



Republika e Kosovës  
Republika Kosova  
Republic of Kosovo



Zyra Kombëtare e Auditimit  
Nacionalna Kancelarija Revizije  
National Audit Office

## Information Technology Audit Report

---

# SYSTEMS INTEGRATION, DATA WAREHOUSE DEVELOPMENT AND BUSINESS INTELLIGENCE IMPLEMENTATION

Prishtina, August 2025

The Auditor General of the Republic of Kosovo is the highest institution of economic and financial control, to which the Constitution and the Law <sup>1</sup>guarantee functional, financial, and operational independence.

The National Audit Office is an independent institution that assists the Auditor General in carrying out his/her duties. Our mission is to effectively contribute to public sector accountability through quality audits by promoting public transparency and good governance, and by fostering the economy, effectiveness and efficiency of government programs to the benefit of all. We are thus building trust in the spending of public funds and play an active role in safeguarding the interests of taxpayers and other stakeholders by enhancing public accountability. The Auditor General reports to the Assembly on the exercise of duties and powers set out in the Constitution, the Law, bylaws and international public sector auditing standards.

This audit was conducted in accordance with the International Standards of Supreme Audit Institutions (ISSAI 3000<sup>2</sup>) and the Guidance on Audit of Information Systems (GUID 5100<sup>3</sup>).

Information technology audits undertaken by the National Audit Office are an examination and review of Information Technology systems and related controls to obtain assurance on the principles of legality, efficiency<sup>4</sup>, economy<sup>5</sup> and effectiveness<sup>6</sup> of information technology systems and corresponding controls.

The Auditor General has decided on this audit report on “Systems Integration, Data Warehouse Development and Business Intelligence Implementation” in consultation with Deputy Auditor General, Myrvete Gashi Morina, who supervised the audit.

The audit team consisted of:

Samir Zymberi, Director of the Audit Department;

Agron Hoxha, Team Leader;

Verona Sekiraqa, Team Member; and

Gëzim Krasniqi, Team Member;

NATIONAL AUDIT OFFICE - Address: Rr. Ahmet Krasniqi no. 210, Lagja Arbëria, Prishtina 10000, Kosovo

Tel: +383(0) 38 60 60 04/1011

<http://zka-rks.org>

---

<sup>1</sup> Law 05/L-055 on the Auditor General and the National Audit Office of the Republic of Kosovo

<sup>2</sup>ISSAI 3000 - Standards and Guidelines for Performance Auditing Based on INTOSAI - Auditing Standards and practical experience

<sup>3</sup>GUID 5100 - Guidance on Audit of Information Systems issued by INTOSAI

<sup>4</sup> Efficiency - The principle of efficiency means achieving the maximum output from available resources. It relates to the relationship between the resources employed and the results delivered in terms of quantity, quality and time.

<sup>5</sup> Economy - The principle of economy means minimizing the cost of resources. The resources used should be available on time, in the right quantity and quality, and at the best price.

<sup>6</sup> Effectiveness - The principle of effectiveness means meeting the predetermined objectives and achieving expected results.

---

---

## TABLE OF CONTENT

Executive Summary.....	5
1 Introduction.....	7
2 Audit objective and scope .....	9
3 Audit findings .....	10
3.1 Information technology governance .....	11
3.2 Development, Procurement, and Outsourcing.....	12
3.3 Outsourcing Policies .....	13
3.4 Application Controls .....	14
4 Conclusions.....	16
5 Recommendations .....	17
Appendix I. Audit design.....	18
Risk areas and audit problem indicators.....	18
System description.....	18
Audit scope and questions .....	20
Annex II: Letter of Confirmation.....	23

---

## List of Acronyms

<b>AIS</b>	Agency of Information Society
<b>CAAT</b>	Computer assisted audit techniques
<b>IRK</b>	Institutions of the Republic of Kosovo
<b>ISO/IEC</b>	International Organization for Standardization/International Electrotechnical Commission
<b>MFLT</b>	Ministry of Finance, Labour and Transfers
<b>IT</b>	Information Technology
<b>DWH</b>	Data Warehouse
<b>USAID</b>	United States Agency for International Development
<b>TAK</b>	Tax Administration of Kosovo
<b>KCFR</b>	Kosovo Council for Financial Reporting
<b>GIZ</b>	German Society for International Cooperation
<b>ITSMD</b>	Information Technology Systems Management Department
<b>AD</b>	Active Directory

