"Government Finance Management Information System"
implementation project
Report of PHASE 2.2

GFMIS Implementation Model

PUBLIC DEBT AND BUDGET OBLIGATIONS

MANAGEMENT MODULES

Contents:

Abbreviations:

RA:	Republic of Armenia
Finance Ministry	Ministry of Finance
КФКТХ	Government Finance Management Information System
PPKV	State Debt Management Department
CB:	Central bank
PPP:	Government Treasury Bonds
HAPPY	Savings Voucher Bonds
PKP	Government Short Term Bonds
MDP	Medium Term Bonds
EPP	Long Term Bonds
GPA:	Treasury Custodian Work Organization Department
GMC	Treasury Consolidated Account
PBNPKV	Liabilities to the state budget management department
BNPC module	Budget Commitment Management Module

Introduction:

This document presents the summary of the study of various functions carried out in the State Debt Management Department of the RA Ministry of Finance (SDF) and the State Budget Liabilities Management Department, the conclusions based on them, as well as the State Debt within the framework of the Government's Finance Management Information System (FMIS). and proposed functional and structural options for implementation in Budget Commitment Management (BCM) modules.

The proposed options will serve as a basis for further developing the technical task of the State Debt Committee (in this case, regarding the State Debt module). They were created as a result of the study of the existing processes, as well as discussions with the employees of the Department of Management of Obligations to the State Budget and the State Budget.

The document consists of the following sections :

- **study - the functions of the** Department of Management of Obligations to the State Budget and the State Budget are summarized , as well as a general conclusion is presented.

- **Structure** of State Debt and Budget Obligations Management Modules - structural schemes of the State Debt and Budget Obligations Management modules are presented in the context of the State Debt and Budget Obligations Management, internal components (sub-modules), their relationship with each other and external components.

- **Functional description** of the State Debt and Budget Obligations Management modules - the optimal functions implemented through the State Debt and Budget Obligations Management modules are described .

1 . Summary of the study

The implementation of State Debt and Budget Obligations Management modules within the framework of the State Debt and Budget should satisfy the functions of the Department of Public Debt Management and the State Budget Obligations Management Department, therefore :

- existing processes [1]and actors involved in the State Budget Liabilities Management Department ,

- the toolkit for the implementation of the processes and the domains of their activities (the Ministry of Internal Affairs and Communications, the Department of Management of

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[1] The description of the existing processes is given in documents P1-P29 and GZ-PKV1-GZ-PKV6.

Obligations to the State Budget, other departments, the Central Bank, etc.) and their affiliation.

A classified list of the departments' functions was developed with the employees of the Department of Management of Obligations to the State Budget and State Budget (Appendix 1). In the list, functions are grouped multilevel by nature. Such a classification will allow grouping of similar processes (whose requirement is similar or the same from the Public Debt and Budget Obligations Management modules of the FCTC) for a brief functional description of the Public Debt and Budget Obligations Management modules, presenting the process order not for each function, but to their group. This will also make it possible to group various processes in separate sub-modules.

The functions presented in Appendix 1 are grouped by nature as follows :

- **Analytical functions** that include :

  - 1 . 1 Strategy development (excluding functions "1 . 1 . 2 MDP Requests" and 1 . 1 . 3 "Annual Budget Requests" - these are described in the "Budgeting" module)

  - 2 . 1 Cash flow forecast

  - 1.4 Statistics and Reporting

- **Debt collection and repayment** , which includes :

  - 1 . 2 Implementation of the strategy (not including 1.2.2.3 Evaluating the behavior of primary agents, which is a function of a different nature and is presented in a separate clause)

  - 1 . 3 Debt Accounting and Service

- **Fulfillment of obligations regarding participation in the capital of international financial organizations (3.2)**

- **Evaluation of the behavior of primary agents (1.2.2.3).**

The process of "3.1 Debt servicing of non-residents (Georgia) towards RA" carried out in PPKV is left out of the grouping, which by its nature corresponds to the debt management function formed as a result of the provision of budget loans of the State Budget Liabilities Management Department. Also left out of the grouping are the functions of submitting opinions on qualifying charitable programs of the PNPC Department and accounting for commodity and non-commodity grants provided by foreign states of RA, international organizations or other persons, which are functions performed outside of the electronic systems in the context of the PFTC. And the optimal cash flow management processes will be presented within the framework of the Treasury module.

As the studies show, there are no electronic systems implemented in PPKV and PBNPKV, which would allow for joint management of the above-mentioned processes. Various electronic systems (mostly not owned by the Ministry of Finance) are used, and the processed information is stored in separate files on the computers of individual employees. MS Excel software is used as the main tool in many processes.

1 . 1 Conclusion

The use of different tools in different processes (and/or in their different steps) leads to non-optimal organization of processes, as well as non-centralized processing of data. These, in turn, can cause work process disruptions, unsafe use of sensitive data, data incompatibility, etc.

For the coordination and optimization of processes, it is important to introduce State Debt and Budget Obligations Management modules (as autonomous electronic systems) of the State Debt and Budget, which will allow :

- Concentrate as much as possible implementation of processes in the domain of one electronic system,
- Process and store data in a centralized manner;
- Interoperate with other modules and external systems, reusing the data processed in the latter
- Manage the sequence and order of processes,
- Define appropriate operator authorizations for data and processes.

2 . Structure of Public Debt and Budget Obligations Management modules

The introduction of modules for the management of public debt and obligations to the budget should be carried out according to the following principles:

- As little dependence on external systems as possible, ensuring interoperability with external systems: RA CBI, Depository and electronic E-payments system of state payments, as well as other modules: Treasurer , Budgeting, Analytical-Reporting, Public Sector Accounting modules.
- Data reuse as much as possible . The data that is processed in other modules of the FCTC or in external systems should be reused, avoiding duplicate processing .
- As simple as possible and sufficient functionality to work within a single module domain.

The proposed structure of the implementation of State Debt and Budget Obligations Management modules is shown in figure 2 . in 1.
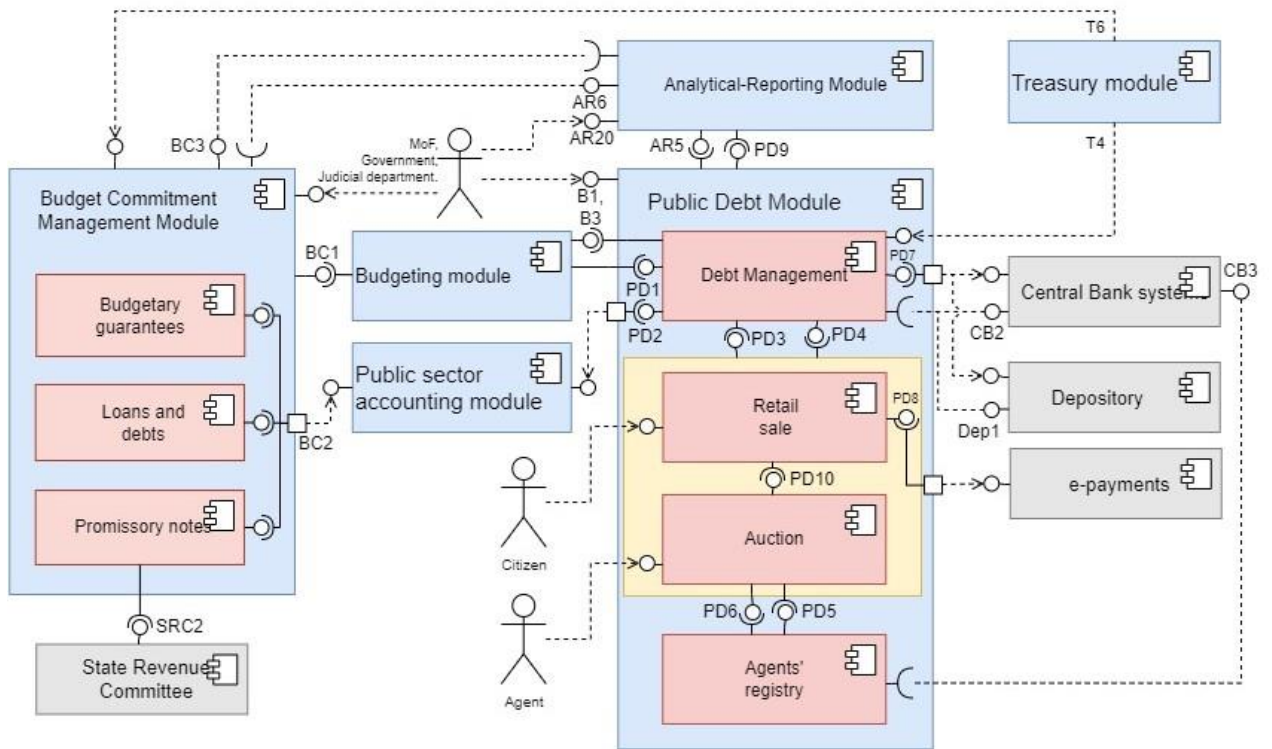
Figure 2 : 1 Proposed Structure of Public Debt and Budget Liability Management Modules.

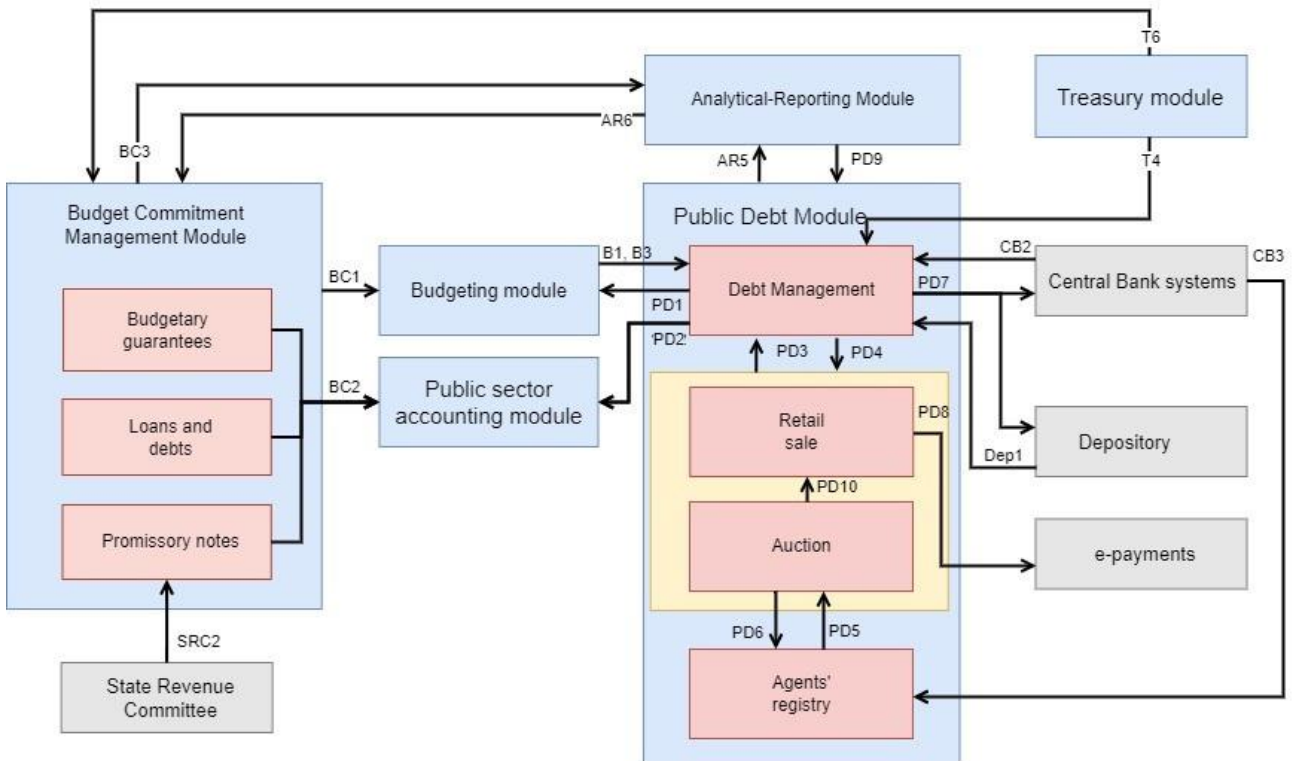The data flow of the proposed structure is shown in Figure 2 . In 2 :

Figure 2 : 2 Data flow of the proposed structure.

