

Public Debt Management Information Systems

Performance Audit

2014

STATE AUDIT OFFICE OF GEORGIA

Public Debt Management Information Systems

Performance Audit Report

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List of Abbreviations

Department	Public Debt and External Financing Department of the MOF
FAS	Legal Entity Under Public Law – Financial-Analytical Service of the MOF
IDI	INTOSAI Development Initiative
INTOSAI	International Organization of Supreme Audit Institutions
IS	Information system
ISSAI	International Standards for Supreme Audit Institutions, INTOSAI Standards
ISM	Information security manager
IT	Information technology
Ministry, MOF	Ministry of Finance of Georgia
SAO	State Audit Office of Georgia
SLA	Service Level Agreement
UNCTAD	United Nations Conference on Trade and Development
WGITA	INTOSAI Working Group on IT Audit

Executive Summary

The usage and development of the information technologies in public financial management is an important priority of the country at the phase of intensive implementation of electronic governance (E-Governance). The fact that information systems play crucial role in the business processes of the Ministry of Finance affects the state and the public in general. That is why the Ministry is defined as a critical information system subject.

Bearing in mind the role and importance of information systems in the public debt management process and having considered legal requirements to information security, State Audit Office decided to study the existing management practice of debt management ISs. Audit has revealed the following shortcomings regarding these systems:

The management of external and internal public debt is not conducted in a unified information system. The MOF uses three different information systems for the public debt management purpose: (1) Debt Management and Financial Analysis System (DMFAS), which was developed by the United Nations Conference on Trade And Development (UNCTAD); (2) Public Debt Management and Investment Projects Management System (eDMS), which is being developed by the Financial-Analytical Service, and (3) Investment Projects Management System (DMNAT), which was developed by the Public Debt and External Financing Department. The main objective of both DMFAS and eDMS is to ensure management and integration of external and internal public debt within a unified system. This objective has not yet been achieved by the Ministry.

The Ministry does not have a clear strategy regarding public debt management information systems. There is an obvious overlapping of strategic goals in MOF's decisions. In particular, the purpose of acquisition of DMFAS 6.0 and development of eDMS was to manage public debt portfolio within a unified system. External and internal debt components are still being managed through different systems. This circumstance is directly linked to DMFAS's annual supporting costs on one hand and to financial resources necessary for eDMS's development on the other.

Public Debt and External Financing Department does not use analytical features of the debt management information systems. One of the main goals of acquisition of DMFAS's updated version was to use its higher functionality in the process of debt management. Yet, the audit has shown that the Department does not use these features. Consequently, the MOF has not achieved its goals in this field.

The Ministry does not monitor its service provider – LEPL Financial-Analytical Service. In particular, the MOF does not regularly monitor the audit logs that allow systematic supervision of the FAS and database administrators' activities. Furthermore, the Ministry still has not conducted the audit of the service provider in order to identify existing risks and shortcomings related to ISs. Consequently, the Ministry does not have any assurance that the necessary level of information security, related to public debt management information systems, is being provided.

The MOF does not have monitoring mechanisms to assess the quality of the services received. There is no formal Service Level Agreement (SLA) that allows the Ministry to define the criteria and assess the quality of service.

The Ministry of Finance and the Financial-Analytical Service do not fully comply with the legal requirements for information security. Both these entities are the subjects of critical information systems and, therefore, are obligated to meet the minimum legal requirements regarding information security. In order to ensure the uninterrupted functioning of information systems and the required level of information security it is necessary for these organizations to have a formal document on information security policy. It is also crucial to have an information security manager to ensure the accomplishment of policy's objectives.

Having studied the logical access control environment of debt management information systems, we may conclude **that logical access controls and compensatory mechanisms used in eDMS ensure the recordability and traceability of transactions. As for the DMFAS, the system does have the technical ability to ensure the recordability and traceability of executed operations, although this feature is not used in practice.**

Public Debt and External Financing Department does not have a formal policy regarding the access to debt management ISs. Non-existence of predefined formal procedures may have a negative impact on the effectiveness of existing controls and, therefore, on the information security.

Having considered all the shortcomings prevailing in public debt management information systems, State Audit Office of Georgia elaborated corresponding recommendations to improve current situation.

Recommendations

Based on the assessment of public debt management information systems, State Audit Office has the following recommendations:

- Through the initiative of the Public Debt and External Financing Department, the matter of public debt portfolio (external and internal components) consolidation into one information system (DMFAS or eDMS) should be considered;
- The Ministry of Finance should define the strategic vision regarding public debt management information systems. In particular, the Ministry must determine the requirements towards the debt management IT solutions, in accordance to which the optimal public debt management system should be chosen from the available systems;
- Public Debt and External Financing Department should take care of the personnel qualification improvement (through organizing the trainings for employees) to ensure the uninterrupted functioning of the debt management process in case highly qualified employees quit their job;
- Public Debt and External Financing Department and the Financial-Analytical Service should elaborate a software development plan for the eDMS, which must cover the description of functionality improvement and the time frame as well;
- MOF should regularly monitor the operating system and database audit logs of the public debt management information systems, which exist in the electronic environment of the FAS;
- Based on the audit report of information security, the MOF must ensure that the Financial-Analytical Service indeed provides the data security of the Ministry's information systems;
- MOF and FAS should develop and approve the Service Level Agreement for the outsourced public debt management information systems;
- Ministry of Finance and Financial-Analytical Service should approve information security policy and establish appropriate procedures and environment;
- MOF and FAS should appoint a person responsible for information security in an organization – information security manager;
- Due to request of Public Debt and External Financing Department, DMFAS system administrators should restrict system users' access to non-personified accounts to prevent unauthorized access to the system. The Department should also request the activation of DMFAS's audit module, so the system audit trace is produced;
- The Ministry should regularly monitor the audit logs of debt management information systems.

