutions (Sample form H-1)

The report format is as follows:

Names of budget revenues classification elements	Annual indicator approved at the beginning of the year	Changes in annual indicators	Adjusted annual indicators	Revenues received
A	B	C	D	E

This data shall be reflected according to the revenues classification – tax revenues, official grants, other revenues (the revenues classification is established in the Annex 8 of the Order of the Minister of Finance and Economy N 5-N from 2007 and are brought into correspondence with the cash inflow accounts of the chart of accounts by the consultant.

4. Report on the community budget execution (Sample form H-9)

The reports on the community budget execution are as follows:

1. Report on fulfillment of community budget revenues
2. Report on execution of community budget expenditures, with functional classification
3. Report on execution of community budget expenditures, with economic classification
4. Report on execution of community budget surplus or deficit
5. Report on execution of the directions of utilization of the community budget surplus or the financing sources of the deficit.

All the above-mentioned reports shall be filled in pursuant to the data of the following columns:

Approved annual plan		**Adjusted annual plan**		**Actual**	
Total (c.5+c.6)	including:	Total (c.8+c.9)	including:	Total (c.11+c.12)	including:

	Administrative part	Capital part		Administrative part	Capital part		Administrative part	Capital part
4	5	6	7	8	9	10	11	12

The capital part here is the expenditures of capital nature, while in the report on revenues it is the revenue envisaged for making expenditures of capital nature, for example, the official grants received for financing capital expenditures.

In all reports related to the communities, it is not required to present balance data, but only cash-based expenditures and revenues, which can be obtained from both the PSA module and the Treasury module. As long as the community organizations have not made the transition to the program budgeting, events can be opened for them in the "budget programs-events" directory of the system according to the functional classification, by which the outflows and inflows will be grouped.

Taking into account that upon the introduction of the GFMIS all data will be kept in electronic format in the single information system – according to CBAMs, programs/events, SBAMs, economic and functional classifiers, the financial indicators, all published quarterly (cumulative) and annual report on budget execution shall be formed automatically in the Analytic-Reporting module of the GFMIS.

In addition, upon the implementation of the GFMIS, it shall be possible to carry out the consolidation of the state and community budgets at any level. The SBAMs, as well as the information necessary for the compilation of the analytical part of the budget execution reports, shall also be presented through the system, through the Analytic-Reporting module. It shall be possible to obtain the numerical indicators, included in the analytical report, automatically for the data available in the system.

The process for the formation of the reports on the execution of the consolidated budget is as follows:

The reports indicated in Points 1 to 3 are obtained in the result of the following process, ensuring the three-level process for the collection and consolidation of reports.

1. The III level organization (SBAM) forms the established reports package in the corresponding interface of the GFMIS Analytic-Reporting module, using the predeveloped formats. The reports will be formed according to the budget programs-events, their responsible institutions (CBAM), classified by the economic budget lines. The financial indicators of the reports will be formed automatically, based on the data processed/kept in the Analytic-Reporting module, while the non-financial output (performance) indicators for each program/action will be inputted manually.
2. The reports validated by the III level organizations (SBAMs) become available to the II level organizations (CBAMs), which check the received reports and, in case of discovering discrepancies, return the reports to the submitters for correction. In case of absence of discrepancies, the reports are approved and become available to the organization at the next, I, level, which also prepares its own budget execution reports, passing through the same checking and validation processes as at the previous level.

3. The I level organization, in this case the MoF, as the authorized body for the control over the budgeting and budget execution in the Republic of Armenia, receives the budget execution reports validated by all CBAMs and compiled by individual programs-actions, SBAMs and economic classifiers, checks the reports and, in case of discovering discrepancies, returns the reports to the submitters for correction. In case of absence of discrepancies, the reports are approved and consolidated at the I level, in the result of which it is possible to obtain the data on budget expenditures on any basis – by SBAMs, programs, program-events, economic classifiers, and by functional classifiers as well, as only one functional classifier is linked to each event. Due to the special tagging of events at the budgeting phase, it is possible to obtain separately the data on the execution of those tagged events as well.

Reports on the implementation of the consolidated budget are stored in the system in a signed (approved) version for the purpose of comparing and analyzing with previous and subsequent years. After approving the reports, the possibility to make changes in data of the given reporting period is blocked.

12.2.3 GFS statements

The Government Finance Statistics (GFS 2014) statements are a group of annual reports presented in Excel format and methodology developed by the IMF.

The Excel format file of the GFS 2014 consists of cover page, 4 main GFS statements and 12 detailed tables, from which the 4 main statements are obtained automatically:

- Cover Page
- Statement I: Statement of Government Operations
- Statement II: Statement of Sources and Uses of Cash
- Statement III: Integrated Statement of Flows and Stock Positions
- Statement IV: Statement of Total Changes in Net Worth
- Table 1: Revenue
- Table 2: Expense
- Table 3: Transactions in Assets and Liabilities
- Table 4: Summary Holding Gains and Losses in Assets and Liabilities
- Table 5: Summary Other Changes in the Volume of Assets and Liabilities
- Table 6: Balance Sheet
- Table 6a: Debt Liabilities at Nominal/Market Value
- Table 6b: Debt Liabilities at Face Value
- Table 7: Functional Classification of Outlays
- Table 8a: Transactions in Financial Assets and Liabilities by Counterpart Sector
- Table 8b: Stock Positions in Financial Assets and Liabilities by Counterpart Sector
- Table 9: Summary Total Other Economic Flows in Assets and Liabilities

All sheets of the Excel file are protected. It is not allowed to add or delete sheets or lines/columns in sheets, or change the sheet name.

Digit 0 shall be entered for the data with zero value. It is not allowed to leave a field blank. In case of absence of the input data, "NP' (not applicable) is indicated in the relevant column. In case of unavailability of data, "NA" (not available) is indicated in the given line.

Each line of the GFS statements has its own code, the matching of which between the accounts of the chart of accounts and the economic classifiers of the budget has been done by the consultant (please see the attached documents with the following references).

"Review of the structure of the chart of accounts and economic classifiers for public sector accounting and recommendations for revisions or additions of additional elements".

"Matching accounts of the chart of accounts for public sector accounting with the classes of economic classifiers, which, in their turn, are matched with the accounts of the GFS 2014 manual").

Based on the mapping and matching between the above-mentioned accounts and classifiers, GFS statements shall be formed automatically in the Analytic-Reporting module of the GFMIS, based on the data of the single directories, as well as the consolidated budget (by economic and functional classifiers) and the consolidated statement of financial position.

1. Cover Page

The executor shall first fill in the following data required in the Cover Page, without which the statement will not be accepted by the IMF:

- Country name and IMF code,
- Reporting year,
- Currency and measurement unit (billion AMD), using which the data will be inputted to the tables,
- Contact information of the responsible persons,
- Data nature (see Point 1.2) and recording approaches (see Points 1.3 and 1.4), by Government sub-sectors (see Point 1.1),
- Submission date.

1.1 Government sub-sectors

Budgetary central government

The information about the data nature and the accounting methods shall be presented in the Cover Page and in the statements and the detailed tables according to the following Government sub- sectors, which are established pursuant to the Government Finance Statistics Manual – GFS M 2014. The sub-sectors presented in the Cover Page are as follows:

Budgetary central government
Extrabudgetary central government units
Central government
Social security funds
State governments

Local governments
General government
Memorandum: Central Govt. (incl. SSF of central level)

The following sectors are absent for Armenia:

1. Social security funds (SSF),
2. State governments (SG).

Thus, "NP" shall be indicated in the above-mentioned columns of the Cover Page and the detailed tables.

1.2 Data nature

Letters A, P or E are inputted to this line, which mean Actual (A), Preliminary (P) and Estimation (E). Pursuant to the present process, actual data is reported for Armenia, i.e. the letter A is indicated. However, the system shall have the ability in the future to form the same statements for the forecasted values of budget as well.

1.3 Recording basis

Despite the GFSM 2014 being based on the accrual principle of recording, the format of the GFS annual statement can be used for presenting the data obtained through other methods as well, for example, data recorded on cash basis. Therefore, in the envisaged section of the Cover Page, it is required to indicate the recording method for each type of data for some items of recording.

Bases of recording: revenue (Table 1)	CA or AC Cash/Accrual
Bases of recording: expense (Table 2)	CA or AC Cash/Accrual
Bases of recording: investment in nonfinancial assets (Table 3)	CA or AC Cash/Accrual
Bases of recording: financial transactions (Table 3)	CA or AC Cash/Accrual
Bases of recording: Investment in nonfinancial assets (Table 3)	GR or NT Gross/Net

As the budget execution reports are currently obtained only on cash basis, only "CA" is indicated for the first three tables of the Cover Page. In case of unavailability of data for any category in an existing sub-sector, "NA" (not available) is indicated in the given line.

1.4 Valuation basis

In this section, in the indicated lines, it is required to fill in the valuation basis for some items of recording.

Valuation of nonfinancial assets (Table 6)	*MV, HV, or BV* *Market value/Historic cost value/Book value*
Valuation of financial assets (Table 6)	*MV, NV, or FV*

	Market value/Nominal value/Face value
Valuation of liabilities (Table 6)	*MV, NV, or FV* *Market value/Nominal value/Face value*

In case of unavailability of data for any category in an existing sub-sector, "NA" (not available) is indicated in the given line. The above-mentioned tables shall be filled in according to the data existing in the program through the available recording method. The data on the financial assets shall be obtained from the Public Debt module.

2. Main statements

The Executor does not fill in anything in the pages of these reports, because the latter are obtained automatically through the formulas already introduced in the EXCEL file, based on the data inputted to the Tables 1 to 9.

3. Detailed tables

As the budget and the actual execution thereof are implemented on cash basis, the Tables 1 to 3 and 7 to 8 will be filled in using cash basis. Tables 4, 5, 6 and 9 will be filled in based on the accounting data kept using the accrual basis, while the data on financial assets will be obtained from the Public Debt module.

The data in the detailed tables is filled in according the Government sub-sectors. In case of consolidation of data at various levels of government, in order to avoid the double recording of inter- government flows/transactions, their amount is eliminated using the envisaged special column (Consolidation Column), which is seen below:

General Government **2020**									Memorandum: Central Govt. (incl. SSF of central level)
Central Government (excluding social security funds)				Social Security Funds	State Governments	Local Governments	**Consolidation Column**	General Government	
Budgetary	Extrabudgetary	**Consolidation Column**	Central Government						
BA=GL1	EA	CC	CG	SSF	SG	LG	CT	GG=GL3	GL2

Central Government

The State Budget indicators are inputted in column BA; the relevant indicators of SNCOs are inputted in column EA, while the transactions between the SNCOs and the State Budget are inputted in column CC, with an opposite sign (elimination of consolidation). The column CG is the subtotal =BA+EA+CC.

General Government

The columns SSF and SG are not filled in, indicating NP in the relevant columns. The relevant data of the community budgets are inputted to column LG, the amounts of the flows/transactions between the community budgets and the central government (the state budget or the SNCOs) are inputted to column CT, with an opposite sign (elimination of consolidation). The column GG is the total = CG+SSF+SG+LG+CT.

In order to obtain the GFS statements, it is also necessary to carry out beforehand the process of the collection and summarization of the statements on financial and economic activities of the SNCOs (in particular cash flow statements) stipulated by the Order of the RA Minister of Finance N104-N dated on 04.02.2013, which shall be obtained automatically in the GFMIS, using the same consolidation procedures as the ones used during the consolidation of financial statements pursuant to the RA PSAS. As mentioned in Point 4 of the "12.1 Formation of consolidated financial statements" section, it shall be possible to have the consolidation of the statements on financial position also by all SNCOs, public bodies and communities separately, and the eliminations between them shall be done automatically through the same procedure, based on the data of the single partners directories available in the system.

The format of the GFS (GFS 2014) statement, the filling procedure, methodology, as well as the analysis of the significant differences between the GFS 2014 methodology and the RA PSAS, matching between the accounts of the chart of accounts, the economic classifiers of the budget and GFS codes are presented in the following attached documents:

- Format of GFS statement
- Guidelines for responding to the annual GFS questionnaire
- GFS Manual 2014
- Analysis of the significant differences between the GFS methodology and the RA PSAS.
- Review of the structure of the chart of accounts and economic classifiers for public sector accounting and recommendations for revisions or additions of additional elements
- Matching accounts of the chart of accounts for public sector accounting with the classes of economic classifiers, which, in their turn, are matched with the accounts of the GFS 2014 manual

12.2 Global Reports		MoSCoW Classification
12.2.1 Consolidated financial statements[33]		
12.2.1.1	Consolidated statement of financial position: as of end of accounting period.	M
12.2.1.2	Consolidated statement of income: for the accounting period.	M
12.2.1.3	Consolidated statement of changes in equity: for the accounting period.	M
12.2.1.4	Consolidated statement of cash flows: for the accounting period.	M
12.2.1.5	Notes to the financial reports.	M

[33]All financial reporting requirements must meet the PSA Standard.