Next, the meaning of individual modules and sub-modules is presented, as well as the relationship with other external and internal components (modules/sub-modules). The functional description of the functions implemented using the modules is given in the next chapter.

2 . 1 State Debt module

The public debt module is intended for public debt management (attraction, repayment and servicing), organizing public bond auctions, electronic sales, maintaining the register of primary and secondary agents.

The public debt module includes debt management, auction, retail and agent registry sub-modules. Below is a description of each module, as well as the data flows processed within each sub-module and provided from other sub-modules and external systems.

2 . 1 . 1 Debt Management sub-module

This sub-module is planned to be introduced to ensure the automation of the functions included in the "Debt raising and repayment" group, as well as the "fulfilment of obligations undertaken in the capital participation of international financial organizations" function. Debt raising takes place according to B3 budget deficit replenishment and B1 data on budget expenditures and outputs obtained from the budgeting module (the data processing process is described in detail in the document "KFCTS implementation model: Budgeting module"). And the Debt Management sub-module provides the Budgeting module with PP1 data on funds involved, their repayments and services.

The sub-module exchanges data with the Analytical-Reporting module (PP9 : 1), providing analytical data (preliminary forecasts and/or chronology) presented for the formation of the Banking instrument, which are processed within the framework of the sub-module, and receiving other analytical data, which are processed by all PFKTS based on the data provided by the modules. For example, the Analytical-Reporting module can be used by the sub-module to obtain analytical data necessary at the stage of formation of debt instruments in order to obtain preliminary forecasts and/or timelines (AP5 : 2).

The sub-module receives the data related to the auction and electronic sale of government treasury bonds (PP3) from the "Auction" and "Retail sales" sub-modules, respectively, and provides the debt instrument data (PP4) to these sub-modules.

The sub-module also integrates with the CBA and Depository for data exchange, providing data PP7.1 for the application for issuance of ISIN code (ISIN code) and data PP7.2 for the registrable government bond data, and from there it receives DEP1 and CB2 data, respectively. Data on ISIN (ISIN code) and registered bonds .

The Debt Management sub-module also integrates with the Public Sector Accounting module, providing PP2.1 data on Debt instrument contracts (appendix, schedule, etc.) and PP2.2 data on direct payments .

And from the Treasury module, the Debt Management sub-module receives data on treasury inputs/outputs of debt instruments (GD4).

The debt management sub-module should also provide functionality for debt registration, scheduling, and the like.

2 . 1 . 2 Auction submodule

This sub-module is planned to be implemented to ensure the organization, implementation and registration of government treasury bonds (TGB) auctions within the framework of the Government Debt module. Must ensure procurement of government bonds (PKP, MHP, EHP) by auction by primary agents.

The sub-module receives the information about the primary agents in the auction process, their permissions to participate in the auction, and other similar information (PP5) from the "Register of Agents" sub-module.

The auction sub-module provides the debt management sub-module with auction result data (PP3.1) and receives debt instrument data (PP4).

The auction sub-module also exchanges data with the Analytical-Reporting module, providing data (PP9.2) that is processed during auctions and receiving analytical data from the Analytical-Reporting module (AP5.1).

2 . 1 . 3 Retail submodule

This sub-module is planned to be introduced to ensure the organization, implementation, registration of electronic sales (retail) of all types of bonds (KHAP, PKP, PMP, PEP) within the framework of the State Debt module. It should ensure the online purchase of said bonds by citizens [2].

For this purpose, the sub-module should be integrated with the electronic E-payments system of state payments, providing the necessary data for the purchase of bonds (PP8) to carry out the electronic sale.

The retail sales sub-module receives the debt instrument data (PP4) from the Debt Management sub-module and provides the electronic sales result data (PP3.2). The auction sub-module receives

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[2] Online purchase of bonds is possible for RA residents and non-residents. The detailed description of the acquisition process of each will be carried out at the next stage, taking into account the uniqueness of the identification mechanisms.

auction result data (PP10), on the basis of which it should carry out the retail sale of State Bonds (non-SEC).

The retail sub-module also exchanges data with the Analytical-Reporting module, providing data (PP9.3) that is processed during Electronic Sales and receiving analytical data from the Analytical-Reporting module (AP5.1).

2 . 1 . 4 Register of Agents

This sub-module should allow the PPC staff to conduct an assessment of the behavior of primary agents , as well as maintain a registry of primary agents and potential participants.

The necessary data for the process of evaluating the behavior of primary agents will be obtained from the Auction sub-module and the Central Bank of the Republic of Armenia in the form of indicators of the activity of the agents in the primary market (PP6) and secondary market (KB3), respectively, which will enable the automation of the function, ensuring the work of the Central Bank employees within the framework of one system.

And for the purpose of organizing and implementing the auction, the register of agents will provide the Auction sub-module with the information about the primary agents in the auction process, their permissions to participate in the auction, and other similar information about the primary agents (PP5).

2 . 2 Budget commitment management module

The budget liabilities management module is intended for the automation and electronic implementation of the processes implemented by the State Budget Liabilities Management Department. The module exchanges data with the Analytical-Reporting module, providing data that is processed within the framework of the sub-module, and receives other analytical data that is processed on the basis of data provided by all modules of the KFCTS (BP3 and PC6). The module consists of three sub-modules:

- Promissory notes
- Loans and debts
- Budget guarantees.

2 . 2 . 1 Bills submodule

This sub-module is intended to be implemented for the automation of the issuance, accounting and settlement of promissory notes and promissory notes. The sub-module provides data to the Budgeting module and the Public Sector Accounting module, which are processed within the framework of the sub-module. In particular, it provides the Budgeting module with data on ordinary and transferable promissory notes due in the next budget year (BP1), and the Public Sector Accounting module with data from the accounting of promissory notes (BP2). The sub-module can also receive data from the SRC for the obligation arising from the judgment in order to verify the existence of the possibility of setting off with uniform, concurrent and other obligations (SRC2).

2 . 2 . 2 Credits and Debts sub-module

This sub-module is intended for the provision of budget loans and sub-loans and the automation of subsequent processes arising from it. Also, this sub-module will include the debt servicing process of non-residents (Georgia) to RA. The sub-module carries out data exchange with the Analytical-Reporting module (BP3 and AA6) in particular regarding the daily calculation of obligations to be repaid by borrowers for loans and actual repayments, and also provides data to Budgeting (BP1) from loans and debts for planning the next year's budget. in terms of expected revenues. It also provides data to the Public Sector Accounting (BP2) module regarding credit and debt accounting.

2 . 2 . 3 Budget Guarantees sub-module

This sub-module is intended for the provision of Budget Guarantees and for automating the processes arising from it. The sub-module provides data to the Budgeting Module (BP1) about the expected income from loans and debts for the next year's budget planning. It also provides data to the Public Sector Accounting (BP2) module regarding credit and debt accounting.

The sub-module exchanges data with the Analytical-Reporting module and also provides data to the Public Sector Accounting modules.

2 . 3 Analytical-reporting module

It is planned to introduce an Analytical-Reporting module in the PFTC, which will be applicable by all PFTC modules to perform the analytical-reporting functions in one domain. The details are provided in the document "Analytical-Reporting Module" in chapter 2.2.1 of the "KFCTS Implementation Model" document.

The Analytical-Reporting module is planned to be applied also to the "Analytical Functions" of the PPC (see the grouping of functions in the "Study Summary" chapter). In other words, the State Debt and Budget Liabilities Management modules do not contain a separate sub-module for analytical functions, instead, similar functions are performed by the employees of the State Debt and State Budget Liabilities Management Department in the Analytical-Reporting module. The latter allows the analytical data processed in the internal sub-modules of the State Debt and Budget Obligations Management modules to be concentrated and used in the implementation of various analytical-reporting functions. In addition to the data of the State Debt and Budget Obligations Management modules, the Analytical-Reporting module also concentrates the analytical data of the other modules of the State Budget, which can also be used by employees of the Department of Public Debt and State Budget Obligations Management, in case of appropriate authorization.

This approach will allow both the State debt and obligations to the budget, as well as the other modules of the FCTC to implement the most comprehensive analytical and reporting functions.

A detailed description of how data processing and their analytical-reporting application is carried out is given in the document "KFCTS Implementation Model" in chapter 2.2.1 (Analytical-Reporting Module).

2 . 4 Data to be exchanged

	Interface:	Data:	Provider module/submodule	Application module/submodule
1:	PP1:	Involved funds, their repayments and maintenance	/ Debt Management	Budgeting Module
2:	PP2:	Accounting for debt collection and repayment 1. Debt instrument contracts (appendix, schedule, other) 2. Direct payments	Public Debt Module/Debt Management	Public Sector Accounting
3:	PP3:	1. Auction result data 2. El . sales performance data	State Debt Module/ Auction and Email sale	Public Debt Module/Debt Management

4:	PP4:	Debt instrument data	Public Debt Module/Debt Management	State Debt Module/ Auction and Email sale
5:00	PP5:	Information on primary agents	Public Debt Module/Register of Agents	Public Debt Module/Auction
6:00	PP6:	Data of agents participating in the auction	Public Debt Module/Auction	Public Debt Module/Register of Agents
7:00	PP7:	1. Application for granting ISIN (ISIN code). 2. Registrable government bond information 3. Preliminary data of auction results	Public Debt Module/ Debt Management	1. Depository 2. CB systems
8 o'clock	PP8:	Email sales data	State Debt Module/ E-mail sales submodule	E-payments system
9:00	PP9:	1. Analytical data (preliminary forecasts and/or timeline) provided for the formation of a bank instrument. 2. Data processed during auctions 3. Data processed during electronic sales	Public Debt Module/ Debt Management	Analytical-Reporting module
10:00	PP10	Preliminary data on the auction announcement and auction results	Auction submodule	Retail submodule
1 1	B1:	Data on budget expenditures and outputs	Budgeting module	Public Debt Module/Debt Management

1 2	B3:	Deficit part of the budget	Budgeting module	Public Debt Module/Debt Management
1 3:	BP1:	Data on issued promissory notes, loans and debts, budgetary guarantees	Budget commitment management module	Budgeting module
1 4	BP2:	Accounting for promissory notes, loans and debts, issuance and repayment of budgetary guarantees	Budget commitment management module	Public Sector Accounting Module
1 5:	BP3:	Data on issued promissory notes, loans and debts, budgetary guarantees	Budget commitment management module	Analytical-Reporting module
16: 00	GS4:	Treasury inflows/outflows of debt instruments	Treasury	Public Debt Module/Debt Management
1 7:	GD6:	Treasury inflows/outflows of liability instruments	Treasury	Budget Commitment Module
1 8:	CB2	1. Bond registration information at the Central Bank 2. Auction final calculation data	CB systems	Public Debt Module/Debt Management
1 9	CB3:	Activity in the secondary market of agents	CB systems	Public Debt Module/Register of Agents
20: 00	TO 1:	ISIN code (ISIN code) data	Depository	Public Debt Module/Debt Management
21: 00	PC5:	1. Analytical data from the Analytical-Reporting module 2. Analytical data necessary for the formation of debt instruments	Analytical-Reporting module	Public Debt Module 1. Debt management sub-module

2 2	PC6:	Analytical data from the Analytical-Reporting module	Analytical-Reporting module	Budget Commitment Management Module/ All sub-modules
2 3:	PC20	Reports	Analytical-Reporting module	RA Finance Ministry/Government
2 4:	SRC2:	Data on settlement possibility and capital duty	SRC systems	Budget Commitment Management module/Bills sub-module

3 . Functional description of Public Debt and Budget Liability Management modules

In the previous section, the proposed structure of Public Debt and Budget Obligations Management modules was presented: constituent sub-modules, integrated systems, external modules and the interrelationship of all of them in the context of Public Debt and Budget Obligations Management modules.