---

## Executive Summary

The Ministry of Finance, Labour and Transfers, through the Steering Committee for Information Technology and with the support of USAID, initiated in 2017 the project for integrating existing information technology systems, which have been characterized by a high level of heterogeneity, and for establishing a joint analytical reporting platform (Business Intelligence). As a foundation for this system, the development of a Data Warehouse has been envisaged for the purpose of unifying data from Kosovo Customs, Tax Administration, Treasury, Budget Department, Property Tax, Human Resources System, Payroll System and other public institutions responsible for the management of public finances. The Data Warehouse incorporates an Analytical Reporting System (Business Intelligence) in two categories: a system based on Microsoft Power BI tools and an alternative Commercial Off-The-Shelf (COTS) system.

The National Audit Office conducted an Information Technology audit to assess whether the Data Warehouse system provides accurate and reliable data for macroeconomic decision-making.

Audit results indicate show that, despite the advancements in the Data Warehouse system and its utilization by a number of departments, the Ministry of Finance, Labour and Transfers has still not managed to extend its use to all user officials, resulting in part of the staff continuing to use the old reporting formats via email in Excel or other forms. Moreover, the system lacks automated data transfer notifications to confirm whether data have been successfully transferred, requiring officials to perform manual verifications. This situation puts the reliability of system-generated reports at risk, reduces transparency, and makes the system dependent on specific individuals, which affects the efficiency of decision-making.

**The Ministry of Finance, Labour and Transfers (MFLT) does not have an approved IT Strategy**, continuing activities without a formal document for analysing and prioritizing requests. The IT Strategy 2023–2027 is still in draft, and the previous strategy was also not approved. The lack of a formalized strategy creates a risk for ineffective allocation of resources and the development of systems that do not meet priority needs.

**MFLT has not documented the new data connections within the Data Warehouse system**, increasing the risk of errors and maintenance difficulties. This situation adversely impacts the operability, reliability, and transparency of the newly implemented data interfaces.

**MFLT has not ensured the operationalisation of an activity logging mechanism as of 2025 capable of providing real-time visibility** of users and their actions. Although the Power BI reporting system has retained system logs, these logbooks have not been requested, resulting in MFLT having lack of information regarding system utilisation by the officials.

**The Data Warehouse system lacks an automated process to validate whether the data transfer from sources has been successfully executed.** Current controls are performed manually by IT officials, who confirm successful data transfers, while users of the Power BI reporting system perform additional accuracy checks of generated reports. Furthermore, there is no procedure for notifying new budget codes from the Kosovo Treasury, affecting the accuracy of reports. This has forced end-users of the Data Warehouse system, particularly the Macroeconomic Modelling Division, to conduct additional validation for data accuracy of the daily budget execution reports (Table 1).

**Macroeconomic Modelling Division officials continue to use duplicate reports;** they keep receiving reports from Kosovo Customs and the Kosovo Tax Administration through email or platforms such as Open Data, which are provided online by TAK and Customs. According to Macroeconomic Modelling Division officials, the data in the Power BI reporting system requires more time for classification, while certain reports, such as those on debts, are missing in the proper format within the system. Currently, the Power BI reporting system is not used by the Budget Department, while the COTS BI reporting system is not used by any official of the Ministry of Finance, Labour and Transfers (MFLT).

Therefore, the issues identified above indicate that the Ministry of Finance, Labour and Transfers requires further improvements to ensure the effective operation, governance, and proper utilisation of the Data Warehouse system, as well as an efficient reporting process that supports evidence-based decision-making. In this regard, we have provided a total of six (6) recommendations to the Ministry of Finance, Labour and Transfers. The list of recommendations is presented in Chapter 5 of this report.

### **Response of the Entity**

The Ministry of Finance, Labour and Transfers has agreed with our audit findings and recommendations and has committed to implementing the given recommendations.

# 1 Introduction

The Ministry of Finance, Labour and Transfers (MFLT) holds broad responsibilities in the areas of public finance, economic policies, employment and social welfare. Established to support the economic development and fiscal stability of the country, MFLT plays a crucial role in designing and implementing fiscal and economic policies. Its organizational structure includes several departments such as: Budget Department, which deals with the planning, preparation and monitoring of the state budget; Treasury Department, which manages the execution of the budget and government financial transactions; Department of Economic and Financial Policies, which analyses and develops policies for economic stability; Labour and Social Policy Department, focusing on developing employment and social welfare policies; as well as the Department of Administration and General Services, which provides logistical and administrative support for the functioning of the Ministry.