12.2.2 Budget execution reports		
12.2.2.1	Budget Execution Reports on revenues	M
12.2.2.2	Budget execution reports on expenditures for at least the following indicators: ● CBAM ● Program ● Event ● SBAM ● Economic classifier ● Functional classifier ● Performance indicator.	M
12.2.2.3	Stetements on the deficit (by financing sources). *Moreover, the reports mentioned in points 12.2.2.1-12.2.2.3 should be received both in summary and separated according to state and community budgets.	M
12.2.2.4	Budget Execution reports on public debt (by currencies, separated by the Government debt and the Central Bank)	M
12.2.2.5	Formatting of the report on the Performance Indicators based on the data available in the budgeting and PSA modules of the GFMIS. (the actual non-financial performance indicators should be filled in manually, if the data on these indicators are missing in the system, and their planned indicators from the budgeting module of the GFMI system.	M
12.2.3 GFS Statements		
12.2.3	GFS Statements must be generated through the system in accordance with the Excel format and methodology developed by the IMF.	M

12.3 Statements on Treasury accounts

Treasury Account Statements provide information on all financial transactions and activities related to a specific Treasury Settlement Account over a period of time. Treasury account statements are important financial data that help track an organization's financial position, and manage cash flows. Data on treasury accounts are formed in the Treasury module of GFMIS.

12.3 Statements on Treasury accounts	**MoSCoW Classification**

12.3.1	Statements of Treasury Accounts reflecting at least the following data for the period ● Opening balance ● Income amount ● Output amount ● Counterparty account number ● Counterparty name ● Purpose ● Economic classifier ● Functional classifier ● Program-event ● Total Incoming turnover ● Total Outgoing turnover ● Final balance	S
12.3.2	Creation of a comparative report between the cash balances of the accounting records and the balance of the Treasury account, for subsequent reconciliation, with at least the following data ● Date or Period ● Charts of Accounts account ● Balance and transactions on that account ● Treasury account ● Balance and transactions on that account ● Economic classifiers ● Program-events ● Functional classifiers ● Comparision between Accounting and Treasury data (reflection of differences, if exists)	S

13. Specialist Management, Testing and Training

The management, testing and training processes of public sector accounting specialists are similar to the data management requirements of the other sector specialists, with certain features, particularly:

- The Ministry of Finance of the Republic of Armenia (Department of Accounting and Audit Activities Regulation and Reports Monitoring) is the authorized body for qualified specialists management, testing and training.
- Registration of qualified specialists in the Registry is carried out only on the basis of the results of testing.

At the GFMIS the functions of specialist management, testing and training are planned to be implemented through appropriate modules. The detailed description and functional requirements of the mentioned modules are presented in Appendix J.

14. User Management

The functions of user management participating in the public sector accounting shall comply with the principles defined in the GFMIS Conceptual Model. It is planned to implement a User Management Module which should provide centralized user management of all modules (Single Sign-On authentication must be applied - one user for all modules).

Detailed description and functional requirements of User Management Module are presented in Appendix K.

Appendix H. Internal Audit Module

Content

Introduction

The internal audit module must provide the implementation of the procedure defined by the RA legislation on internal audit:

- Design of the internal audit universe,
- Execution of internal audit,
- Definition of action plan,
- Submission of necessary reports,
- Register of internal auditors,
- Formation of systems of qualification and training of internal auditors, as well as systems of data management.

The module is planned to be included to ensure the digitization of the functions defined by the Law of the Republic of Armenia on Internal Audit and other by-laws.

To implement the function of internal audit, first of all, it is necessary to include a toolkit to identify the internal audit universe. An organization's internal audit universe is essentially the processes and functions that are subject to internal audit. It is also necessary to provide a toolkit that will provide opportunity, based on the internal audit universe, to plan the internal audit based on the risk assessment and to form and approve the strategic and annual internal audit plan of the given organization.

Then it is necessary to include a toolkit, through which the internal audit (approved plans) execution process, analytical work and the formation of relevant audit reports will be implemented.

As a result of internal audits, it must be possible to form action plan(s) based on the results of the audit, and to carry out its monitoring. In order to implement the above, it is necessary for the Internal Audit module to be combined with the Analytical-Reporting Module of GFMIS , giving the opportunity to obtain the necessary information.

In order to fully and effectively ensure the internal audit process, it is necessary to include the management, testing and training functions of specialists. It must also be possible to carry out the testing and later training processes of the persons applying for internal auditor qualifications, and the data must be stored in the Register. For this purpose, it is necessary for the Internal Audit module to be combined with several modules of GFMIS: Management, Testing and Training of Specialists.

The process of management of specialists is the management of a register of internal auditors based on the results of testing and training.

In order to form the necessary reports, it is necessary to ensure the combination of the Internal Audit module with the Analytical-Reporting module of GFMIS.

The structural scheme of the Internal Audit Module, the data flow, as well as the relation to the other modules of GFMIS and external systems are presented in Figure AH-1.

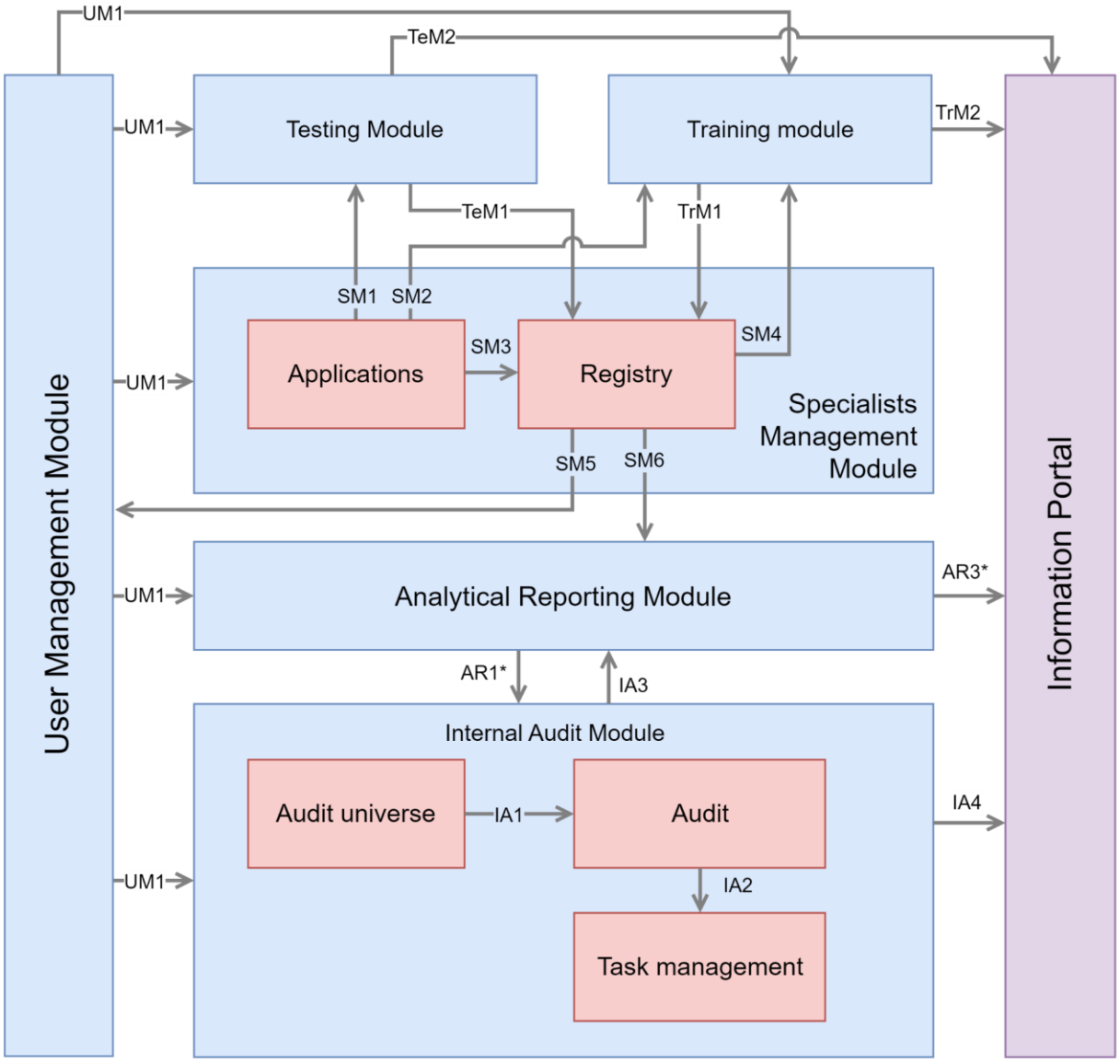


Figure AH-1. The structure of the Internal Audit Module, the data flow, as well as the relation to the other modules of GFMIS and external systems.

The description of the data exchanged within the framework of the Internal Audit Module as well as with external systems is presented in Table AH-1.

Table AH-1. Internal Audit module Data Description

Data	Description	Source Module/Submodule	User Module/Submodule
SM1	Testing applications/requests	Specialists Management Module	Testing Module
SM2	Training applications/requests	Specialists Management Module	Training Module
SM3	Data confirming the certificate or qualification accepted by the authority	Specialists Management Module/Applications	Specialists Management Module/ Registry
SM4	Data on specialists to be trained	Specialists Management Module/ Registry	Training Module
SM5	User management data on specialists - status, certification, etc.	Specialists Management Module/Registry	User Management Module
SM6	Analytical data on specialists (M1*)	Specialists Management Module/Registry	Analytical Reporting Module
TeM1	Data on tested specialists	Testing Module	Specialists Management Module/ Registry
TeM2	Public data on tested specialists	Testing Module	Information Portal
TrM1	Data on trained specialists	Training Module	Specialists Management Module/ Registry
TrM2	Public data on trained specialists	Training Module	Information Portal
AR3*	Public analytical or reporting data 1. Public data of Registry	Analytical Reporting Module	Information Portal
AR1*	Analytical data generated from data from all modules and/or external systems	Analytical Reporting Module	Public Sector Accounting Module
AR3*	Public analytical or reporting data	Analytical Reporting Module	Information Portal
IA1	Formed audit universe data	Internal Audit Module/ Audit universe	Internal Audit Module/ Audit
IA2	Audit results	Internal Audit Module/ Audit	Internal Audit Module/ Task management
IA3	Analytical data of Internal Audit Module (M1*)	Internal Audit Module	Analytical Reporting Module

IA4	Public data generated during internal audit functions	Internal Audit Module	Information Portal

The functional hierarchy, which must be provided by the Internal Audit Module, is presented in Figure AH-2.