In this section, optimal functions of the State Budget Liabilities Management Department are presented through the State Debt and Budget Liabilities Management modules. In other words, functional description of Public Debt and Budget Liability Management modules.

Functions are presented by grouping (see Section 1 - Study Summary). Similar functions are represented by a single process.

3 . 1 Analytical functions

The functions of this group include :

- 1 . 1 . 1 Development of a medium-term debt collection strategy
- 2 . 1 Cash flow forecast
- 1.4 Statistics and Reporting.

For them, it is planned to use the Analytical-Reporting module, the detailed description of which - the structure, the principle of work, the forms of application, etc., are given in chapter 2.2.1 of the document "KFCTS implementation model" (Analytical-Reporting module).

In general, the State Debt and Budget Obligations Management modules can use the Analytical-Reporting module according to the following principle :

- collect, structure (organize) and store data using data modeling tools ,
- Provide a semantic description of structured data using metadata processing tools ,

- using analytics tools and get:
  - data on debt management strategy,
  - cash flow forecasts,
  - various statistics and reports.

3 . 2 Debt collection

This section describes the functions of the following groups :

- 1 . 2 Implementation of the strategy
- 1 . 3 Debt Accounting, Repayment and Servicing

For the functional description, the principle of representing identical functions with one universal process was chosen. This principle is also applied when presenting optimal options for processes.

All functions are planned to be implemented through the "Debt Management" sub-module of the State Debt and Budget Obligations Management modules.

Debt raising is carried out by two means: bonds (PGP and foreign currency) and loans.

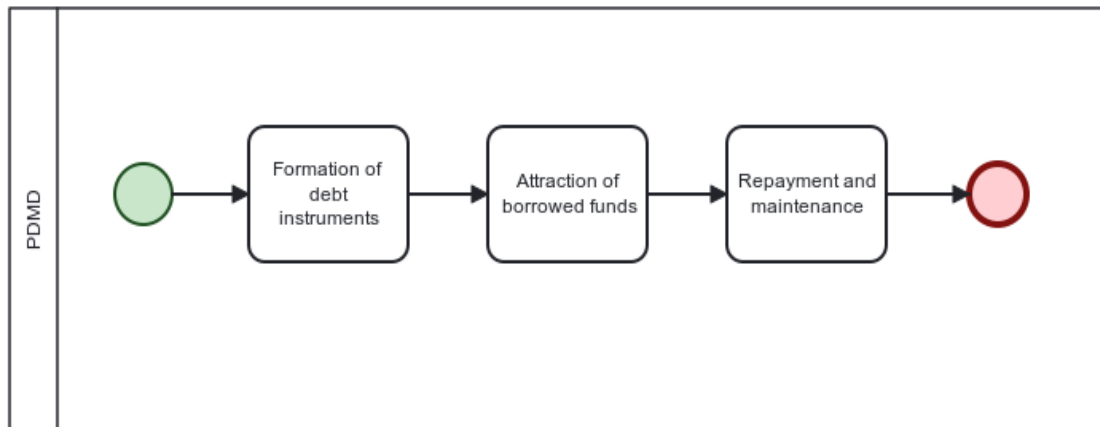All the functions of the groups mentioned above can be presented in the following phase sequence (Figure 3 : 1) :

Figure 3 : 1 Phase sequence of grouped functions

In other words, the presented procedure applies to both bonds (PGP and foreign currency) and loans .

- Stage 1 – formation of debt instruments
- Stage 2 – attraction of borrowed funds
- Phase 3 – repayment and maintenance.

The process of each type of measure has its own characteristics, but the technical requirement for the State Debt and Budget Obligations Management modules is the same in all cases. Therefore, the proposed solutions will be presented at the level that is common to all species.

The function "fulfilment of the obligations assumed for participation in the capital of international financial organizations (3.2)" is carried out in the same phase sequence, except for Phase 2 (attraction of borrowed funds). Participation in the capital of international financial organizations creates a debt that must be serviced and repaid. The description of the automation and optimization of this function will not be separated in the document, because the tools presented in Phases 1 and 3 and their application procedures satisfy this function as well.

Stage 1 – Formation of debt instruments

At this stage, among the functions listed in Appendix 1 :

- 1 . 3 . 1 Included in the "Registration of debt instruments" group (regardless of type)
- Only for bonds (there are no similar processes in the case of loans): those included in the bond issue group (1 . 2 . 2 . 1 or 1 . 2 . 3 depending on the type: PKP, MDP, EDP, KAP, foreign currency).

<u>Registration of debt instruments</u> for all types is a similar procedure .

- In the Mulberry system, the draft order/agreement is filled in with the developed form,
- Sent to Minister/Deputy Minister for approval/review,
- Corrections or approvals are carried out by the Minister/Deputy Minister using the same Mulberry system.

There may be proposals from the minister, corrections, etc. That is, from the creation of the form to approval, a multi-step document circulation is possible, which is carried out by the Mulberry system.

The process can be planned in the Debt Management sub-module, which will allow:

- Develop (create, edit, remove, etc.) a debt instrument ,
- Work together on the latter (departments and minister),
- Give suggestions and comments to projects,
- Process and store information related to the project in a centralized electronic format, etc.

In addition to the above, it is desirable that the Debt Management sub-module allows for certain analyzes and decision-making (before approval of the order/agreement) based on the data available in the project. This functionality can be provided by the Analytical-Reporting module, interacting with the latter (details in chapter 2.2.1 (Analytical-Reporting module) of the "KFCTS implementation model" document).

Summing up, the optimization diagram of the stage of registration of debt instruments is presented in figure 3 . in 2.
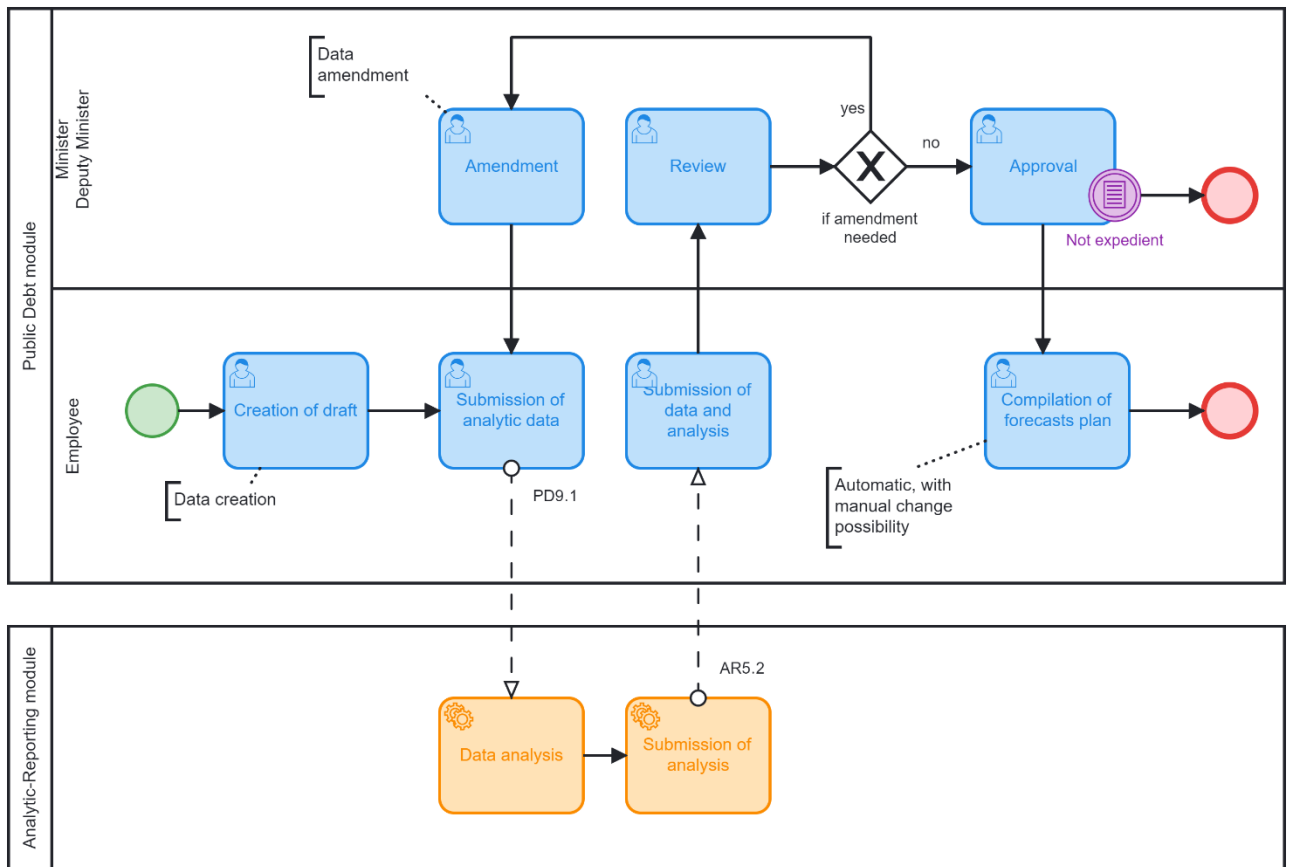

Figure 3 : 2 . Debt instrument registration stage optimization diagram

Purpose:	Develop (create, edit, remove and other) debt instrument , work together on the latter (departments and minister), give suggestions and comments to projects, process and store information related to the project in a centralized electronic format
Description/ process	All the functions of the draft order development stage are planned to be carried out only in the electronic system, in the State Debt module, to ensure the processing and storage of information related to the draft orders in a centralized manner. The project will be created by an authorized employee of PPKV. Analytical data available in the project (PP9.1) will be submitted to the Analytical-reporting module, where after the analysis of the data (AP5.2) (schedule, profitability, etc.) they will be submitted to the minister/deputy minister for consideration. In case of need for changes, the proposal for changes will be presented to the authorized employee of the PPCV, who after analyzing the data will present it again for consideration, the cycle will be repeated until there is no need for changes anymore and the project will be approved. According to it, the forecast plan will be made, with the possibility of automatic or manual modification.

A link to an existing process	P1 – Issuance of short-term government bonds
	P2- Issuance of government medium-term (MHP) and long-term (EHP) coupon bonds
	P3- Issuance of government savings coupon bonds
Territory:	PP-Debt management sub-module, Analytical-reporting module
Actors:	PPKV employee, minister/deputy minister
Input data	PC5 . 2:
Output data	PP9 : 1:

Other procedures in the stage of formation of debt instruments include the issuance of various **bonds**, which are also similar processes [3]and have the same requirement from the State Debt module.

Bonds can be issued if there is an order approval by the minister (debt instrument registration).