In addition to the departments mentioned above, MFLT oversees key agencies such as: Kosovo Tax Administration (KTA), responsible for tax revenue collection and enforcement of tax policies; Kosovo Customs, which manages and controls imports, exports and the collection of customs revenues; and the Employment and Vocational Training Agency, which supports labour market development through professional training programs. MFLT works closely with international and local institutions to ensure that its financial and social policies align with best international practices, placing special emphasis on fiscal transparency, public expenditure efficiency and building a sustainable economic and social environment in Kosovo.

MFLT has taken concrete steps to improve its technological infrastructure and enhance institutional efficiency. In this regard, with the support of USAID, it has aimed to unify the IT systems of public institutions (such as Customs, TAK, Treasury, etc.) through the creation of a Data Warehouse and the implementation of an analytical reporting system (Business Intelligence). The goal of implementing this system is to increase transparency, enable macroeconomic decision-making, and provide real-time monitoring of public finances.

The project includes integrating data through ETL (Extract, Transform and Load) processes and storing data for at least 10 years with full integrity. For this project, it is required to implement the analytical reporting system – Business Intelligence, which should be in two categories:

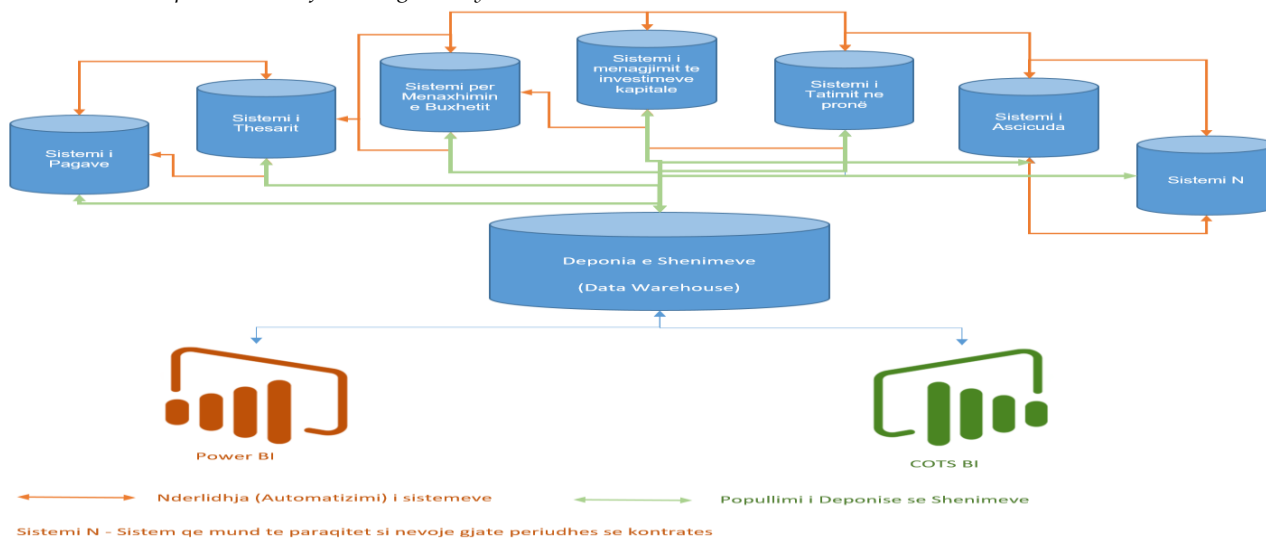
- Analytical Reporting System, through Microsoft tools, namely Microsoft Power View, Report Designer and Report Builder, or equivalent tools that must be accessible through web browsers (Safari, Internet Explorer Mobile, Internet Explorer 10 and Firefox).
- Analytical Reporting System, COTS (Commercial Off-The-Shelf) – implemented in at least three other organizations similar to the Ministry of Finance, to avoid dependency on licenses, allowing the creation of static and dynamic reports, dashboards, mobile and off-domain access, connection with external systems, and building of the national action plan based on data.