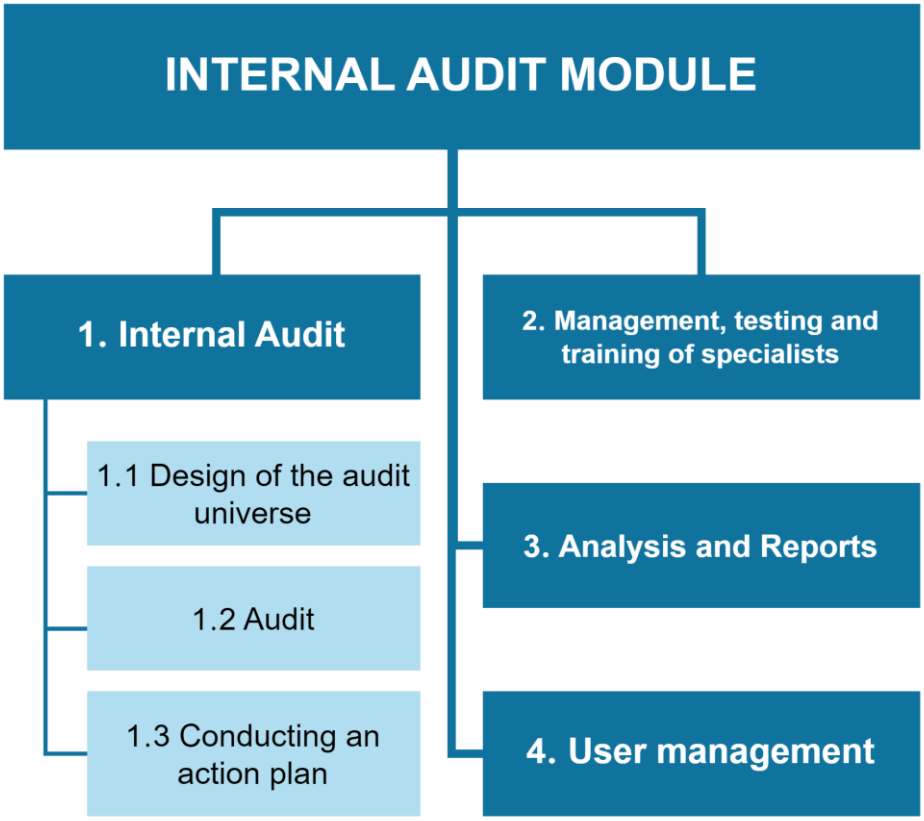


Figure AH-2. Functional hierarchy of the Internal Audit electronic system

1. Internal Audit

Through Internal Audit module, Auditors must have the opportunity to design the internal audit universe of the given organization, to carry out risk assessment, based on which to form strategic and annual plans of internal audit, to execute the annual plan of internal audit for the given year, to form relevant reports, and action plans. Auditors must also be able to carry out the review/followup process, form annual reports and submit the relevant ones to the CHU (Central Harmonization Unit, which is Authorized Body for public sector internal audit system in RA). The module must also provide an opportunity to implement the Internal Audit Quality Assurance and Improvement Program.

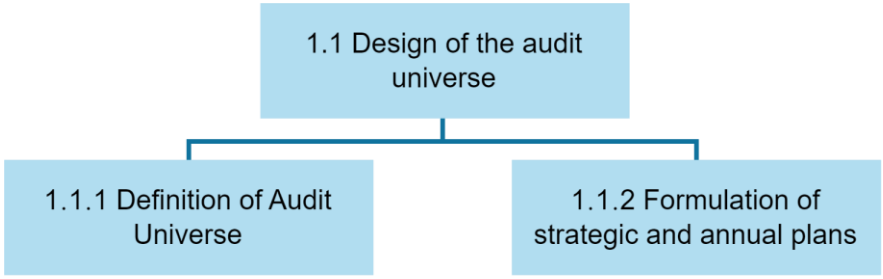
Taking into account the fact that the internal auditors of the public sector of the Republic of Armenia carry out an activity not only in the Ministry of Finance of the Republic of Armenia, but also in the entire public sector, therefore, it is necessary to form an automated internal audit system (IA program) in the CHU/Authorized Body, and to give the keys of users (usernames and passwords) of the mentioned program to other organizations of the RA public sector with the appropriate powers. Thus, the internal auditors of other organizations of the public sector of the RA will have the opportunity to take part in the joint program and carry out activities in the domain assigned to their organization, in accordance with the sequence of actions and requirements defined by the legislation of the internal audit of the public sector of the RA.

The conceptual description of the audit process is provided in 3.2 Internal Audit section of GFMIS Conceptual Model - Internal Audit Module.

1.1 Design of Audit Universe

The process of design of audit universe includes:

- Definition of Audit Universe,
- Formulation of strategic and annual plans.



1.1.1 Definition of Audit Universe

The head of the internal audit, based on complete information about the Organization: charter, strategies, legal acts on the field, etc. (may also use data obtained from the Analytical-Reporting Module), forms the Organization's structure (tree), then outlines the processes of the Organization that are subject for internal audit, and makes a list of them. The head of internal audit distributes the outlined processes (functions) of the Organization to the organizational units of the Organization to determine the person responsible for each function or part of it. Then, the head of the internal audit prepares a description of the business process for each type of the internal audit, defining the input information, the process description and the expected withdrawal values or outcomes. This data is being used during the execution of the internal audit.

The conceptual description of the mentioned process is provided in 3.2.1.1 Internal Audit Universe Definition section of GFMIS Conceptual Module- the Internal Audit Module.

1.1.2 Formulation of Strategic and Annual Plans

The auditor carries out a risk assessment of units (functions) defined in the audit universe, obtaining the necessary data from Analytical-Reporting Module.

Based on the information on the assessed risks, the head of Internal Audit compiles the Organization's risk matrix in perspective of internal audit and also makes a decision on the application of risk assessment criterias and their calculation.

Based on the data of the risk matrix, the internal audit electronic system automatically forms the strategic plan, the first year of which is considered the annual plan for the reporting year.

The annual plan defines the goals and scope of the engagements carried out in the organization during the given year, as well as the schedule of each engagement.

The conceptual description of the mentioned process is provided in 3.2.1.2 Formulation of Strategic and Annual Plans section of GFMIS Conceptual Model - Internal Audit Module.

1.2 Audit

The internal audit is carried out with separate internal audit engagements prepared for each unit included in the annual plan.

For each unit of the internal audit annual plan, the head of Internal Audit selects the process that was created during the definition phase of the audit universe .

The auditor or the relevant specialist of the audit team uploads/enters the results of the audit engagement.

The internal audit electronic system compares the results with the predefined standards, as a result of which a report is formed.

In the internal audit electronic system, a list of functions with a negative result is formed for defining a further action plan.

1.3 Creation of the Action Plan

The head of the internal audit based on the negative result recorded in the audit process proposes an action plan, the person responsible for the execution of the action and deadlines for each action. The head of the organization examines the proposed action plan. The head of the organization, if there are no suggestions or objections, approves it, otherwise, the head approves it after making the appropriate changes. Additionally, the initial status of each point of the approved action plan is "Not executed", and after the end of the specified period and relevant audit actions, it may remain the same, or be changed to one of the statuses "Executed on time", "Executed in post-deadline mode" with the necessary justifications.

The conceptual description of the mentioned process is provided in 3.2.3. Action Plan Definition section of GFMIS Conceptual Model - Internal Audit Module.

The functional requirements related to Audit according to MoSCoW classification are presented in Table AH-2.

Table AH-2

1. Internal Audit	**MoSCoW Classification**

1.1 Design of Audit Universe		
1.1.1	**Definition of Audit Universe**	
1.1.1.1	Formation of the Organization's structure (tree), based on complete information about the Organization: charter, strategies, legal acts on the field, etc. (may also use data obtained from the Analytical-Reporting Module).	M
1.1.1.2	Pre-specification of the organization's processes, units and functions subject to internal audit and formation of a list of them.	M
1.1.1.3	Determination of the person responsible for each specified function or part thereof.	M
1.1.1.4	Making a description of the business process for each of the internal audit types, defining the input values, the process description and the expected withdrawal values or outcomes.	M
1.1.1.5	Opportunity for compiling, approving, modifying, importing and exporting necessary work documents.	M
1.1.2	**Formulation of Strategic and Annual Plans**	
1.1.2.1	Formulation of strategic plans, at least: ● Risk assessment, taking into account the data available in Analytical-Reporting Module, as well as the conclusions of the internal audits carried out in the organization in previous periods, the raised problems, the presented proposals, the actions taken in relation to them and the reports on their implementation. Based on the risk assessment, the Organization's risk assessment matrix is formed in perspective of internal audit, as well as a decision is made on the application of risk assessment criterias and their calculation. ● Determination of the work carried out by the internal audit, the areas subject to audit in the organization and the deadlines (frequency) of audits. ● Assessment of available and necessary internal audit resources. ● Selection and description of audit tools to effectively achieve internal audit goals. ● The internal audit electronic system, based on the data of the risk assessment matrix, automatically formulates the strategic plan, the first year of which is considered the annual plan of the reporting year, and every year it is supplemented with another year's plan. ● Approval and validation of the internal audit strategic plan (approved by the head of internal audit and validated by the head of the organization). As long as the internal audit strategic plan is approved, no changes may be made.	M

	● To make changes, it is necessary to remove the approval, perform the necessary actions and approve again.	
1.1.2.2	Formulation of Annual Plans, at least: ● The allocation of employees and other available resources in the period specified by the plan, taking into account expected absences, planned changes of employees and other works. ● Planning of unintended engagements, for the implementation of which the remaining free resources are sufficient. ● Determining the man/days and direct time required for each engagement. ● Distribution of engagements included in the plan on a monthly basis. ● Continuous comparison of actual works with the plan and revision of the plan if necessary.	M
1.1.2.3	Opportunity for formulating, approving, validating, and changing the internal audit annual plan.	M
1.1.2.4	Opportunity for compiling, approving, modifying, importing and exporting necessary work documents.	M
1.2	**Audit**	
1.2.1	The first stage- engagement planning, which consists of the following main steps: ● formation of the engagement working group, setting of deadlines, kick-off meetings, ● preliminary analysis, ● defining engagement objectives, ● defining the scope of the engagement, ● development of audit work plans, ● confirmation of the engagement.	M
1.2.2	The second stage - implementation of the engagement, during which the actual work of the engagement is carried out. Usually, the work is carried out on the territory of units subject to audit, where it is possible to access documents and make inquiries of employees. The second stage consists of the following steps: ● assessment of design and implementation of control processes, ● assessment of the effectiveness of control processes, ● performance of tests (tests of control and detailed testes); ● preparation of working documents, ● study and control of works, ● completion of works, ● final meeting.	M
1.2.3	The third stage - preparation of reports, which is based on the results of the work carried out in the previous stage.	M

1.2.4	The fourth stage - review process, which includes receiving information on the elimination of identified deficiencies (feedback), analysis of received information and risk assessment.	M
1.2.5	Opportunity for compiling, approving, modifying, importing and exporting necessary work documents.	M
1.3	**Creation of the Action Plan**	
1.3.1	Defining the action plan, the person responsible for the implementation of the action and the deadlines for each finding with a negative result recorded in the Report.	M
1.3.2	Opportunity for changing the plan (1.3.1).	M
1.3.3	Opportunity for approving the plan (1.3.1).	M
1.3.4	Defining/changing the status of actions.	M
1.3.5	Various searches and filtering by parameters: status, auditor, period, etc.	M
1.3.6	Opportunity for monitoring the approved action plan and assessing the implementation process.	M
1.3.7	Generation of various reports relating to the actions.	M
1.3.8	Opportunity for compiling, approving, modifying, importing and exporting necessary working documents.	M

2. Management, Testing and Training of Specialists

Management, testing and training processes of auditor are similar to the data management requirements of other sphere specialists, with certain characteristic features, particularly:

- The authorized body for management, testing and training of qualified auditors is the Ministry of Finance of the Republic of Armenia (CHU Central Harmonization Unit).
- The registration of qualified auditors in the Registry is carried out based on both the test results and the certificate issued by the supplier, considered acceptable by the authorized body.

Management, testing and training functions of specialists in GFMIS are planned to be implemented through modules of the same name. The detailed description and functional requirements of the mentioned modules are presented in Appendix J.

3. Analysis and Reporting

For the effective implementation of Internal Audit process, it is necessary to provide a methodology of analysis and reporting, which assumes the implementation of several processes, particularly:

- Data collection from all necessary modules and external systems,
- Conduct analyses based on collected data, e.g.
  - ➢ Risk assessment of units (functions) defined in the audit universe,
  - ➢ Prioritizing between processes with the same risk score,
  - ➢ Formulating a strategic plan based on the assessed risks and priorities,
  - ➢ Obtaining and analyzing various information (procurement, budgeting, accounting and other comparable indicators) for the implementation of internal audit engagements.
- Formation of static, dynamic and ad-hoc reports, e.g.:
  - ➢ Initial report of internal audit engagement,
  - ➢ Interim report of internal audit engagement,
  - ➢ Final report of internal audit engagement,
  - ➢ Annual report of internal audit,
  - ➢ Annual review report of internal audit.
- Availability of displaying data to be published in the public domain (for example, Information Portal) in special formats: tables, graphs, diagrams, etc.

It is planned to include an Analytical-Reporting module in GFMIS, which shall ensure the equivalent implementation of the aforementioned functions for all the GFMIS modules. The detailed description and functional requirements of the Analytical-Reporting module are presented in Appendix I.

The functional requirements related to the analysis and reporting of according to the MoSCoW classification are presented in Table AH-3.