The optimization diagram of the bond issue sub-phase is presented in figure 3 . in 3.
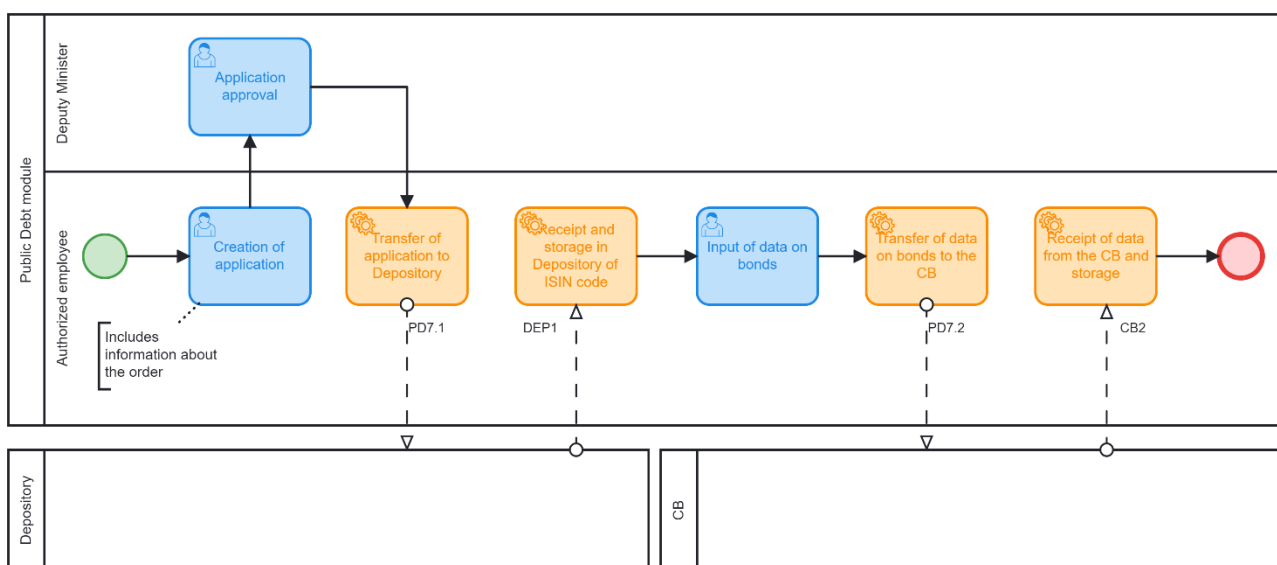

Figure 3 : 3 . Optimization diagram of the bond issue sub-phase

Purpose:	Obtaining ISIN code, issuing bonds

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[3] The bond issuance process is similar for all types of bonds. The difference is that the issuance of short-term, long-term and medium-term bonds is carried out by the Operating Department, and the issuance of savings coupon bonds is carried out by the SSC Department. Depending on the type of bonds, there is also some difference in the processes, but in general, they all have the same optimization problems. Therefore, in the future, the proposed optimization will be considered on one generalized model.

Description/ process	Debt management sub-module is also planned for issuing bonds, as many functions are performed manually and data is stored in decentralized files.
	Centralization of data in Public Debt and Budget Obligations Management modules will allow to avoid incompatibility and additional checks by implementing data harmonization.
	After the approval of the issuance application, the application (PP7.1) will be forwarded to the Depository to obtain the ISIN code, after which the provided ISIN code (DEP1) will be stored in the Debt Management sub-module. After the bond data is imported by the authorized officer of the PPCV, the bond data (PP7.2) will be transferred to the CB for registration, and after registration there, the data (CB2) will be received and stored in the Debt Management sub-module.
	Thus, the received ISIN code data will first be stored by the Debt Management sub-module (replacing the file registration by the Accounting and Service Department), and then, in further processes, will allow to use only this data.
	In the current process, there is also a registration of the release order by the Accounting and Service Department, which will no longer be usable by the system, since the release order data will already be processed and stored by the latter.
A link to an existing process	P1 – Issuance of short-term government bonds
	P2 - Issuance of government medium-term (MHP) and long-term (EHP) coupon bonds
	P3 – Issuance of government savings coupon bonds
Territory:	PP-Debt management sub-module, CB systems, Depository
Actors:	PPKV employee, deputy minister
Input data	CB2, DEP1
Output data	PP7.1, PP7.2

Phase 2 – Attracting borrowed funds

In the case of bonds and loans, this stage is carried out in fundamentally different ways .

- For bonds - 1 of Appendix 1 are carried out . 2 . 2 . Placement and repurchase functions included in group 2,
- For loans - 1 . 3 . 2 . Deductions of loan funds included in group 2.

Regarding bonds, the following types of functions are performed as borrowing funds :

- Placement auction
- Buyback Auction
- Registration of the latter.

The processes related to the placement auction are similar for short-term, long-term and medium-term bonds, for which separate optimization options will be presented. There is a certain difference in the process for savings coupon bonds. The optimization of the sales processes of this type of bonds will be presented separately.

For this phase, it is also advisable to use a unified electronic system (State Debt module - Debt Management and Auction sub-modules), which will allow both to centralize all the data of the phase and to ensure the work of the involved employees within the framework of one system. As we have already mentioned in the previous sections, the lack of centralization of data can lead to data incompatibility. Implementation of functions in one system will also allow to harmonize data and avoid such a problem.

From the point of view of optimization, it is necessary to consider the integration of the presented external systems with the proposed State Debt module (sub-modules) or to provide such functional possibilities in the latter, which will allow to abandon their use.

Optimization options will be presented separately for placements, repurchase auctions, and sales of PSUs.

Placement auction

Data processing and storage functions, as well as the auction, will be implemented through the State Debt modules, with the Auction sub-module, which will enable centralizing the data processed during the auction phase.

Thus, a self-sufficient system is obtained, which allows all participants to implement the entire placement auction stage with one system.

The allocation auction process optimization diagram is shown in figure 3 . in 4
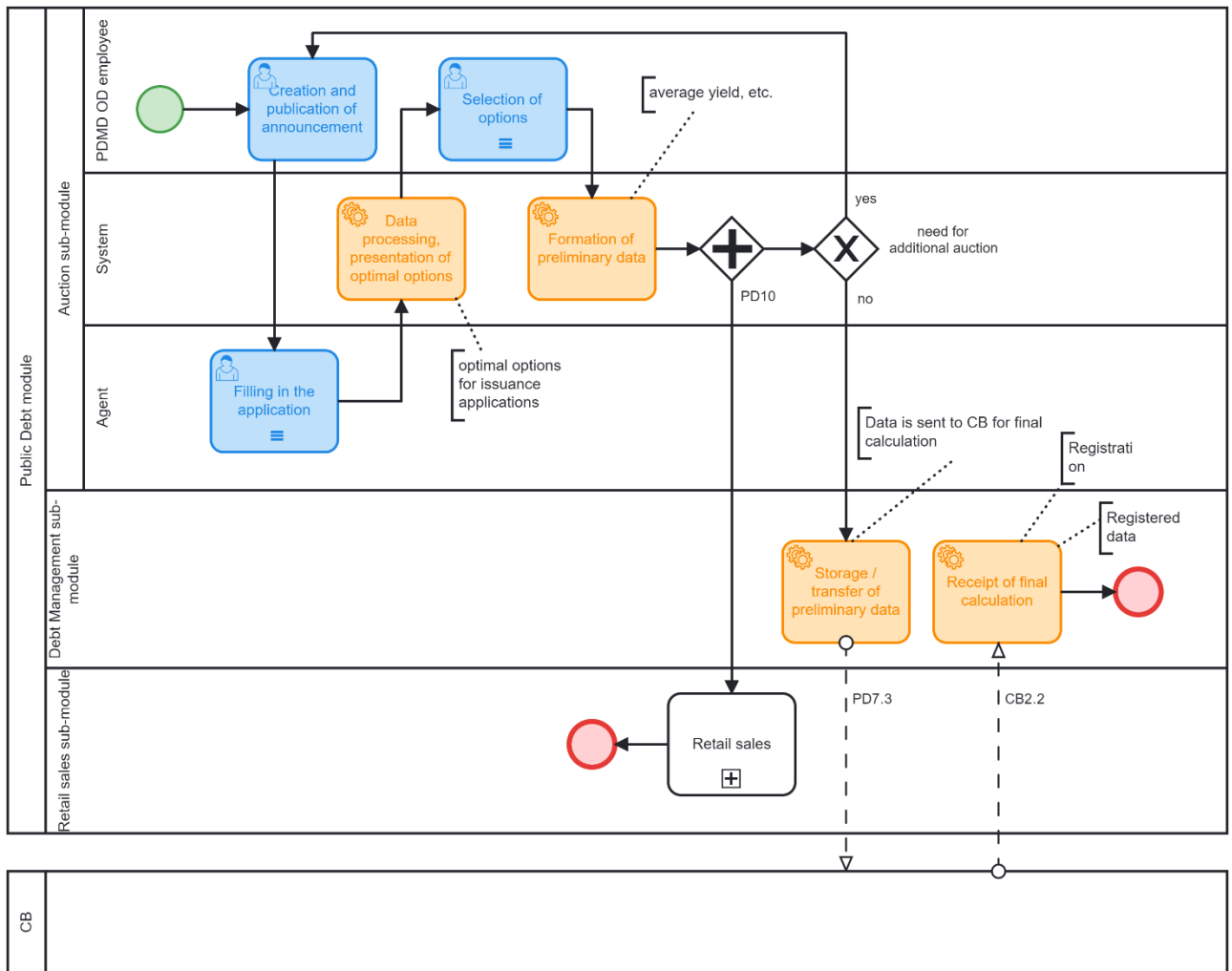
Figure 3 : 4 . Allocation auction process optimization diagram

Purpose:	Sale of short-term, long-term and medium-term government bonds through the organization and execution of an auction
Description/ process	The auction of short-term, long-term and medium-term state bonds is planned to be carried out through the Auction sub-module of the State Debt module. Since a separate sub-module, the Register of Agents, is planned to automate the function of evaluating the behavior of primary agents, based on the information transferred from here to the Auction sub-module (PP5), only those included in the list of primary agents can participate in the auction, after the publication of the auction announcement, by filling in the bids in the Auction sub-module. The auction announcement is created according to the debt instruments created in the Debt Management sub-module (PP4).
	Then the bids are automatically processed in the Debt Management sub-module and the optimal options are presented to the authorized employee of PPKV, who selects the appropriate option and the pre-formed auction data is saved in the Debt Management sub-module. These data are also transferred in parallel with the data for the creation of a statement to the retail sales sub-

	module (PP10) for the implementation of retail sales, which takes place on the basis of the sale of CSIs (see: CSI sales through the retail sales sub-module and commercial banks through their respective representatives).
	If an additional auction is needed, the cycle is repeated, and in the absence of it, the initial data (PP7.3) are transferred to the Central Bank for the final calculation, and after receiving the final calculation (KB2.2) from the Central Bank, the data are recorded in the Debt Management sub-module (PP3).
	The data of the agents who participated in the auction (PP6) are transferred to the Agent Registry for the process of evaluating the behavior of Primary Agents.
A link to an existing process	P4 – Auction for placement of government treasury bonds
	P6- Registration of placements and repurchase auctions of government treasury bonds (except for CSIs)
Territory:	PP-Auction sub-module, CB systems
Actors:	PPKV employee , agent
Input data	PP4, PP5
Output data	PP3, PP6

Buyback Auction

The functions of the repurchase auction are similar in nature to the placement auction.

The functions of data processing and storage, as well as the auction, should be implemented only through the Public Debt module with the Auction sub-module.

In this version, a self-sufficient system is obtained, which allows all participants to carry out the entire auction stage with one system.