The Ministry of Finance, Labour and Transfers currently owns these systems, from which the Data Warehouse will be populated:

The procedure for extracting, transforming and loading the Data Warehouse requires that the data be processed through ETL (Extract, Transform and Load) procedures, then transferred to the Data Warehouse, and Specialized Data Stores, known as *Data Marts*, be created. The system must provide a solution for the method of real-time data consumption from other systems, display them in visualization tools and store those results in the Data Warehouse system.

The systems that have been integrated into this project are presented in the chart below:

Chart 1. Schematic presentation of the integrated system:



## 2 Audit objective and scope

The audit objective is to assess whether the Ministry of Finance, Labour and Transfers has effectively implemented the project “Systems Integration, Data Warehouse Creation, and Business Intelligence Implementation”, and to what extent it has succeeded in ensuring transparent, integrity-driven and real-time data.

Through this audit, the aim is to provide recommendations to the MFLT in order to improve the management and implementation of Information and Communication Technology (ICT) projects, ensuring more efficient use of resources and sustainable results in the developed systems.

To address the audit objective, we have focused on the following areas: IT Governance, Development, Procurement and Outsourcing, Contracting Policies and Application Controls.

*Table 1: Audit areas and matters*

<b>Audit areas</b>	<b>Audit matters</b>
<b>1. IT Governance:</b>	1. Identification, Direction and Monitoring of Business Requirements;
<b>2. Development, Procurement, and Outsourcing</b>	2. Project Management and Control;
<b>3. Contracting Policies</b>	3. Service Level Agreement (SLA)
<b>4. Application Controls</b>	4. Processing Controls

The scope of this audit covers the Ministry of Finance, Labour and Transfers, namely the Information Technology Systems Management Department, within which operate the following divisions: IT Infrastructure and Security Division, IT Operations Division and Applications Management Division. The scope will also include the Macroeconomic Modelling Division, Kosovo Council Financial Reporting (KCFR) and Budget Execution and Reporting Division.

The audit will cover the period from 2023 until June 2025, aiming to analyse the implementation and impact of the project “System Integration, Data Warehouse Development and Business Intelligence Implementation”. Additionally, to assess the justification for initiating and implementing such a project, the period starting from 2016 will also be analysed.

### 3 Audit findings

The purpose of the DWH system is to unify the main data sources – such as TAK, Customs, Treasury, Budget, Property Tax – to provide up-to-date information on revenues, expenditures and budget at the country level. Over the years, the system has been expanded to include financial statements for the Kosovo Council for Financial Reporting (KCFR) as well as data for all pension and social schemes in Kosovo. In addition to the requirement to populate the DWH system with data from other institutions, this system also faces challenges in its use by officials within the MFLT.

The audit findings relate to IT Governance, Development, Procurement and Outsourcing, Contracting Policies and Application Controls based on limited tests of controls for this system. The findings are structured according to audit areas and issues.