Table AH-3

3. Requirement of Analysis and Reporting		**MoSCoW classification**
3.1 Data Warehouse **According to the requirements of the 1st section of Appendix I.*		M
3.2 Data Modeling **According to the requirements of the 2nd section of Appendix I, particularly*		M
3.2.1	Development of at least the following types of report: static, dynamic and ad-hoc reports (Appendix I. 2.2.2): ● Internal audit engagement by type (initial, interim and final), ● Internal audit activities by beneficiaries (annual and annual review).	M
3.2.2	Development of at least the following types of decision-making models/algorithms (Appendix I, 2.2.3): ● Risk assessment of units subject to internal audit, ● Prioritizing of actions with the same risk level,	M

	• Notification of compliance with deadlines for providing information to various bodies (for example, the authorized body).	
3.3 Directory Development **According to the requirements of the 3rd section of Appendix I.*		M
3.3.1	Organizational structure (tree) by units, subordination.	M
3.3.2	Functions of organization units.	M
3.4 Data Prevision **According to the requirements of the 4th section of Appendix I .*		M

4. User Management

The functions of user management of Internal Audit shall comply with the principles defined in the GFMIS Conceptual Model. It is planned to implement a User Management Module which should provide centralized user management of all modules (Single Sign-On authentication must be applied - one user for all modules).

Detailed description and functional requirements of User Management Module are presented in Appendix K.

Appendix I. Analytical-Reporting module

Contect

Introduction

Analysis and reporting functions in all modules of the GFMIS are planned to be implemented in the Analytical-Reporting module (according to the GFMIS implementation model), which should allow solving several important issues/tasks, such as:

- Collect all the analytical data from different modules of GFMIS as well as external systems
- Conduct analysis based on collected data
- Provide necessary data to the GFMIS modules during various processes
- Get static, dynamic and ad-hoc reports

Analytical-Reporting module should be developed according to business intelligence (BI) architecture. A BI architecture framework consists of certain steps.

Each of those steps has its own purpose, such as:

1. **Data collection**: The first step is to collect relevant data from various external and internal sources: databases, external systems, files or APIs.
2. **Data integration**: At this stage, the collected data is integrated into a centralized system, often with the help of ETL (extract, transform, load) processes. Here the data is cleaned and prepared for storage.
3. **Data storage**: Data storage is performed in this step. Data Warehouse is a place where structured data is stored. It makes data available for querying and analysis.
4. **Data modeling**: Once the information is processed, stored and cleaned, it is ready for modeling. With the help of tools, data is modeled for various purposes: provisioning to external systems or modules, reporting, analysis, etc.
5. **Data presentation**: Data models can be turned into graphs, charts, reports, dashboards, APIs, and more.
6. **Reaction based on perception**: The last stage of the architecture process is extracting applicable perceptions from the data and using them to make decisions.

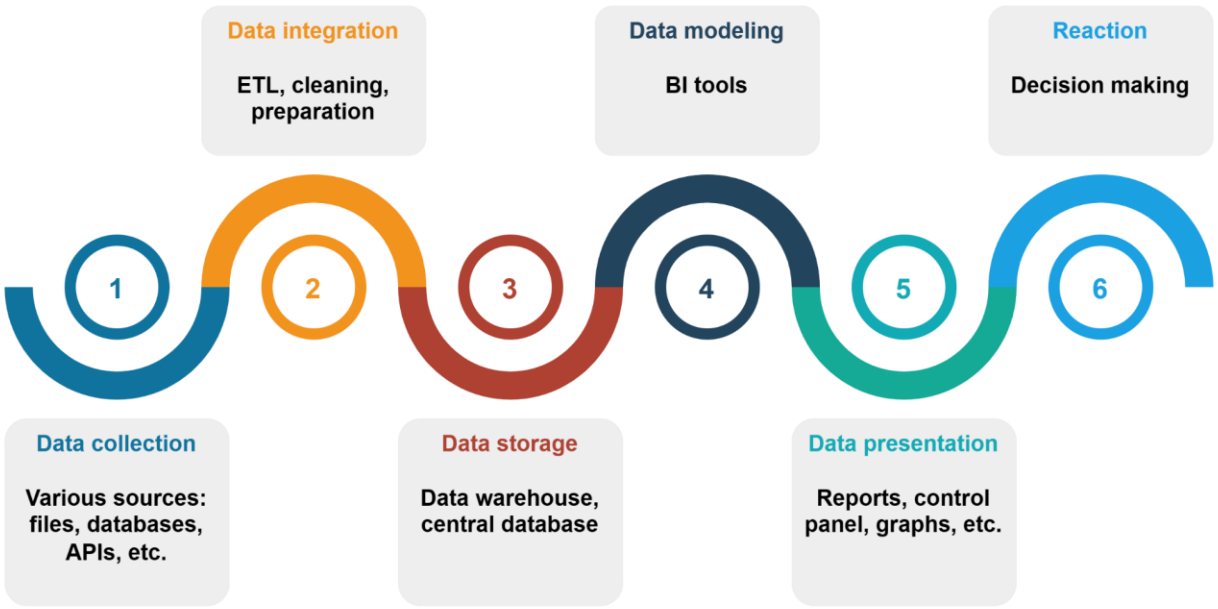


Figure AI.1. BI architecture framework

The Analytical-Reporting module is one of the most important modules of GFMIS, as it will allow it to automate decision-making in many processes, data processing, etc.

The Analytical-Reporting module is also planned to be used for receiving the necessary reports in all modules. It should use BI tools, which will allow to receive any type of reports from the data collected in different modules of the GFMIS:

- **Static** - with specific requirements (e.g., annual reports)
- **Dynamic** - by entering any input data (e.g., for any period, or any region, etc.)
- **Ad-hoc** - arbitrary data combination, arbitrary type of reports.

In general, the Analytical-Reporting module should allow to receive data from different modules of the GFMIS, as well as from other external sources, perform various simulations, receive the necessary data models, including reports, and provide them as needed. The functions characteristic of the module should be:

- Collection of necessary and sufficient data from various sources.
- Implementation of appropriate analytical algorithms/formulas.
- To apply the implemented algorithms to the necessary data (input data).
- Saving and/or exporting model (output data) obtained as a result of applying algorithms (these will serve as input data in other processes or algorithms).

The Analytical-Reporting module is planned to be introduced into GFMIS to execute analytical and reporting functions in one domain by all modules.

The structure of the Analytical-Reporting module is given in Figure AI.2.

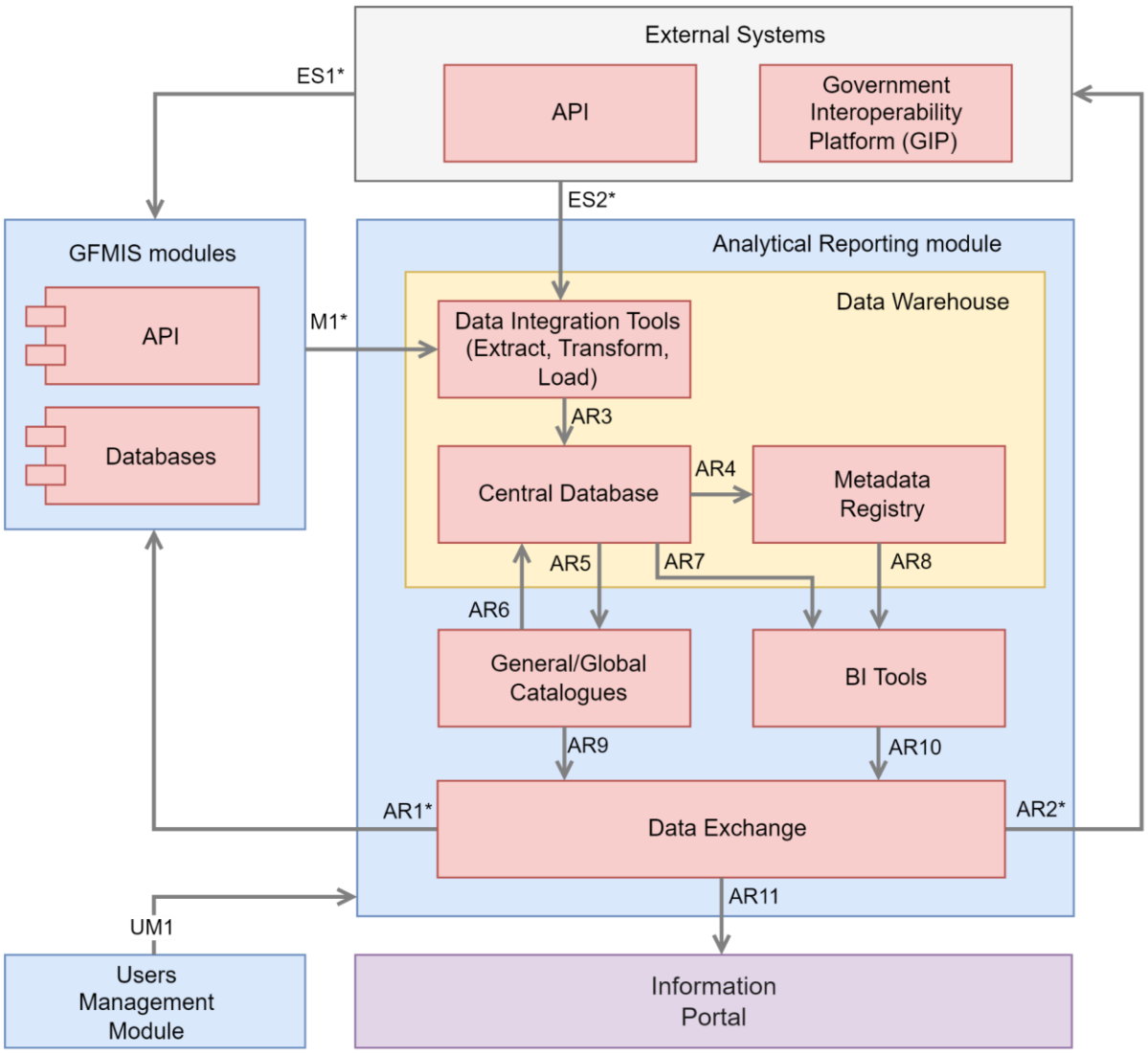


Figure AI.2: Analytical-Reporting module structure

The description of the data exchanged within the scope of the Analytical-Reporting module, as well as exchanged with external systems, is presented in Table AI.1.

Table AI.1 Data description of Analytical Reporting module

Data	Description	Source Module/Submodule	User Module/Submodule
M1*	Analytical data of GFMIS Modules	GFMIS modules	Analytical Reporting Module/ ETL
ES1*	Data from external systems for GFMIS modules	External Systems	GFMIS Modules

ES2*	Data from external systems for analytical-reporting issues.	External Systems	Analytical Reporting Module/ ETL
AR1*	Analytical data generated from data from all modules and/or external systems	Analytical Reporting Module/Data Exchange	GFMIS Modules
AR2*	Analytical data generated from data from all modules.	Analytical Reporting Module/Data Exchange	External Systems
AR3	Structured or unstructured data	Analytical Reporting Module/ ETL	Analytical Reporting Module/Central Database
AR4	Central database structure, data sources, etc.	Analytical Reporting Module/Central Database	Analytical Reporting Module/Metadata Registry
AR5	Saved data on Catalogues	Analytical Reporting Module/Central Database	Analytical Reporting Module/Global Catalogues
AR6	Catalogues	Analytical Reporting Module/Global Catalogues	Analytical Reporting Module/Central Database
AR7	Data subject to analytical processing	Analytical Reporting Module/Central Database	Analytical Reporting Module/BI Tools
AR8	Metadata (semantic data) necessary during analytical process	Analytical Reporting Module/Metadata Registry	Analytical Reporting Module/BI Tools
AR9	Catalogues data to be provided to the GFMIS modules and/or External systems	Analytical Reporting Module/Global Catalogues	Analytical Reporting Modul/ Data Exchange
AR10	Developed data models - reporting, decision-making, etc	Analytical Reporting Module/BI Tools	Analytical Reporting Modul/ Data Exchange
AR11	Public data - public reports, analysis, etc	Analytical Reporting Modul/ Data Exchange	Information Portal
UM1	1. User permissions 2. User data	User Management Module	GFMIS Modules

The functional hierarchy, which must be provided by the Module of Analytical-Reporting, is presented in Figure AI.3.