The optimization diagram of the buyback auction process is shown in figure 3.5.
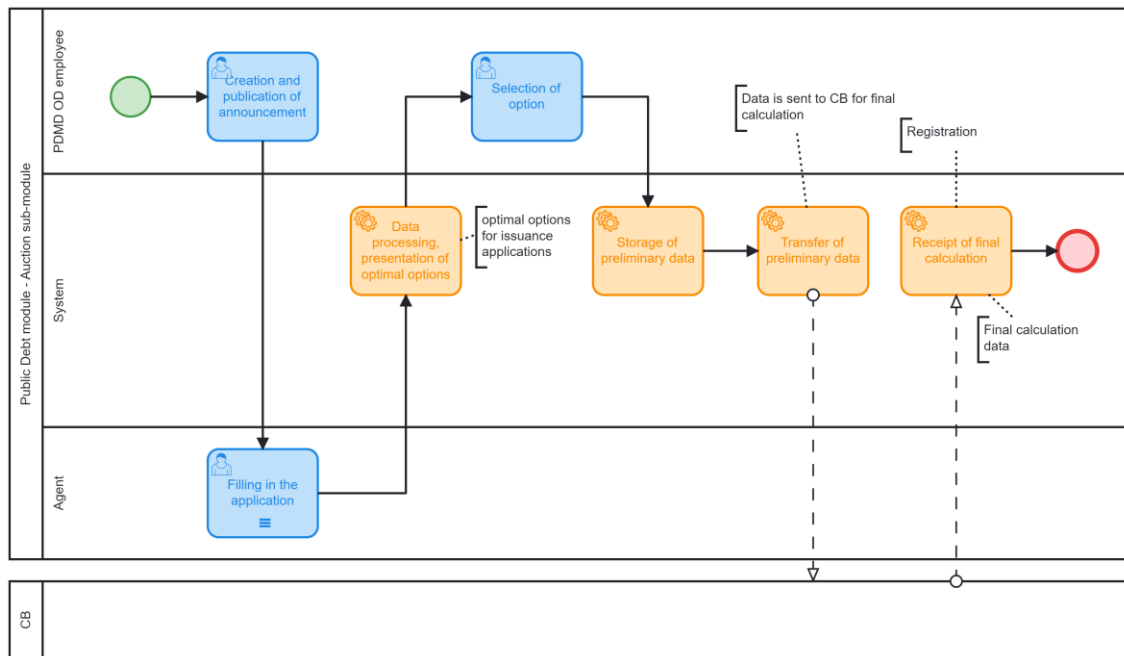
Figure 3.5 . Optimization diagram of the buyback auction process

Purpose:	Repurchase of short-term, long-term and medium-term government bonds through the organization and implementation of the repurchase auction
Description/ process	The repurchase auction of short-term, long-term and medium-term government bonds is planned to be carried out through the Auction sub-module of the Government Debt module. Since a separate sub-module, the Register of Agents, is planned to automate the function of evaluating the behavior of primary agents, based on the information transferred to the Auction sub-module (PP5), the agents included in the list of primary agents will participate in the repurchase auction by filling in the bids in the Auction sub-module after the announcement of the repurchase auction is published. The repurchase auction statement is created according to the debt instruments created in the Debt Management sub-module (PP4).
	Then the bids will be automatically processed by the Debt Management sub-module and the optimal options will be presented to the authorized employee of the PPKV, who will select the appropriate option and the data of the buyback auction will be stored in the Debt Management sub-module. Initial data will be forwarded to the CBA for final settlement and after receiving the final settlement from the CBA, the data will be recorded in the Debt Management sub-module (PP3).

	The data of the agents who participated in the buyback auction (PP6) will be transferred to the Agent Registry for the Primary Agent Behavior Evaluation process.
A link to an existing process	P5 – Treasury bond repurchase auction P6- Registration of placements and repurchase auctions of government treasury bonds (except for CSIs)
Territory:	PP-Auction sub-module, CB systems
Actors:	PPKV employee, agent
Input data	PP4, PP5
Output data	PP3, PP6

Sale of Savings Coupon Bonds

The sale of bonds is different from the auction of other bonds. Currently, it is implemented in two versions :

- Online (online) - through the gp.minfin.am system,
- Available (offline) – in commercial banks through the respective representatives.

In both cases, sales data (in the case of repurchase, also repurchase) are recorded in the Depend system. The latter also has access to the GSC department, which confirms the mentioned data. Then, through the LS Finance system, the preliminary data is sent to the Central Bank. Next, the process is similar to the auction of other types of bonds.

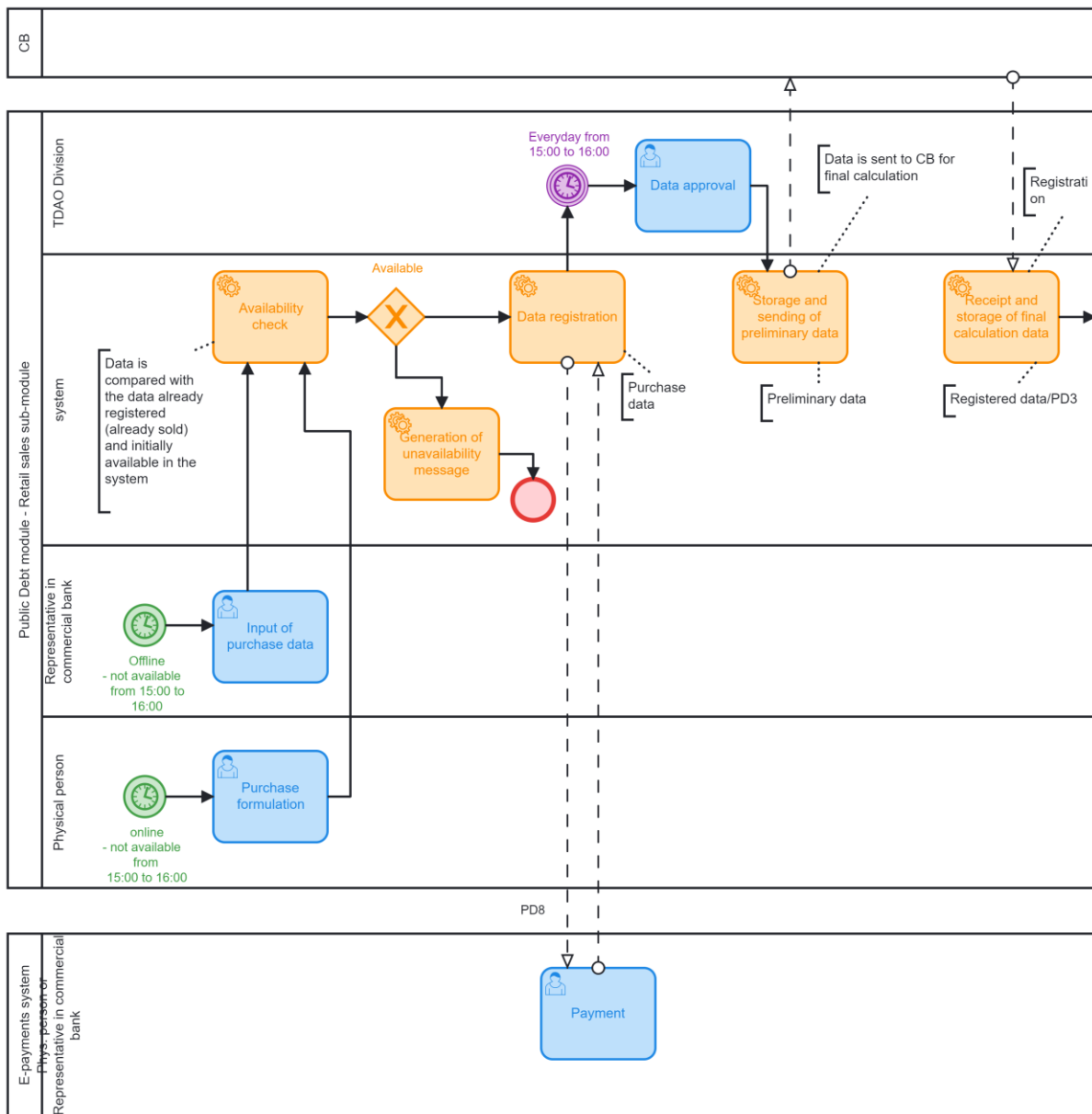The recommended optimization option is given below.

Figure 3 : 6 . Diagram of the optimization of the sales process of CSIs

Purpose:	Sales of PPCs through retail sales sub-module and commercial banks through their respective representatives
Description/ process	It is planned to carry out the functions of sales of CDPs, as well as data processing and storage, in the retail sales sub-module of the State Debt module (in accordance with the debt instruments formed in the Debt Management sub-module - PP4), so that it is possible to centralize the data processed in the sales phase.

	In the case of sales of PPCs purchased by individuals through both the retail sales sub-module and representatives of commercial banks, at the purchase stage there is a data check with the data registered in the retail sales sub-module (already sold) and the initially available data.
	After the availability check, the availability message is generated and the purchase data is recorded in the retail sub-module.
	Then, on a daily basis, the authorized officer of the PPKV validates the data, saves and sends the preliminary data to the Central Bureau of Investigation for final calculation. After receiving the final settlement data from the Central Bank, they are stored and registered in the Debt Management sub-module (PP3).
	Email the sales sub-module exchanges data (PP8) with the electronic E-payments system of state payments during the purchase phase.
	Thus, a self-sufficient system is obtained, which allows all participants to carry out the entire sales phase with one system. In addition, it allows to prevent in advance the sale of unavailable PPCs (day : if it has not yet been approved by the SSC, but it cannot be approved because the limit has been reached).
A link to an existing process	P26 – Treasury custodian online bond retail sale process P27 – Process of retail sale of bonds through treasury custodian service points
Territory:	PP-E. sales sub-module, electronic E-payments system of state payments, commercial bank
Actors:	PPKV employee , phys. person, representative in a commercial bank
Input data	PP4:
Output data	PP3, PP8

Loans:

In the case of loans, attracting borrowed funds is the process of installments. A detailed description of the deductions is given in P13 . 1-P13 . 5 in the description of business processes. The following types of functions are performed within the framework of this process :

1. Collection of samples of signatures of persons authorized to sign loan installment applications and attached documents (as necessary),

2. Preparation and signing of the application for regular distribution and attached documents,

3. Preliminary accounting of the application,

4. Submission of applications to the lender,

5. Correction of the application (if necessary, submitted by the lender),

6. Application confirmation,

7. Verification of actual received credit funds (if possible),

8. Calculation of deductions.

The functions presented above are implemented in MS Excel files in the Accounting and Service Department of the PPKV. Data is received by e-mail . through mail surveys or otherwise.

Implementation of these functions in the Public Debt module will enable:

● Refuse data processing in various MS Excel files and concentrate their processing in one common environment,

● Centralize processed and processable data in one domain for joint use in various processes and by various actors across the entire CFSP framework.

However, not all of them can be automated, as there are certain requirements that cannot be automated, such as:

● collection of signature samples,

● signing the application

● submission of the application to the lender.

The requirement of the latter may differ in the case of different lenders. For example, different lenders have their own process requirements for applying by email, how to enter into their systems, etc. Or, in the case of some lenders, electronic signatures may be accepted, in the case of others, not.