1. Introduction

Public debt management is one of the key components of public financial management. In the process of debt management the government must identify, assess and manage the related risks and ensure the coordination and transparency of the process.

State financial institute uses appropriate analytical and software electronic systems in order to insure effective state financial policy (and public debt management in particular) and productive decision-making process.

The Ministry of Finance of Georgia is an institute responsible for attracting, recording and service of the government loans. This government entity also ensures the rational external debt management and the effective use of attracted loans. To ensure the best organization of these processes, the Ministry uses several electronic systems.

Objective of the performance audit of public debt management information systems is to evaluate the effectiveness of public debt management electronic systems' management and control mechanisms, implemented by the Public Debt and External Financing Department of the MOF, and also to assess systems' data integrity¹ and security. In the course of the audit, the audit team also studied the compliance of electronic systems with legal and other requirements, associated with activities of the organization.

Recommendations, issued by the State Audit Office, are aimed to ensure the most effective use of the electronic systems for sustainable and improved debt management process.

1.1. Audit Background

The usage and development of the information technologies in public financial management is an important priority of the country at the phase of intensive implementation of electronic governance (e-governance). Significant intellectual and financial investments have been made in Georgia in order to refine the electronic systems in accordance with the international standards and ensure their effective application.

The formation of electronic components of public financial management system and their further enhancement is an important part of e-governance. Future development of information systems of the Ministry of Finance is a vital element of the reform's successful implementation. In the recent years the Ministry acquired (DMFAS) and developed (eDMS) electronic systems for the debt management purposes. **Public financial management system development should be assessed as an innovative approach. The integration of different information systems and electronic services into a unified**

¹ Data integrity stands for its completeness and accuracy

system platform will improve the effectiveness of the Ministry's activities. Moreover, the exchange, validation and comparison of data of different systems strengthens the reliability of information and mitigates the risks of fraud or human error.

The aforementioned information systems play critical role in the business process of the Ministry of Finance and that, of course, affects the country and the public in general. This is why, in accordance with the Presidential Decree N157 11.03.2013, the Ministry of Finance is defined as a subject of critical information system.

As of November 2014, the amount of total debt portfolio is GEL 10,397.4 million (35.7 percent of the projected GDP). In the last five years the balance of public debt has a growing trend and, as of November 2014, the public debt balance is increased by 13 percent compared to 2010. During this period, average amount spent from the state budget to cover the liabilities was GEL 512.6 million.

The relevance of the topic of public debt management electronic systems' effectiveness may be explained by the world's increased dependence on such systems and their importance. In parallel with the performance audit of debt management information systems of the MOF, the Supreme Audit Institutions of 11 countries also study this topic, both in terms of the systems' effectiveness and their practical application by the local financial institutions.

1.2. Audit Objective

Objective of the performance audit of public debt management information systems is to evaluate the effectiveness of public debt management electronic systems' management and control mechanisms, implemented by the Public Debt and External Financing Department of the MOF, and also to assess systems' data integrity and security. In the course of the audit, the audit team also studied the compliance of electronic systems with legal and other requirements, associated with activities of the organization.

1.3. Audit Scope

This performance audit covers the evaluation of effectiveness of information systems used in the process of public debt management. Debt Management and Financial Analysis System (DMFAS) and the eDMS system, developed by the Ministry of Finance, have also been studied within the audit scope.

Audit scope covers the review of information systems' management, internal controls, IT operations, information system development, outsourcing, Service Level Agreement (SLA), debt management process and application controls.

The auditee is The Ministry of Finance of Georgia. Audit process was focused on Public Debt and External Financing Department – Ministry’s organizational unit responsible for public debt management. Audit team has also evaluated the activities of LEPL Financial-Analytical Service, in terms of technical support and service of debt management information systems.

General Controls to be assessed in the audit process are following:

- Logical access controls of debt management information systems, allowing authentic and authorized users to enter the system without the information being damaged, manipulated or stolen;
- Software development controls, which allow system updates, additional functionality or new modules to be integrated into the system without jeopardizing its sustainability and, therefore, business process as a whole;
- Audit trail/logs on the level of operating system, application and database, which allow the recording of operations in the audit journal.

1.4. Audit Methodology

To answer the questions mentioned above audit team has interviewed the employees of the Ministry of Finance responsible for the debt management processes, including the main users of debt management e-system and technical support/development team. Audit procedures have been conducted in accordance with WGITA – IDI Handbook on IT Audit for Supreme Audit Institutions and International Standards of Supreme Audit Institutions (ISSAI).

1.5. Criteria

Laws and regulations:

- Georgian Law on Information Security;
- Data Exchange Agency Chairman Order N2 04.02.2013 on “Minimum Requirements for Information Security”;
- Data Exchange Agency Chairman Order N4 04.02.2013 on “Minimum Standards for Information Security Manager of a Critical Information System Subject”

Manuals:

- United Nations Conference on Trade and Development, DMFAS Programme, UNCTAD Occasional Report: 2009;
- United Nations Conference on Trade and Development, DMFAS 6.0 Manual;
- Capability Maturity Model Integration (CMMI) for Development, Version 1.3;
- Capability Maturity Model Integration (CMMI) for Services, Version 1.3