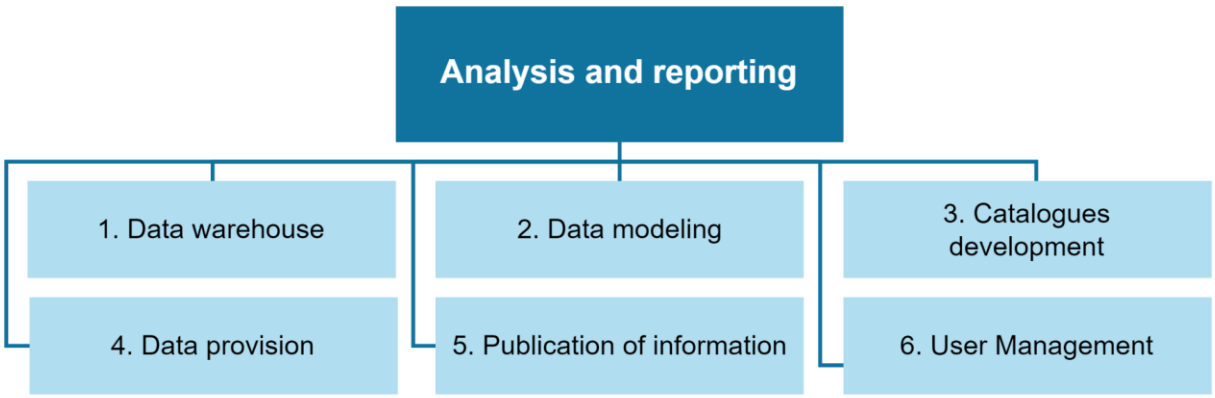


Figure AI.3 High-level functional hierarchy of Analytical-Reports module

1. Data warehouse

Analytic data collection should be carried out in the data warehouse (Figure A.I.2), according to the BI architecture **collection, integration**, **storage** steps methodology. It should be possible to perform the following functions (Figure A.I.4):

- **Data collection**: extracting, transforming, and loading (ETL) data from various modules of GFMIS and external systems into a centralized database.
- **Data storage**: storing the collected data in a centralized database.
- **Metadata development**: development data about the data stored in the data warehouse, including the data in the centralized database[34]: semantics, source of origin, etc.

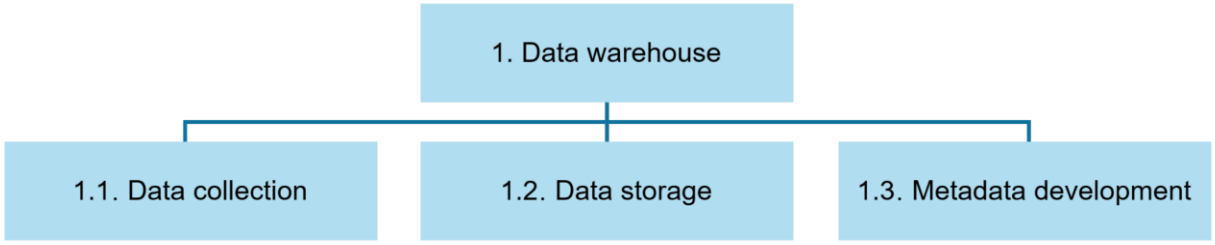


Figure AI.4 Functional hierarchy of data warehouse

The functional requirements for data storage according to the MoSCoW classification are given in table AI.2

Table AI.2

1. Functional requirement for data storage		MoSCoW Classifier
1.1 Data Collection		
1.1.1	Extracting data from the following sources (**Extract**):	M

[34] Metadata: data about data.

	● From GFMIS modules (from a separate database designed for them, according to the architecture: Appendix B, Section 3.1, Clause NF.1.1.1) ● From external systems (operating outside GFMIS) ● Data files (xml, json, xls, csv)	
1.1.2	Various transformation of received data (**Transform**) ● sorting ● joining ● aggregation ● splitting ● etc	M
1.1.3	Loading (**Load**) transformed data in the centralized database (1.2).	M
1.1.4	Depending on the type of data, the above three points should be possible: ● Manually - at once. ● Automatically - for similar data groups, at certain intervals depending on the data group (configurable - Stream Data Integration). ● History of storage information of similar data groups with a chronological period (configurable).	S
1.2 Data Storage		
1.2.1	The collected data must be stored in a centralized relational database such as MSSQL, PostgreSQL, MySQL, Oracle, or equivalent.	M
1.2.2	The centralized database must have a management tool: Relational Database Management System (RDBMS).	M
1.2.3	The centralized database should provide multidimensional analysis (MDA) using analytical cubes.	M
1.3 Metadata development		
1.3.1	Development of the descriptive data of the data warehouse: ● Structure ● Data sources ● Toolkit ● etc	M
1.3.2	Development of the metadata for the following groups of data processed in the data warehouse: ● **Business Metadata** - Ownership*, Signification, Semantics ● **Technical metadata** - Database, table, column, size, type, allowed values, etc. ● **Operational metadata** - Activity, archiving, history of migration transformations ** Each module of* GFMIS *operates a separate group of data for which that module is the data owner. For data received from external systems, the given system is the owner.*	M

1.3.3	Limiting access to metadata (must be accessible only to necessary users).	M

2. Data modeling

Data modeling should allow various models to be derived from the stored data for reporting, analysis and decision making. Modeling should be done using BI Tools and allow the following (Figure AI.5):

- **Data analysis** - obtaining and exploring structured data stored in a data warehouse, as well as related metadata.
- **Development of the models** - modeling of the data obtained from the data warehouse, as a result of which it should be possible to obtain reports, analysis, as well as decision-making models.
- **Data visualization** - various visualizations of the obtained models: in graphical (for reports and reporting dashboards) and machine language (for providing decision-making data to various modules of the GFMIS).

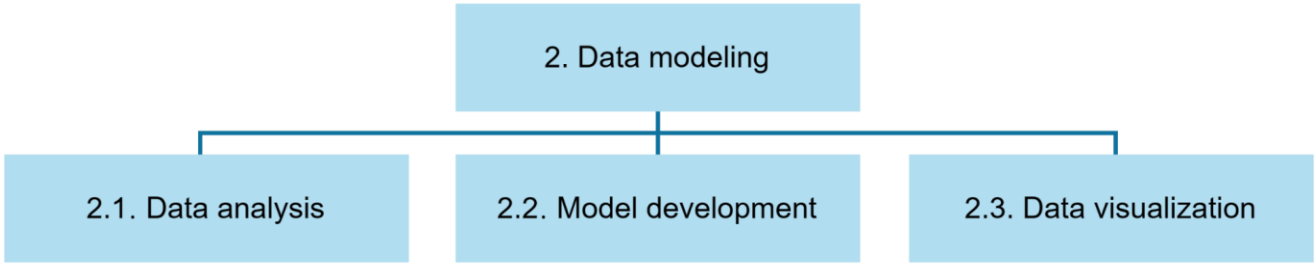


Figure AI.5 Functional hierarchy of Data Modeling

Functional requirements for Data Modeling according to the MoSCoW classifier are given in table AI.3

Table AI.3

2. A functional requirement for data modeling		MoSCoW Classifier
2.1 Data Analysis		
2.1.1	Obtaining the necessary structured data available in the data warehouse, as well as analytical Cube models using a graphical tool.	M
2.1.2	Obtaining metadata using a graphical tool (for the data defined in clause 2.1.1).	M
2.1.3	An accessible graphical representation of data and metadata for exploration.	M
2.2 Development of models		
2.2.1	Development of multidimensional data models (cubes) with OLAP technology, which should be used in the development of various reporting and decision-making models.	M
2.2.2	Development of data models for obtaining various reports: • static • dynamic • Ad-hoc	M

	using both graphic tools and programming languages (preferably Python, R).	
2.2.3	Development of data models for making various decisions. using both graphic tools and programming languages (preferably Python, R).	M
2.3 Data visualization		
2.3.1	Obtaining reports in the GFMIS modules based on pre-developed models: ● static ● dynamic ● ad-hoc Reports should have an accessible graphical representation in various forms: ● tables ● diagrams ● mapings ● etc.	M
2.3.2	Submission of decision-making data to the GFMIS modules, during the necessary processes, in the necessary format. For example, a combination of data from previous years in the budget formation process.	M
2.3.3	Ensuring availability of analytical dashboard data for the Information portal.	M

3. General or Global Catalogs (Directory) development

It is planned to have a single System of General or Global Catalogs in GFMIS, which will be applicable for all necessary modules of GFMIS. Catalogs are information of general use, for example, catalogs of regions, cities, or economic classifiers. Economic classifiers control, changes, additions must be carried out by the Budgeting Department of the Ministry of Finance of the RA. However, economic classifiers are used not only by the Budgeting module, but also, for example, by the Public Sector Accounting module, to perform accounting according to economic classifiers.

The development of Catalogs is planned to be included in the Analytical-Reporting module using an equivalent tool that will allow authorized users to:

- Develop (create, edit, remove) Catalogs and its groups.
- Keep the developed Catalogs in a centralized manner.
- Provide the Catalogs to the necessary modules.

Functional requirements for information processing according to the MoSCoW classification are given in table AI.4.

Table AI.4

3. A functional requirement for General or Global Catalog processing		MoSCoW Classifier
3.1	Development of Catalog's groups .	M
3.2	Ensuring access of the groups to the necessary GFMIS modules.	M
3.3	Development of Catalogs, involvement in the groups.	M

4. Data Provision

The data processed in the Analytical-Reporting module - modeled data (Section 2) and catalogs (Section 3) - should be able to be provided to the necessary modules of the GFMIS, to be provided to external systems and presented in the public environment - on the Information Portal. For this, the Analytical-Reporting module should have the necessary submodule, which will allow to implement (Figure AI.6):

- Transform the data processed in the model into the format required by other modules of the GFMIS, external systems or the format required by Information Portal.
- Provide access with necessary security and in accordance with data provision standards.

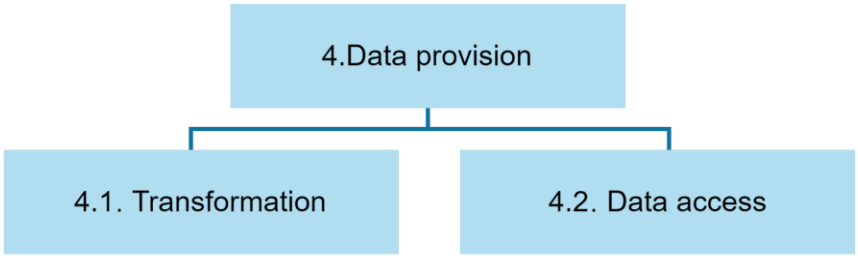


Figure AI.6 Functional hierarchy of data provisioning

The functional requirements for Data Provision according to the MoSCoW classification are given in table AI.5

Table AI.5

4. Functional requirement for data provision		MoSCoW Classifier
4.1 Transformation		
4.1.1	Convert the data to the required formats: JSON, XML or other	S
4.2 Data access		
4.2.1	Providing data in accordance with any of the accepted standards, the RESTful API architecture is preferred.	S
4.2.2	API Description.	M
4.2.3	Ensuring security of data exchange: ● providing via secure encrypted connection: https, SSL, TLS; ● restriction of access to unwanted IP addresses and/or domains, ● restriction of access for non-authorized requests (for non-public data): Authentication: e.g. OAuth 2.0; ● data validation to verify compliance with application requirements; ● logging.	S

5. Publication of information

In the processes of various modules, publishable data and reports are generated, for which both the public and only the authorized body must be accessible.

State bodies submit reports to sectoral authorized bodies. For example, the internal auditors of various bodies submit annual reports to the authorized body - the RA MoF (Internal Audit Department). The authorized body should have the opportunity to see both the reports of individual bodies, as well as their aggregations, time differences, etc. Similar reports can be reflected in the reporting section of the relevant module or in the Information Portal with limited permissions.

Publication of public data should be carried out only in the Information Portal without restrictions. Public users should be able to search and/or filter data in the Information Portal in a predefined format: reports, graphical presentations, etc.

The information portal should be a separate website (the implementation will be carried out within the framework of the technical task of the GFMIS).

The necessary data Information Portal can get from the Analytical-Reporting module.

Functional requirements related to the publication of information according to the MoSCoW classification are given in table AI.6.

Table AI.6

5. Functional requirement for publication of information		MoSCoW Classifier
5.1	Presentation of public data generated in the analytical-reporting module in the Information Portal, without restrictions, in defined formats, for example: ● Charts ● Diagrams ● Tables ● Other formats with the possibility of searching and filtering.	M
5.2	Presentation of reporting data available only to the authorized body in the Information Portal with limited permissions, in defined formats, for example: ● Charts ● Diagrams ● Tables ● Other formats with the possibility of searching and filtering.	S
5.3	Presentation of reporting data available only to the authorized body in the reporting section of the relevant module, in defined formats, for example: ● Charts ● Diagrams ● Tables ● Other formats with the possibility of searching and filtering	S
5.4	Export of reports presented in all previous points in PDF, XLS, CSV formats.	M

6. User management

Different tools of the Analytical-Reporting module should be accessible to separate groups of users, which should be implemented according to the requirements presented in Appendix K (User Management).