In general, from the mentioned functions, those that are possible can be automated. Automated functions will be implemented in the Debt Management sub-module, the process diagram of which is given in Figure 3 . at 7.
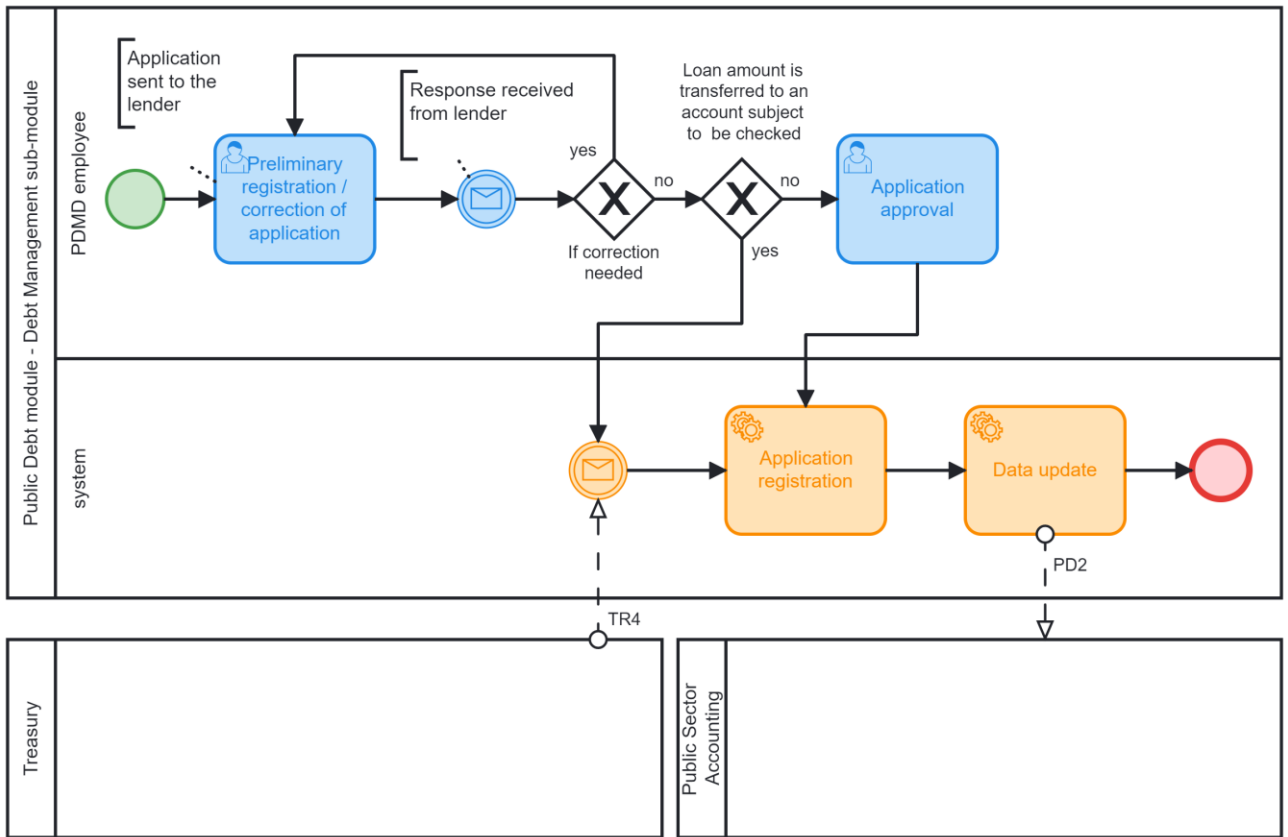
Figure 3 : 7 . Automation process of deductions

Purpose:	Organization of the withdrawal process, registration of withdrawal requests, approval, application data storage
Description/ process	It is not possible to automate all stages of the withdrawal process, because in the case of different lenders, the requirements may differ depending on the option of collecting signature samples, signing the application and submitting the application to the lender.
	In the case of the partial withdrawal process, it is planned to carry out a preliminary accounting of the application sent to the lender. If the amount is intended to be received in the treasury account, confirmation of the receipt of the amount is received from the Treasury module (GZ4) and accounting is carried out automatically. Otherwise (when the amount is transferred to a non-treasury account), confirmation and accounting of the receipt of the amount is carried out by the PPKV employee by the method of entry.
	After the application is approved, the application data is recorded. Updated debt instrument data, PP2 (contracts, annex, schedule, etc.) is sent to the Public Sector Accounting module for accounting.
A link to an existing process	P13- Deduction process for foreign loans
	P13 : 1- Deductions for foreign loans_Special account & compensation

	P13.2- Deductions for external loans_Budgetary support
	P13.3- Deductions for foreign loans_Direct payment
	P13.4- Deductions for foreign loans_Fixing the terms of the loan
	P13.5 – Deductions for foreign loans_Capitalization of interest payments
Territory:	PP- Debt Management Sub-Module, Treasury Module, Public Sector Accounting Module
Actors:	PPKV employee
Input data	GS4:
Output data	PP2:

Phase 3 – Redemption and Maintenance

The processes related to the repayment and servicing phase are similar for all types of debt instruments. Therefore, the presented optimization option will apply to all types of repayment and service processes.

In case of creation of schedules and working days or any other changes for ISIN codes of individual bonds, loans or IFC obligations, the process is planned to be carried out in the Public Debt module, after which the data will be transferred to the Public Sector Accounting module to make the scheduled payments for the given day .

The proposed optimized processes will be implemented in the Debt Management sub-module, the process diagram of which is presented in Figure 3 . at 8.
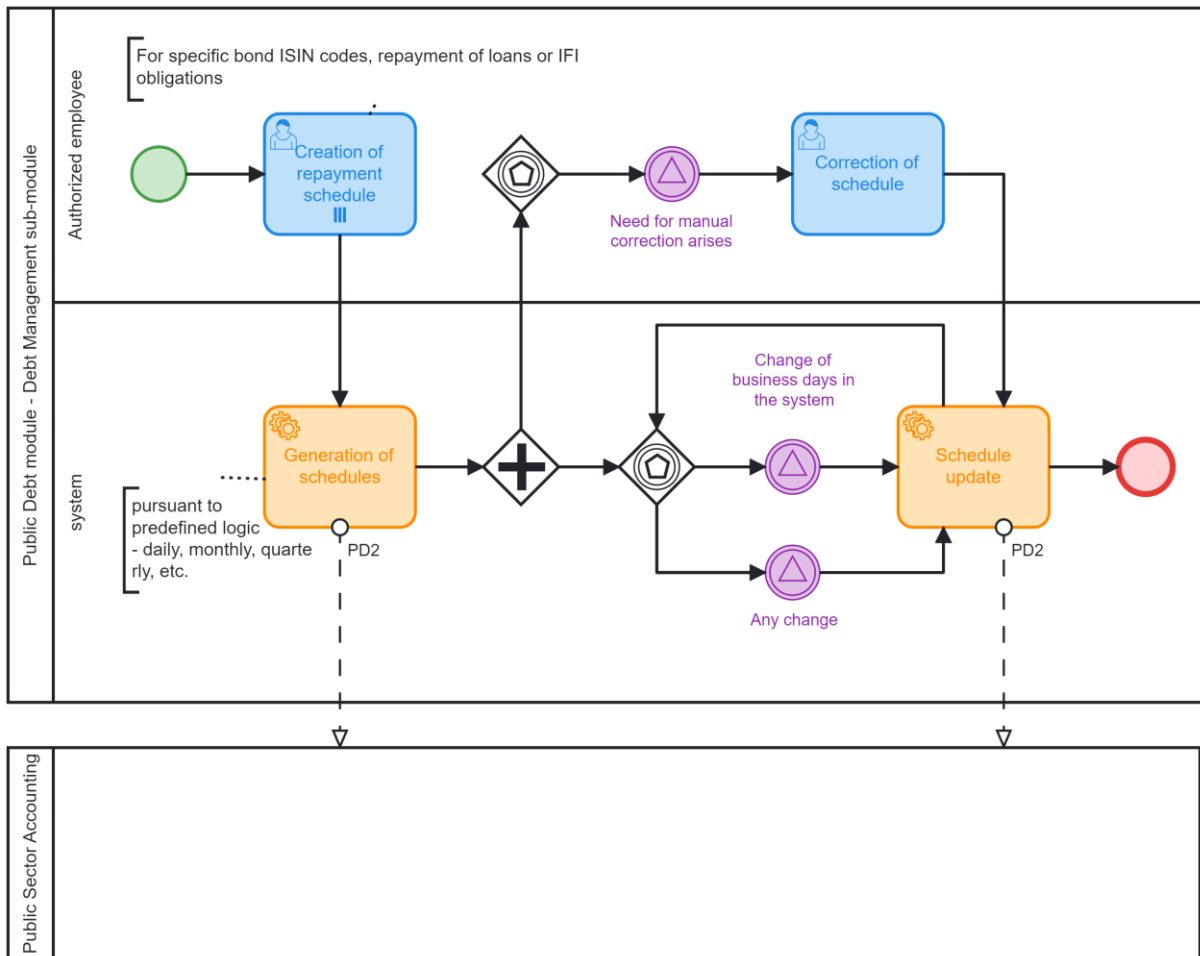
Figure 3 : 8 . Optimization process diagram of redemption and service phase

Purpose:	Ensuring automation of settlement and maintenance phase: creation of schedules, execution of corrections by working days, etc
Description/ process	After creation of ISIN codes of individual bonds, schedules for repayment of loans or IFC obligations, their generation is planned according to a certain logic: daily, monthly, quarterly and other intervals. In case of working days or any other change, debt instrument contracts (DS2) will be updated and sent to the Public Sector Accounting module to make scheduled payments for that day.
	If there is a need to make manual corrections in the schedules, the schedule correction will be carried out by the authorized employee of PPKV and the updated schedule will also be sent to the Public Sector Accounting module for making the scheduled payments.

A link to an existing process	P9- Redemption and servicing of government treasury bonds
	P15 – Redemption and servicing of foreign currency debt
	P19 - Participation in the capital of international financial organizations
Territory:	PP- Debt Management sub-module, Treasury module, Public Sector Accounting module
Actors:	PPKV employee
Input data	GS4:
Output data	PP2:

3 . 3 Evaluating the behavior of primary agents

The PSC maintains data on the behavior of primary agents, which allows to define the list of agents that get the opportunity to participate in government bond auctions for a given year. In order to maintain the mentioned list, PPKV uses several data :

- ✓ **From the Stock Exchange of Armenia** , an indicator characterizing the agent's activity in the primary market, as well as violations of the Rules of Agent Quotations,

- ✓ **Quarterly estimates from the RA Central Bank** , an indicator characterizing the activity of potential participants in the secondary market,

- ✓ **by PPKV during** auctions.

Currently, the evaluation of the behavior of primary agents is carried out as follows: during the current year, the data presented above are processed, obtaining the list of **potential participants , and at the end of the year,** based on the processed data , the **list of primary agents for the next year is defined** . The list is defined as follows : the participant with the most points among the potential participants is included in the list of primary agents for the next year, and the current primary agent, who was at the bottom of the current list, leaves the list. Moreover, the number of points collected is not important. Evaluation is conducted for both current primary agents and unlisted potential participants. It should be noted that the evaluation principle is slightly different for these two types of cases.

The list should not be less than 5 participants and not more than 7. If the number of primary agents for the current year is 5 and there are no new potential participants, the list remains unchanged.