Appendix J. Specialists Management module, Testing module, Training module

Contect

Introduction

It is planned to manage the data of field specialists (internal auditors, accountants, etc.) operating within the framework of the GFMIS in the Specialists' Management module which will ensure permissions of specialists in appropriate modules. In the Specialists' Management module, data should be processed based on the results of testing and training.

Only those participants who have submitted an appropriate application (in the Specialists' Management module) can undergo testing or training. Only those specialists who have passed the certification testing threshold can appear in the Specialists' Management Registry. The certification must have a validity period, before the expiration of which the specialist must undergo training or retest to maintain the certification or extend the period of certificate. After the deadline, the specialist's data must be removed from the Registry or receive the appropriate status (inactive), which should exclude his professional activity within the GFMIS.

Only specialists in the Registry whose qualification period has not yet expired (active) can undergo training. In other words, training courses are organized for active professionals.

Both testing and training results should be public.

The User Management module (details in Appendix K) should use the information from the Specialists' Management Registry when assigning appropriate permissions to users. Only in that case, the user can get the necessary permissions (this applies only to specialists), if his data is available in the Registry (as a specialist) with appropriate status (active). For example, if a user's data as an internal auditor is not present in the Registry, then the given user may not have internal auditor permission to perform the relevant functions in the Internal Audit module.

Data flow between the mentioned modules is given in figure AJ.1.

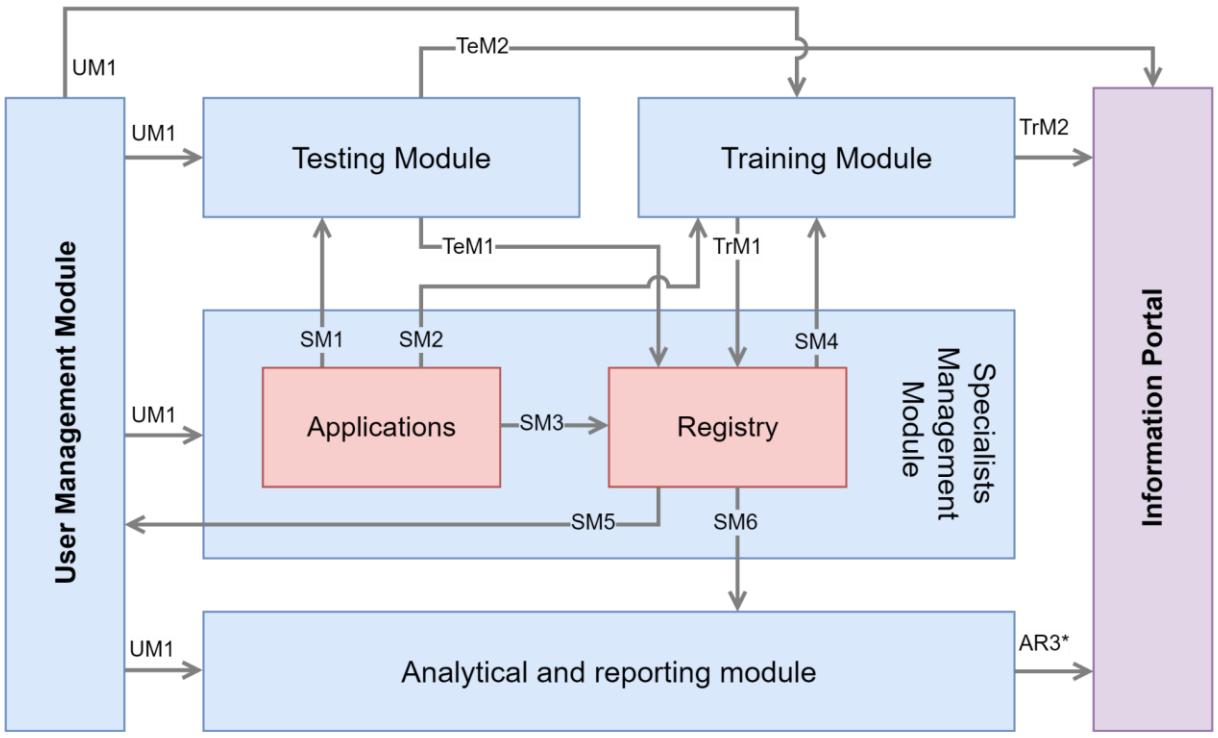


Figure AJ.1. Structure and data flow of the Specialist Management, Testing and Training modules

Table AJ.1 Data description of specialists' management, testing, training and user management modules

Data	Description	Source Module/Submodule	User Module/Submodule
SM1	Testing applications/requests	Specialists Management Module	Testing Module
SM2	Training applications/requests	Specialists Management Module	Training Module
SM3	Data confirming the certificate or qualification accepted by the authority	Specialists Management Module/Applications	Specialists Management Module/ Registry
SM4	Data on specialists to be trained	Specialists Management Module/ Registry	Training Module
SM5	User management data on specialists - status, certification, etc.	Specialists Management Module/Registry	User Management Module
SM6	Analytical data on specialists (M1*)	Specialists Management Module/Registry	Analytical Reporting Module

TeM1	Data on tested specialists	Testing Module	Specialists Management Module/ Registry
TeM2	Public data on tested specialists	Testing Module	Information Portal
TrM1	Data on trained specialists	Training Module	Specialists Management Module/ Registry
TrM2	Public data on trained specialists	Training Module	Information Portal
AR3*	Public analytical or reporting data 1. Public data of Registry	Analytical Reporting Module	Information Portal
UM1	1. User permissions 2. User data	User Management Module	GFMIS Modules

A high level functional hierarchy of Specialists' management, Testing, Training and User Management modules is presented in Figure AJ.2.

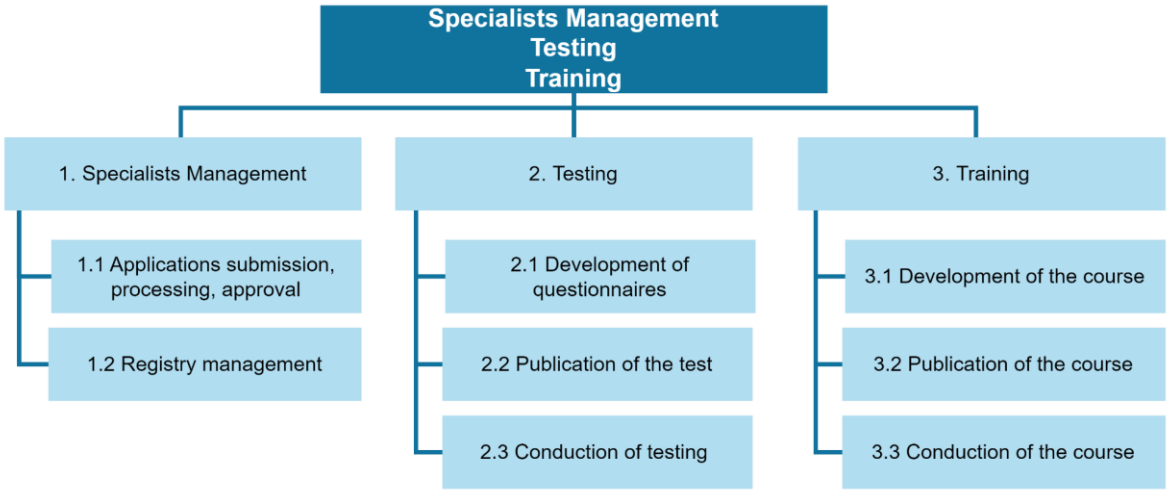


Figure AJ.2 High level functional hierarchy of modules

1. Specialists management

Management of specialists is:

- acceptance and processing applications for testing or training
- creating and maintaining a registry based on the results of testing or training

An example of a conceptual description of specialists' management processes is provided in section 3.1 Auditor Management of the GFMIS Implementation Model - Internal Audit Module document. The examples are presented for internal auditors, but it should be applicable to every type of specialist.

1.1 Application submission, processing, approval

It should be possible to submit applications for participation in testing or training in an electronic manner, which should be available to the relevant specialists of the authorized bodies (for example, an employee of the Internal Audit department of the Ministry of Finance of the RA), who should be able to view and approve or reject the submitted applications. In all cases (approvement or rejection), applicants must be notified.

Applications can be for the following purposes:

- participate in testing
- to be included in the training
- to register directly in the Registry[35]

Applications for testing or training should be accepted in two ways:

- Accepting applications for an activated test or training course (see activation of the test or course in section 2.2 and 3.2 of this appendix).
- Accepting applications regardless of active testing or training. Based on the number of applications, a testing or training course is organized.

Applications for direct registration in the Registry should be submitted only in the presence of a valid certificate issued by an organization acceptable (trusted) to the authorized body.

The conceptual description of the mentioned process is given in the 3.1.1 Submission of Applications section of the GFMIS Implementation Model - Internal Audit Module document.

1.2 Registry management

The Registry of specialists should be carried out in the "Registry" sub-module and allow the following functions to be performed:

- Automatically to recruit certified specialists who have passed the testing.
- Automatically remove from the Registry (or change the status) the data of specialists deprived of certification (whose qualification period has expired).
- Automatically update the data of specialists in the registry, according to the training results (for example, extension of the certification period).
- Notify the authorized body about specialists subject to training (whose certification period is coming to an end).
- Allow the authorized body to manually change or remove the data of specialists (in special cases: a court order or other).

[35] The mentioned option is currently acceptable for internal auditors, as those specialists who have a certificate issued by reputable organizations recognized by the authorized body are also considered qualified in that field. The certificate is submitted with the application, if it is acceptable, the applicant is immediately registered in the Registry.

The Registry data should also be used by the User Management module to define the permissions of the specialists.

The necessary data of the Registry should also be available in the Analytical-Reporting module for the purpose of various reports and analyses, as well as public data to be reflected in the "Information Portal".

The conceptual description of the mentioned process is given in the 3.1.2 Registry functions section of the GFMIS Implementation Model - Internal Audit Module document.

The functional requirements of Specialists Management according to the MoSCoW classification are given in table AJ.2.

Table AJ.2

1. A functional requirement for Specialists Management		MoSCoW Classifier
1.1 Application submission, processing, approval		
1.1.1	Applicants must submit their applications electronically.	M
1.1.2	The possibility of submitting an application for the following purposes: ● participation in testing, ● participation in training, ● to be registered directly in the Registry.	M
1.1.3	The possibility of submitting applications in the following options: ● for an active testing or training session, ● regardless of active testing or training (in advance).	M
1.1.4	Examination, approval or rejection of electronic applications by the relevant authorized body.	M
1.1.5	Notification of approved or rejected applications (via email and/or system) to applicants.	M
1.1.6	Self-enrollment of approved applicants in appropriate processes: testing or training.	M
1.1.7	The ability to direct (without testing and/or training) register in the Registry upon submission of applications with the necessary documents. **The requirement may be applicable later upon presentation of a certificate acceptable by the Authority.*	C
1.1.8	Ensuring automation of the process according to Appendix B, Section 2.3, Clause GF.1.1.	M
1.1.9	Provision of electronic payments according to Appendix B, Section 2.3, Clause GF.2.1.	C
1.2 Registry management		
1.2.1	The possibility of automatic inclusion in the registry for specialists who have passed the certification testing.	M

1.2.2	Based on the results of the training, automatic data changing of the specialists in the registry (for example, extension of the qualification period).	M
1.2.3	Automatic removal of specialist data from the register or changing of status. **For example, when the specialist's qualification period has expired and he has not undergone training.*	M
1.2.4	The ability to manually change the specialist's data in the Registry	M
1.2.5	Notification to the authorized body about the specialists subject to training.	M
1.2.6	Providing specialist data to the User Management module to set appropriate permissions.	M
1.2.7	Real-time publication of Registry data in the Information Portal.	M

2. Testing

The specialists whose activities are allowed only if they have an appropriate status (active or certified) in the Registry must pass certification testing. It is possible to appear in the Registry with an “Active” (or certified) status only if the test results are satisfactory. The result of the testing is the certificate, for which a period of activity is defined. The specialist status is considered active in the Registry until the specified period of certificate has expired. To maintain active status, a specialist must retrain or retake a certificate test.