The use of different tools leads to non-optimal organization of processes, as well as non-centralized processing of data. These, in turn, can cause work process disruptions, unsafe use of sensitive data, data incompatibility, etc.
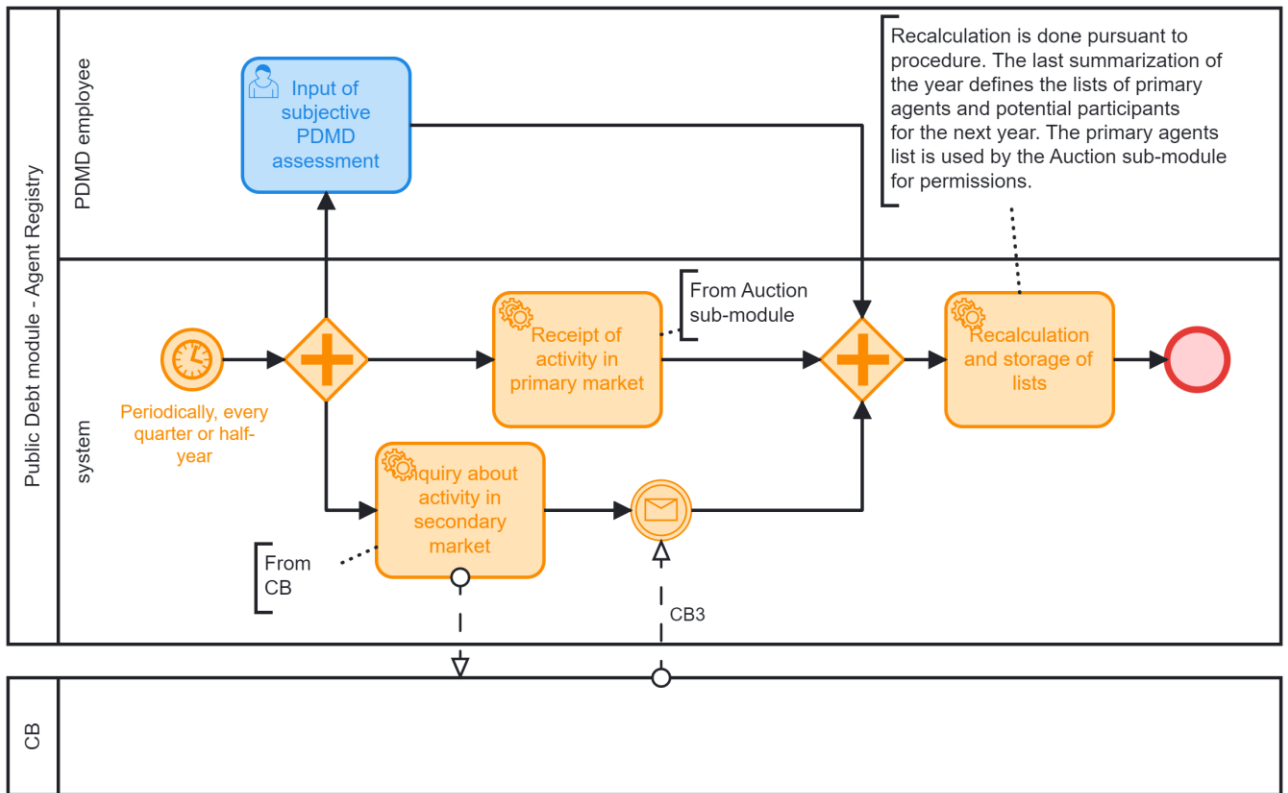
Figure 3 : 9 . Optimization diagram of primary agent behavior estimation function

Purpose:	Conducting data on the behavior of primary agents to enable them to participate in government treasury bond auctions for a given year, defining the list of agents
Description/ process	A separate sub-module, Agent Registry, is planned to automate the function of evaluating the behavior of primary agents and maintaining the registry of primary agents and potential participants .
	PPKV employees regularly (quarterly or semi-annually) conduct evaluations of the behavior of primary agents. The authorized employee of the PPC will enter the subjective assessments of the PPC into the system, and the auction sub-module and the Central Bank of the Republic of Armenia will receive, respectively, the data of the agents (primary agents) participating in the auction (PP6) and the indicators of the activity shown in the secondary market (CB3), which will make it possible to automate the function, providing the employees of the PPC work within one system. Based on the received data, the lists will be recalculated and saved according to the order (the summary at the end of the year defines the lists of primary agents and potential participants for the next year).
	Then, in order to organize and implement the auction in the auction sub-module, the Registry of Agents will provide to the Auction sub-module the information about the primary agents in the auction process, their permissions to participate in the auction, and other similar information about the primary

	agents (PP5) and only those included in the list of primary agents will have the opportunity to participate in the auction.
A link to an existing process	P29 – Evaluation of the behavior of primary market participants
Territory:	PP-Agent registry submodule, CB systems
Actors:	PPKV employee
Input data	CB3, PP6
Output data	PP5:

Module for management of liabilities to the state budget

The state budget liability management module is designed to provide simple and transferable promissory notes, repayment, budgetary guarantees, loans, subloans arising from them, as well as non-resident (Georgia) debt servicing and management processes.

3 . 4 Issuance of ordinary and negotiable promissory notes

For the functional description of simple and transferable promissory notes, the principle of presenting identical functions in one universal process was chosen. This principle is also applied when presenting optimal options for processes. The processes will be carried out through the Budget Obligations Management module. In particular, as an optimization, it is proposed that the decision to issue simple and transferable promissory notes be received by the PBNPKV together with the positive conclusion of the Legal Department (after checking the possibility of offsetting by the Analytical Reporting Module regarding transferable promissory notes).
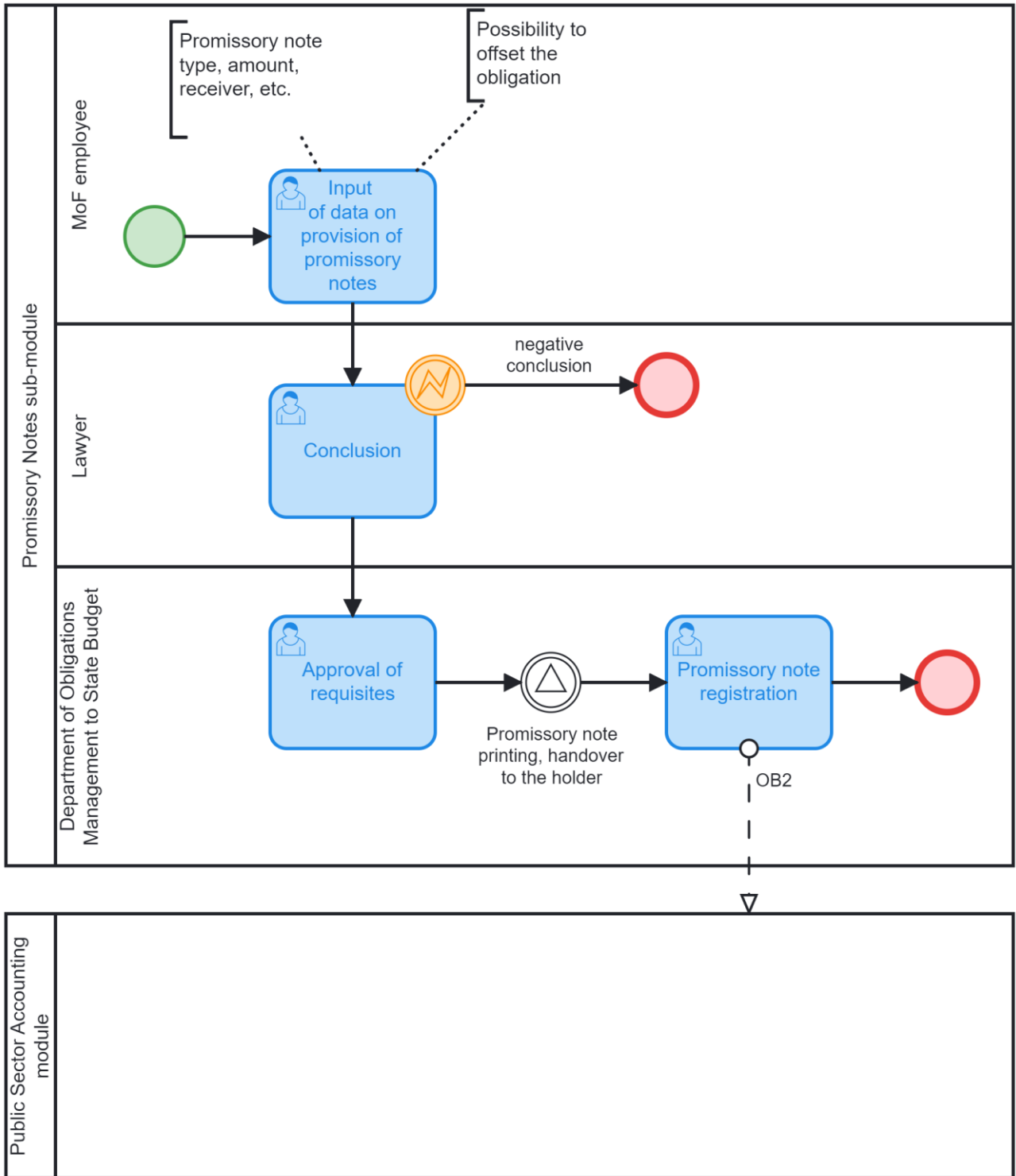
Figure 3 : 10 Optimization diagram of the bill issuing function

Purpose:	Issuance and accounting of ordinary and negotiable promissory notes
Description/ process	Billing process within the module: - The employee of the Ministry of Finance enters data. bill type, amount, payee, etc. Makes an inquiry to verify the possibility of setting off the obligation arising from the judgment - The lawyer provides a conclusion based on the received data. in the case of a negative conclusion, the application is rejected, in the case of a positive conclusion, the application goes to the next stage - PBNPV approves the conditions of validity and carries out printing, handing over and recording of the promissory note.
A link to an existing process	GZ-PKV1 Issuance of a simple promissory note GZ-PKV2 Issuance of transferable promissory notes
Territory:	Bills of Exchange sub-module, AMR module
Actors:	Employee of the RA Treasury, Lawyer, PBNPV
Input data	GS6, SRC2
Output data	BP2:

3 . 5 Granting of loans, sub-loans and debt management to the budget

The debt management function for loans, sub-loans and the budget is implemented through the Loans and Debts sub-module. The servicing and management of obligations stipulated by the provision of loans and sub-loans are similar to the function of servicing and managing the debt of non-residents (Georgia) to RA, so they will be carried out within the framework of the same sub-module.
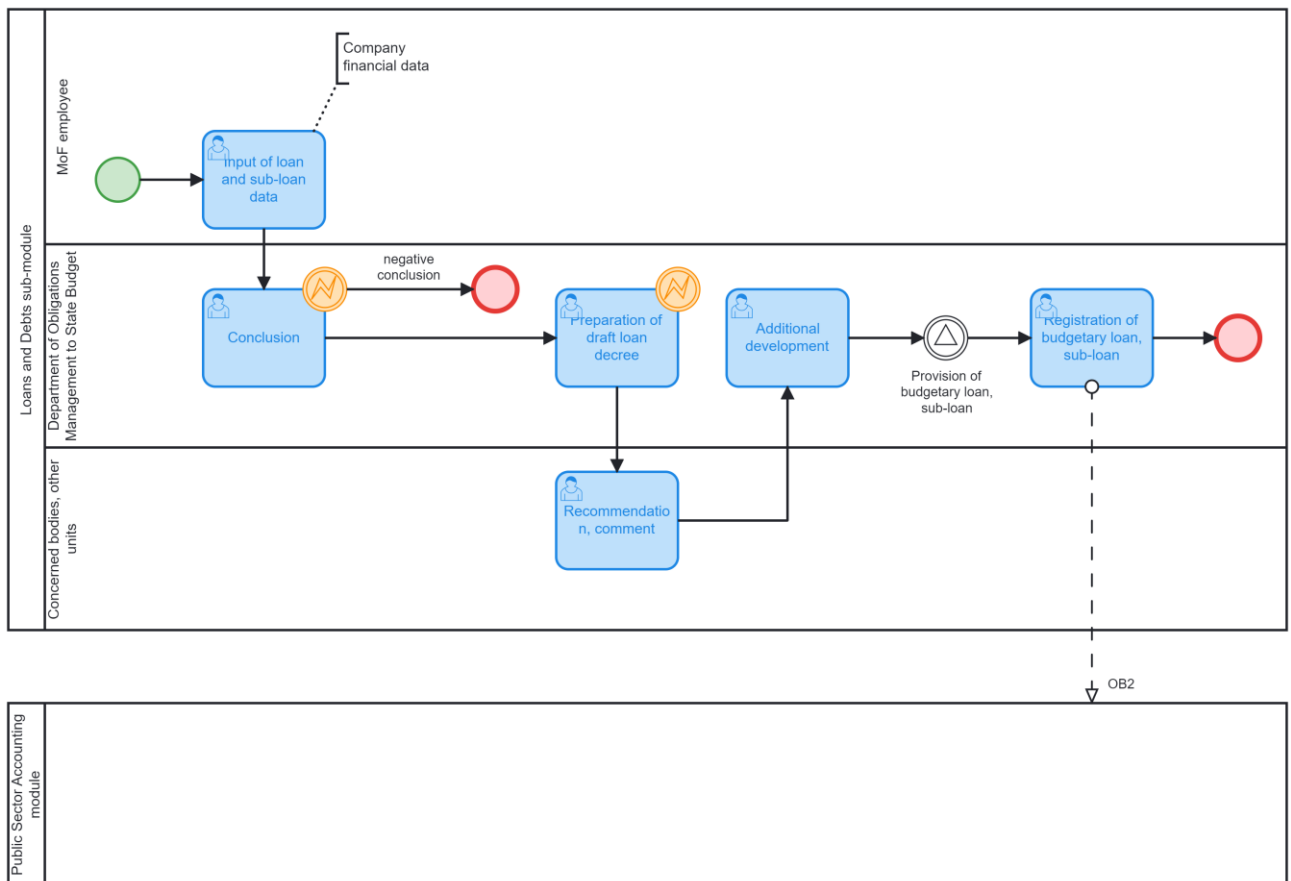
Figure 3 : 11 Diagram of optimization of loan, sub-loan provisioning function

Purpose:	Provision of loans, sub-loans and debt management to the budget
Description/ process	The process of granting loans and sub-loans within the framework of the module: ● The employee of the Ministry of Finance enters data. assets, liabilities, liabilities, cash flows of the applicant company ● The Ministry of Internal Affairs and Communications provides a conclusion. after a positive conclusion, a draft decision is drawn up and provided to interested bodies and other organizations for suggestions and comments ● In case of approval of the amended decision, implements the granting and accounting of a loan or sub-loan
A link to an existing process	GZ-PKV5 Provision of budget loans and sub-loans
Territory:	Loans and Debts sub-module, AMR module

Actors:	An employee of the RA Treasury, the Ministry of Internal Affairs and Communications, interested bodies and other organizations
Input data	GD6:
Output data	BP2:

3 . 6 Provision of budgetary guarantees

In order to automate the function of issuing budgetary guarantees, a separate Budgetary Guarantees sub-module is planned, which will be used to implement the functions of issuing budgetary guarantees, accounting and management of liabilities.
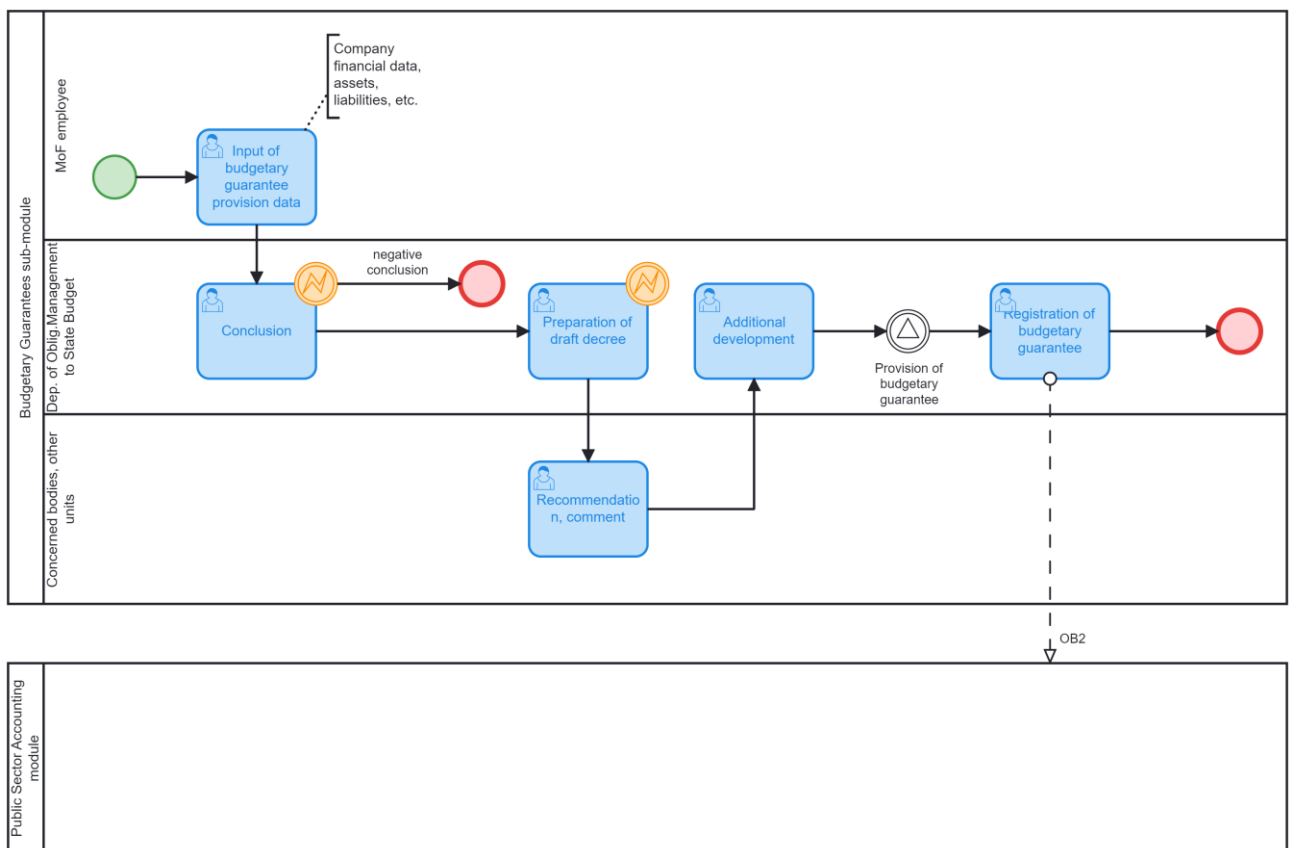

Figure 3 : 12 Diagram of the optimization of the function of providing budgetary guarantees

Purpose:	Provision and accounting of budgetary guarantees
Description/ process	The process of providing budgetary guarantees within the framework of the module:

	- The employee of the Ministry of Finance enters data. company's assets, liabilities, liabilities, cash flows - The Ministry of Internal Affairs and Communications provides a conclusion. After a positive conclusion, a draft decision is drawn up and provided to interested bodies and other departments for suggestions and comments. - In case of approved decision, provision and accounting of the Budget guarantee is carried out
A link to an existing process	GZ-PKV6 Provision of budgetary guarantees
Territory:	Budgetary guarantees sub-module, AAH module
Actors:	An employee of the RA Ministry of Finance, Ministry of Internal Affairs and Communications, Concerned bodies and other departments
Input data	GD6:
Output data	PB2:

Appendix 1 . PPKV functions

1. Debt collection
1.1. Strategy development
1.1.1. Development of a medium-term debt raising strategy
1.1.2. MDP applications
1.1.3. Annual budget requests
1.2. Strategy implementation
1.2.1. Development of the annual exchange plan
1.2.2. Government treasury bonds
1.2.2.1. Issue:
1.2.2.1.1. Issuance of short-term government bonds
1.2.2.1.2. Issuance of government medium-term (MHP) and long-term (EPH) coupon bonds
1.2.2.1.3. Issuance of government savings coupon bonds
1.2.2.2. Allocation and Redemption
1.2.2.2.1. Auction for placement of government treasury bonds
1.2.2.2.2. Treasury custodian's online retail sale of bonds
1.2.2.2.3. Retail sale of bonds through Treasury custodian service points
1.2.2.2.4. Treasury bond repurchase auction
1.2.2.3. Estimating the behavior of primary agents
1.2.3. Government foreign currency bonds
1.2.4. Loans:
1.2.5. Warranties
1.3. Debt accounting and servicing

1.3.1.   Registration of debt instruments
1.3.1.1.   PGP registration
1.3.1.2.   Registration of loans
1.3.1.3.   Registration of issuance of foreign currency bonds
1.3.1.4.   Registration of guarantees
1.3.2.   Accounting for debt collection instruments
1.3.2.1.   Registration of allocations and redemptions of PGPs (also PPAs).
1.3.2.2.   Deductions of loan funds
1.3.2.2.1.   Deductions for foreign loans - Special account and compensation
1.3.2.2.2.   Deductions for external loans - Budget support
1.3.2.2.3.   Deductions for foreign loans - Direct payment
1.3.2.2.4.   Deductions for foreign loans - Fixation of lending conditions
1.3.2.2.5.   Deductions for foreign loans - Capitalization of interest payments
1.3.2.3.   Registration of allotment/repurchase of foreign currency bonds
1.3.2.4.   Registration of warranties
1.3.3.   Debt repayment and servicing
1.3.3.1.   Repayment and servicing of PGPs (also PPAs).
1.3.3.2.   Redemption and servicing of foreign currency debt
1.4. Statistics and reporting
1.4.1.   Preparation and publication of the annual state debt report
1.4.2.   Preparation of monthly statistical bulletins
1.4.3.   Other reports
1.4.3.1.   RA Finance Ministry on 28.12.2020 Preparation of reports of order N 426-L

2. Cash flows

   2.1. Cash flow forecasting

      2.1.1. Forecast of monthly indicators of the cash flows of the RA state budget (without PGI)

      2.1.2. Forecast of daily indicators of the cash flows of the RA state budget (without PII)

      2.1.3. Forecast of monthly indicators of the cash flows of the RA state budget (by PGI)

      2.1.4. Forecast of the daily indicators of the flows of the RA GMC (by PGI)

   2.2. Cash flow management

      2.2.1. Depositing temporarily free funds of GMC in the Central Bank of the Republic of Armenia

      2.2.2. Early repayment of the deposit invested in the Central Bank of the Republic of Armenia

3. Other functions:

   3.1. Debt servicing of non-residents (Georgia) to RA

   3.2. Fulfillment of obligations regarding participation in the capital of international financial organizations

Annex 2 : PBNPKV functions

1. Provision of budgetary guarantees
1.1 Provision of budgetary guarantee
1.2 Submission of notices on overdue obligations to guaranteed persons
1.3 In case of non-payment of obligations, payment of the guarantee obligation at the expense of the funds of the RA state budget
1.4 Processes of formulating the obligation as a loan in case of repayment of the obligation from the RA state budget
2. Provision of budget loans and subloans
2.1 Provision of budget loan and sub-loan
2.2 Filing of Overdue Obligation Notices
2.3 Foreclosure process in case of non-payment of overdue obligations
3. Issuance of ordinary and negotiable promissory notes
3.1 Issuance of ordinary and negotiable promissory notes
3.2 Change of Noteholder Subject to Assignment of Claim on Transferable Notes
3.3 Redemption of Ordinary and Transferable Promissory Notes