The testing must be carried out in the Testing module, which must ensure the procedures for testing and awarding certification.

Only those users for whom appropriate permissions will be defined in the User Management module should have access to the testing module, in particular, qualification specialists of the authorized body and persons who have submitted an application for testing. Detailed requirements for User Management are presented in Appendix K.

Testing module should obtain the necessary data from electronic applications submitted by the "Applications" sub-module of the Specialists’ Management module. In other words, those applicants who submitted an electronic application in the "Applications" sub-module and were approved by the authorized body should be able to participate in the testing.

Results of testing must be provided to the "Registry" sub-module of the Specialists’ Management module (only applicants who have received satisfactory test results are registered in the register), as well as the results of testing must be automatically published in the "Information Portal".

The testing module should provide the following functions:

- development of questionnaires
- publication of the test
- conduction of testing

2.1 Development of questionnaires

The questionnaire is a list of individual questions. The development of questions and the questionnaire should be carried out by qualified specialists of the authorized body. Further tests should be conducted on the basis of previously developed questionnaires.

The conceptual description of the mentioned process is given in the 5.1 Creation of questionnaire section of the GFMIS Implementation Model document.

2.2 Publication of the test

The creation and publication of the test should also be carried out by the qualified specialists of the authorized body. It should be possible to create a test (with necessary data: specialization, date/time, location, duration, etc.), define a questionnaire (or what questions should be included) and publish it.

It should be possible to participate in the testing in two ways:

- The test is activated and published on the Information portal, applicants apply to participate in the published testing.
- Applicants submit applications in advance (before the test is published) to participate in preferable certification testing. When the corresponding certification test is published (also published on the Information portal), the applications submitted in advance for the given certification test are automatically assigned to the published/activated test (considered activated test applications), and the applicants are notified of the acceptance of the applications. In addition to previously accepted applications, before the deadline for accepting applications, it should be possible to accept applications in accordance with the previous point, in addition to previously accepted applications.

The conceptual description of the mentioned process is given in the 5.2 Test activation section of the GFMIS Implementation Model document.

2.3 Conduction of testing

Certification tests must be conducted in an electronic manner. Applicants must participate in the test at the time (datetime) and at the designated place for the test, by the starting of a qualified specialist of the authorized body.

After the end of the test, the system should automatically calculate the scores, select those who have passed the threshold, and provide their data to the "Registry" sub-module of the Specialists' management module.

The conceptual description of the mentioned process is given in the 5.3 Conduction of testing section of the GFMIS Implementation Model document.

The results of the testing should also be published on the Information Portal.

The functional requirements for testing according to the MoSCoW classification are given in table AJ.3.

Table AJ.3

2. Functional requirement for Testing	MoSCoW Classifier

2.1 Development of questionnaires		
2.1.1	Ability to process various questions. ● with one correct answer ● with more than one correct answers ● in exact order ● matching ● etc. (if necessary)	M
2.1.2	Assigning points (or weights) to questions.	M
2.1.3	Development of the questionnaire, inclusion of created questions in it.	M
2.2 Publication of the test		
2.2.1	Ability to develop the test with the following data: ● name (certification) ● datetime ● place ● duration ● questionnaire (2.1.3) ● passing score ● etc.	M
2.2.2	Activation and publication of the test in the Information Portal. **It should be possible to submit an electronic application from the published environment (1.1.2)*	M
2.2.3	In case of pre-submitted applications (1.1.3), automatic acceptance of approved applications by activation of testing.	M
2.3 Conduction of testing		
2.3.1	Possibility of electronic testing according to pre-processed data (2.2.1).	M
2.3.2	Possibility of manual and automatic start of test.	M
2.3.3	Ability to identify test participation. ** Must ensure accurate applicant participation.*	M
2.3.4	After the end of the test, automatic calculation of participants' scores.	M
2.3.5	Provision of passed participants data to Registry (1.2.1).	M
2.3.6	Publication of test results in the Information Portal.	M
2.3.7	Evaluation and appeal of the test by the participants.	M

3. Training

The training is offline or online courses organized by the authority, including the certified specialists, whose data are available in the Registry (active).

Specialists must be trained before the expiration of the certification period in order to maintain their operating permissions. If the specialist is not trained before the certification period expires, the latter's data are automatically removed from the Registry. In order to be included in the Registry again, it is necessary to pass a certification test.

Only those users for whom appropriate permissions will be defined in the User Management module should have access to the training module, in particular, specialists who have submitted an application for training. Detailed requirements for User Management are presented in Appendix K.

Training module should obtain the necessary data from electronic applications submitted by the "Applications" sub-module of the Specialists' Management module. Applicants who have completed the appropriate electronic application and have the appropriate status in the Registry (active) should be able to participate in the training.

Training results must be provided to the "Registry" sub-module of the Specialist Management module (the training results are also necessary for maintaining the specialist data in the Registry) and automatically published in the "Information Portal".

The training module should provide the following functions:

- development of the courses
- publication of the course
- conduction of the course

3.1 Development of the Courses

The courses are organized by training specialists of the authorized body. The specified specialists must have the permissions to pre-develop the course with the appropriate topic, materials, plan, instructor data, venue, data (datetime, duration), etc. The course will later be published on the Information Portal, to which relevant specialists should be able to apply.

3.2 Publication of the course

The publication of the course must be carried out by the training specialists of the authorized body.

It should be possible to apply for the course in two ways:

- The course is activated, published on the Information portal, applicants submit an application to participate in the activated course.
- Applicants submit applications in advance (the course is not published yet) to participate in a training course. When the relevant course is activated (as well as published on the Information portal), applications for pre-participation in the given course are automatically assigned to the specified course (considered applications for the activated course), and applicants are notified about the acceptance of applications. In addition to previously accepted applications, before the deadline for accepting applications, it should be possible to accept applications in accordance with the previous point.

The conceptual description of the processes of Development and Publication of the course is given in the 6.1 Training activation section of the GFMIS Implementation Model document.

3.3 Conduction of the course

The courses are held offline or online. Specialists participate in the course according to the defined course data (which were defined during the pre-development of the course: clause 3. 1). It should be possible for the instructor to carry out a course, maintain attendance and grades.

The completion of the course can be summarized either by the average score of the course, or by a test (this is a separate test from the certification test that evaluates the knowledge gained from the course), or by a combined result of both.

After summarizing the results of the course, the system should automatically calculate the scores, select passed participants, and provide their data to the "Registry" sub-module of the Specialists' management module.

The conceptual description of the mentioned process is given in the 6.2 Conduction of the course section of the GFMIS Implementation Model document.

The results of the courses should also be published on the Information portal.

The functional requirements of training according to the MoSCoW classification are given in table AJ.4.

Table AJ.4

3. Functional requirements for Training		MoSCoW Classifier
3.1 Development of the Courses		
3.1.1	Ability to process course data by the following information: ● theme ● topics ● plan ● lecturer ● venue ● datetime ● duration ● passing score ● etc.	M
3.2 Publication of the course		
3.2.1	Activation and publication of the course in the Information Portal. ** It should be possible to submit an electronic application from the published environment (1.1.2)*	M
3.2.2	In case of pre-submitted applications (1.1.3), automatic acceptance of approved applications during training activation.	M
3.3 Conduction of the course		
3.3.1	Possibility of conducting online and offline (on-site) courses, according to the course data (3.1.1).	M

	**For offline (on-site) courses the current and final results must be entered.*	
3.3.2	Ability to start and end the course both manually and automatically.	M
3.3.3	Keeping attendance and evaluation records (grades) of participants.	M
3.3.4	Possibility of electronic testing at the end of the course.	M
3.3.4	Auto summary of the results based on the participants' attendance and/or current assessment and/or final testing results.	M
3.3.5	Provision of passed participants' data to Registry (1.2.1).	M
3.3.6	Publication of training results in the Information Portal.	M
3.3.7	Possibility of evaluation of the training course by the participants.	M

Appendix K. User management module

Content

Introduction

As presented in the GFMIS implementation model, GFMIS is a modular system. In other words, each module will represent an autonomous electronic system with data exchange to each other.

It is not advisable for each module (or autonomous system) to have its own separate user management (UM) submodule, as this may lead to some inconvenience. For example, if a user needs to use the functions of several modules, then he is obliged to have several user accounts and use the appropriate user account when accessing different modules. It is an inconvenience from the user's point of view. In addition, such an approach will lead to non-centralized user management. i.e. separate management for each module, separate security policy, etc.

In order to avoid such inconveniences and security problems, it is necessary to implement the centralized “User Management" module, which will allow:

- Define and manage user security policies for all modules in a centralized manner.
- Grant administrative authority to individual users for each modules, who in turn will create other users and complete the functionality of the given module
- Perform functions of different modules with one user account within the scope of authority

It is planned to introduce a separate module in GFMIS, the "User Management" module, which will allow centralized management of the user accounts of all modules. The User Management module must be designed in such a way as to allow the centralized management of the users of other modules of the GFMIS.

The structure of the user management module is shown in figure AK.1. It consists of two sub-modules: Account Management and Identification sub-modules.

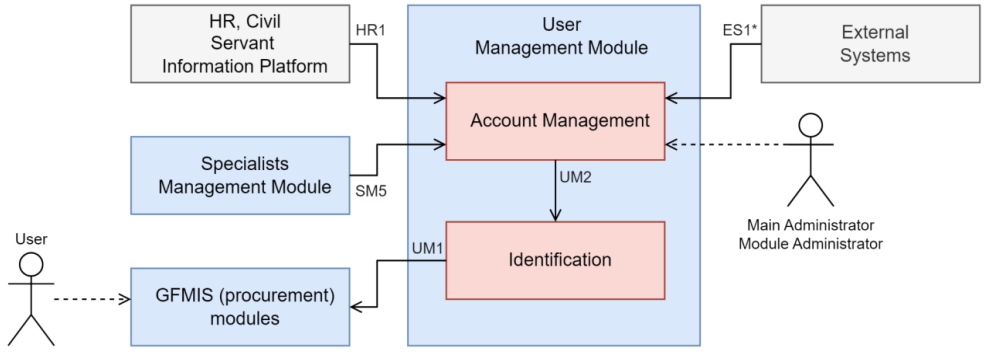


Figure AK.1. Structure and data flow of the User Management module

Table AK.1 Data description of User Management module

Data	Description	Source Module/Submodule	User Module/Submodule
SM5	User management data on specialists - status, certification, etc.	Specialists Management Module	User Management Module/Account Management

HR1	Data from external systems for User Management Module (ES1*) 1. HR data - employee, status, etc.	External Systems: 1. Human Resources System, 2. CSIP	User Management Module/Account Management
UM1	1. User permissions 2. User data	User Management Module/Identification	GFMIS modules
UM2	User account data, permissions	User Management Module/Account Management	User Management Module/Identification
ES1*	Data from external systems for User Management Module: 1. Personal data 2. Legal entity data	External Systems: 1. SRP 2. SRLE	User Management Module/Account Management

The high level functional hierarchy of the user management module is shown in Figure AK.2.

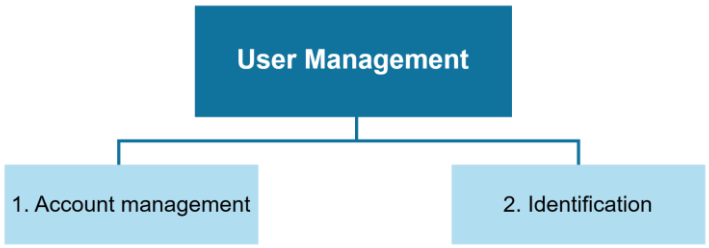


Figure AK.2 High level functional hierarchy of User Management module

The conceptual description of the user management process is given in the 4.2 User management process section of the GFMIS Implementation Model.

1. Account management

Management of user accounts should be carried out through the sub-module of the same name, which should allow the following functions to be implemented (figure AK.3):

- **User management**: create, edit, delete, assign roles, assign attributes, etc.
- **Manage roles**: create, edit, remove, set permissions, assign attributes, etc.
- **Attribute management:** creation, editing, removal.
- **Management of profiles:** ability by the users to effectively manage their data, enabling them to maintain control and oversight over personal information.

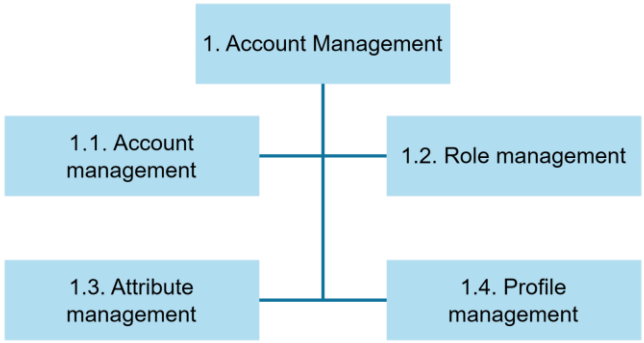


Figure AK.3 Functional hierarchy of Account management

The Account Management sub-module must be used by the Main Administrator or an individual Module Administrator.

Main administrator

- Must define user management policies (complexity and frequency of password changes, deactivation of user accounts on time and/or termination, etc.)
- Must create administrative users for other modules - Specialists Management module

Module administrator

- Must create users for specified module
- Must create roles (groups) by giving them appropriate permissions within the module
- Must create attributes according to module functions
- Must assign roles to existing users and/or assign individual permissions and attributes
- Must be able to manage user accounts, disable permissions, remove, etc.

User

- Must complete, edit, delete personal data
- Should conduct a survey on changes in authority
- Other functions

For account management of field specialists (internal auditors, accountants, etc.), the Account Management sub-module should interact with the Specialists' Management module.

The Registry[36] (SM5 - presence in the register, status or other) will allow to create user accounts for the relevant specialists, as well as to manage the user account automatically (for example, to deactivate the user account in case of removal from the register or change of the relevant status).

[36] Details on the register are described in APPENDIX J - Specialists Management module, Testing module, Training module.

The user account management sub-module should interact with the human resources management (personnel) systems operating in the bodies, as well as with CSIP[37] for user management. Accounts may be opened, removed or deactivated based on information from the mentioned systems. For example, if an employee's data is removed from the personnel system or the employee is on vacation, then this data can allow the user account of the given employee to be automatically deactivated[38].

To make user management more convenient and flexible, role-based access control and attribute-based access control should be used.

Role Based Access Control

The implementation of role-based user management offers a streamlined approach to effectively handle user permissions. In addition to the user, the idea of a role will be applied, to which it should be possible to assign a range of permissions. Then, it should be possible to assign a role to the user. This means that the user is granted the scope of permissions that was granted to the role. For example, let's assume that in any department of the body there is more than one similar position - senior specialist - which should have the same scope of permissions. One role, e.g. "Senior Specialist", should be created and assigned a scope of permissions. Then, the created role should be able to be assigned to the user instead of giving each user a set of permissions individually. This means that all users to whom the role is assigned must be granted the role's scope of permissions. If in the future there is a need to change the permissions of any position, it should be possible to do so by changing the scope of permissions of the corresponding role, which in turn will change the scope of permissions of all the beneficiaries to which that role is assigned.

The system should support the assignment of multiple roles to a single user, allowing for increased flexibility in managing permissions. In cases where a user requires temporary access with additional permissions, the system should facilitate the seamless addition of the relevant role to the user's profile.

Attribute Based Access Control

The idea of attributes should allow to make permissions more flexible. In addition to granting any permission to the user, it should be possible to limit that permission according to an attribute. For example, the budgeting module user (the budget forming specialist) is assigned the permissions to form a budget. The use of attributes should restrict the permission of a given user only for the budget formation of his body. In addition, it should also be possible to limit the range of budget formation of its body according to certain parameters. In this case, the user's body and the parameters according to which the range of budget formation was limited act as attributes.

Profile management

Profile management should encompass comprehensive control, efficient management, and meticulous traceability of users' personal data, functions, files, settings, and other relevant elements within the digital environment. For example, a user of any module, by logging into his profile, should have the opportunity

[37] CSIP – Civil Servant Information Platform.
[38] Implementation of the process should be discussed at the initial study stage.

to manage his personal data, as well as all the functions he has performed according to dates, status, existing documents, etc.

The utilization of profiles enables the delivery of targeted messages to users within their respective environments (profiles). This functionality allows for effective communication regarding important updates, such as the availability of existing certificates, expiration dates, training, as well as other necessary information.

Functional requirements for account management according to the MoSCoW classification are given in table AK.2

Table AK.2

1. Account management functionality requirement		MoSCoW Classifier
1.1 Account Management		
1.1.1	User account creation by the module administrator. Two types of accounts: employees and organizations. The account must have at least the following information: ● username: ● password: ● e-mail address ● for identification - PSN for employees and TIN for organizations (and/or ID and/or MobileID - for identification by ID card and/or mobile phone) ● personal data (must be obtained from SRP) in case of employees ● organization data (must be obtained from SRLE) in the case of organizations ● available working hours ● status (e.g., active, inactive)	M
1.1.2	Account management for non-residents. Person/organization authentication and account creation (or self-registration confirmation) must be performed by an authorized user.	S
1.1.3	Automatic creation of user accounts based on the data of the employees operating in the human resources management (personnel) system and/or in the CSIP, in the case of integration of the mentioned systems. User account creation must take place with the approval of the module administrator.	S
1.1.4	Self-registration of user accounts by employees or organizations (including non-residents). Self-registered user accounts shall be applicable by the system only in case of confirmation of the registration by the administrator of any module (to which module or modules the self-registrant applied for access). During self-registration, it should be possible to apply for access to one or more modules at once. The approval of the module administrator/s should provide access to the given	S

	module/s.	
1.1.5	User account editing by the module administrator. ● change of permitted data (1.1.1) (e.g. status, available working hours), ● Add/Remove Module Scope Authority/s ● adding, removing module scope role/s, ● adding, removing module scope attribute/s.	M
1.1.6	Account editing by employees or organizations: ● change of data (1.1.1) permitted by the performer, ● a request to add/remove permission/s of the module scope, which must be accepted by the system only after the approval of the module administrator (the latter must be able to reject or approve the request); ● a request to add or remove module scope role/s, which must be accepted by the system only after approval by the module administrator (the latter must be able to reject or approve the request); ● request to add/remove module scope attribute/s, which must be accepted by the system only after approval by the module administrator (the latter must be able to reject or approve the request).	M
1.1.7	User account removal or archive by module administrator.	M
1.1.8	User account removal or archiving request by employees or organizations, which must be accepted by the system only after approval by the module administrator (the latter must be able to reject or approve the request).	M
1.1.9	Automatic adjustment of the user account, based on the data received from the human resources management (personnel) system and/or the CSIP system, in the case of the integration of the mentioned systems. ** For example, if an employee's data is changed in the specified systems (for example, a change of dismissal or vacation departure is made), then based on these data, a change of the self-employed user account data (status change, removal, archiving or other function) should be performed. The change of user account data must be done with the approval of the module administrator.*	S
1.1.10	Exchange of data with the user account management sub-module and SRP/SRLE electronic services according to the requirement of Appendix B, Section 3.1, Clause NF.1.3.2.	M
1.1.11	Exchange of data with the user account management sub-module and the human resource management (personnel) system and/or electronic services of the CSIP according to the requirement of Appendix B, Section 3.1, Clause NF.1.3.2	S
1.1.12 Managing Account Settings		

1.1.12.1	It should be possible for the module and the main administrator to configure the password policy, at least: ● minimum and maximum number of characters for the password ● combination of characters ● complexity ● change frequency and history	M
1.1.12.2	It should be possible for the module and the main administrator to configure user logins, at least: ● number of incorrect login attempts ● maximum period of session inactivity after which the account should log out automatically ● maximum period of inactivity of the user account in the system, after which the user account should be automatically deactivated	M
1.2 Role Management		
1.2.1	Role creation by the module and the main administrator must have at least the following data: ● name ● available working hours ● status (eg: active, inactive)	M
1.2.2	Role editing by module and main administrator: ● Change of permitted data (1.2.1) (e.g. status, available working hours) ● addition, removal of permission/s ● Adding, removing attribute/s	M
1.2.3	Removal or archiving of a role by the module and the main administrator. ** A role should not be able to be removed while it is assigned to an user account.*	M
1.2.4 Several types of administrative roles		
1.2.4.1	A module administrator that should only be able to: ● create new user accounts (1.1.1), ● manage existing user accounts* in the system to provide access to the functions of the given module. ● approve or reject self-registrations (1.1.3) ● approve or deny requests for roles and/or permissions and/or attributes for a given module scope (1.1.5) ● approve or deny account removal and/or archiving requests (1.1.7) Must not have permissions to use other functions of the module, only manage user accounts. **All existing user accounts in GFMIS must be accessible to the administrator of each module. One user account must be able to use*	M

	different modules (Appendix B, Section 3.1, Clause NF.1.1.3). Availability must be adjusted by the administrator of the given module by changing the allowed data (1.1.1) (e.g., status, available working hours) and by granting or removing permissions, roles, attributes.	
1.2.4.2	A main administrator who should only be able to: ● create module administrator accounts ● manage user accounts of module administrators: add or remove permissions of module administrators (a module administrator can be an administrator of one or more modules), deactivate, remove or archive an account.	M
1.3 Attribute Management		
1.3.1	Attribute creation by the module administrator must have at least the following information: ● name ● logic/condition/parameter*, ● status (eg: active, inactive). ** The logic/condition/parameter must be configurable by the module administrator, not by using programming knowledge (no-code).*	M
1.3.2	Attribute editing by module administrator: ● Allowed data (1.3.1) change (e.g. status) ● logic/condition/parameter change	M
1.3.3	Attribute removal* or archiving by the module administrator. ** An attribute should not be removable as long as it is assigned to an account or role.*	M
1.4 Profile management		
1.4.1	The profile should include, at minimum, the following data: ● User identification (user ID, picture, etc.). ● Personal data (name, surname, patronymic, date of birth, gender, email address, telephone). ● User type/status. ● Authorization status. ● Settings selected by the user (language, time zone, notification settings, etc.). ● Logging of user activity (login time, pages viewed, actions performed, etc.). ● User status (active, suspended, or deactivated). ● Other information (details under preliminary study).	M
1.4.2	The profile status can be automatically updated through authentication with various internal and external systems. ** Identification with external systems must be conducted via the RA*	M

	Government Interoperability Platform (GIP) in accordance with Appendix B, Section 3.1, Clause NF.1.3.2.	
1.4.3	Ability to save necessary formats in personal profile. For example, certifications, etc.	M

2. Identification

Identification must be carried out by the "Identification sub-module" and must serve to authenticate users who have applied to any module of the GFMIS and provide the scope of their permissions (Authorization) (Figure AK.4). All GFMIS modules must interact directly with this sub-module.

Only those users for whom appropriate permissions will be defined in the Account Management sub-module (UM2) should have access to the GFMIS Modules. When a user tries to access a module, he must contact the Identification sub-module to verify the user's belonging to the system (Authentication) and the scope of his permissions (Authorization).

The Identification sub-module must first of all find out whether the user belongs to the system (Authentication), in case of belonging, it must provide the scope of the given user's permissions (UM1) so that it is possible to provide only the functions available in the given module. The Identification submodule must obtain the scope of user permissions from the Account Management submodule (UM2).

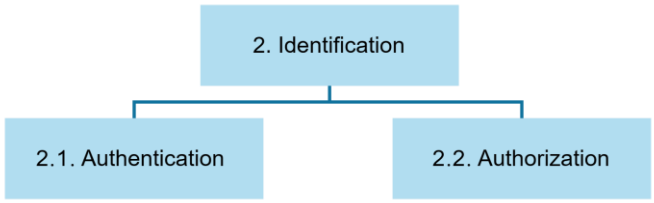


Figure AK.4 Functional Hierarchy of Identification

Functional requirements for identification according to the MoSCoW classifier are given in table AK.3

Table AK.3

2. A functional requirement for Identification		MoSCoW Classifier
2.1 Authentication		
2.1.1	One user account must be able to access all modules of GFMIS, managed by the module administrator (Appendix B, Section 3.1, Clause NF.1.1.3 - single sign on).	M
2.1.2	It should be possible to provide the following types of authentication: ● using a username and password ● PKI-based authentication - with ID card or Mobile ID ● multi factor authentication - by SMS or e-mail.	M
2.2 Authorization		

2.2.1	Authorization of user accounts must be based on roles (RBAC*) and attributes (ABAC**). ** RBAC - Role Based Access Control* *** ABAC - Attribute Based Access Control*	M
2.3 Standards		
2.3.1	OAuth 2.0, OpenID Connect (OIDC) or equivalent standard should be implemented as authentication mechanism standard	S