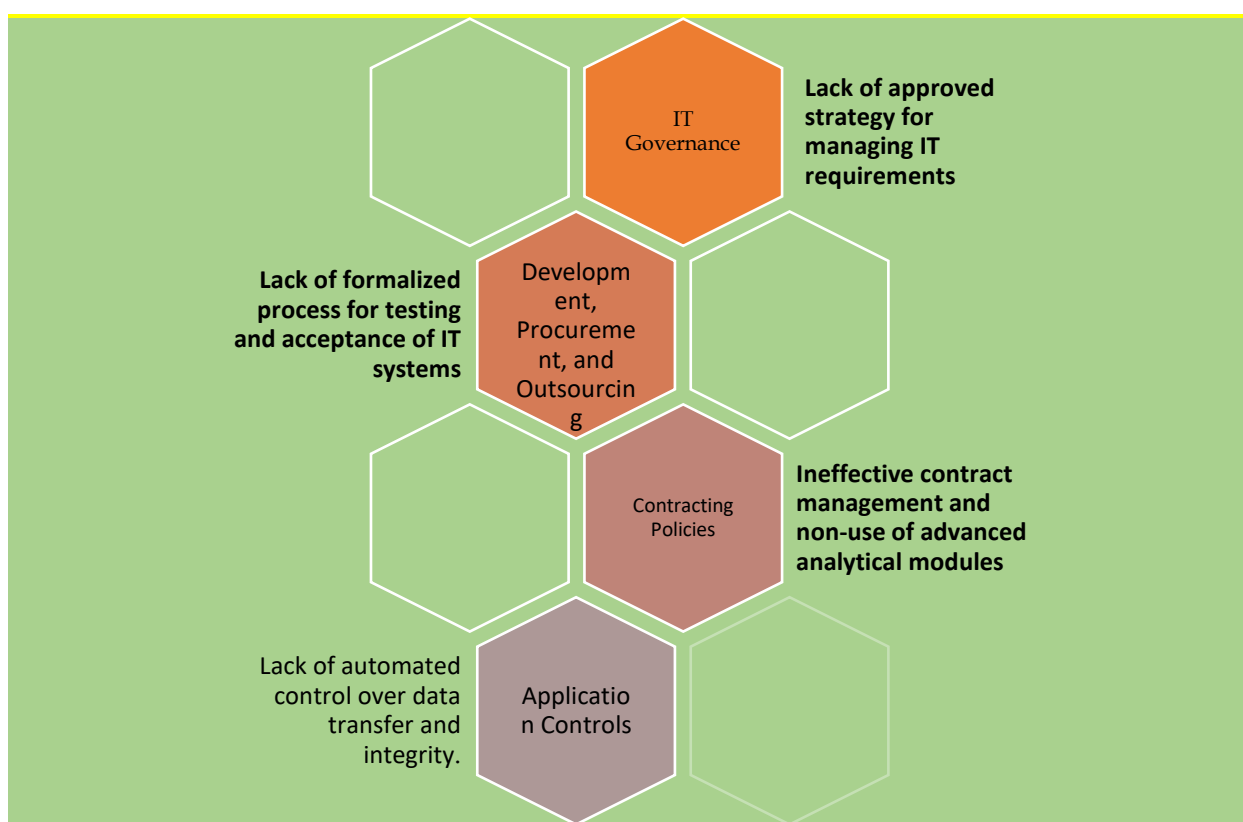


Figure 1. Structure of audit issues in the DWH system

**First part** presented in chapter 3.1 covers the issues identified that need improvement related to IT Governance of information systems (1-2).

**Second part** presented in chapter 3.2 covers the issues identified related to development and acquisition (3).

**Third part** presented in chapter 3.3 covers the issues identified related to contracting policies (4).

**Fourth part** presented in chapter 3.4 covers the issues identified related to application controls (5-6).

---

## 3.1 Information technology governance

IT governance is defined as the overall structure that guides an institution's IT operations and ensures that IT systems support and enable the achievement of the institution's objectives, and plays a key role in defining a control and reporting environment. The key elements of IT governance are: IT strategy and planning; structures, standards, policies and procedures, development and acquisition, human resources, etc.<sup>7</sup>

Every organization should be committed to identifying new or updated needs and then providing appropriate IT solutions to business users. When developing or purchasing solutions to meet business needs, IT Governance ensures that the choices made are appropriate for the business and that the necessary training and resources (hardware, tools, network capacity, etc.) are available to implement the solutions.

### 1. MFLT continuously develops activities without an approved IT strategy

*The MFLT should have a strategic IT plan that translates business objectives into IT goals and requirements, addresses the resources needed to support the business. In parallel with the process of drafting the strategic document, an Action Plan for its implementation should be drafted. It should be systematically monitored, reviewed and updated.*

MFLT does not have a formalized strategy for identifying, analysing and prioritizing IT system requirements. The IT Strategy prepared for the years 2023-2027, drafted with the support of GIZ, has been sent to the Steering Council for Information Technology by the technical committee but has not yet been approved by the Steering Committee. Therefore, MFLT does not have any approved document in the field of IT with which it has planned its long-term needs for the development of projects in the field of IT. According to MFLT, its planned needs are included in the "Strategy for Public Finance Management of the Republic of Kosovo 2022-2026". The action plan includes its activities related to the development of IT projects.

For the identification and prioritization of IT system requirements, MFLT is based on two documents drafted in 2013 with the support of USAID. One of these documents includes the "Strategic Work Plan", which aimed to implement it through seven strategic pillars. One of the main pillars focuses on data analytics including systems integration, the creation of a data warehouse and the implementation of business intelligence.

According to the MFLT, although the Strategic Work Plan was not formally approved by decision of the IT Steering Committee, they were considered strategic work plans and as such did not require mandatory formal approval at that time.

The lack of a clear and legitimate mechanism for analysing and prioritizing IT requirements poses a risk that limited financial and technical resources are not allocated in the most effective way, developing systems that do not have an immediate necessity or that do not have a high impact on improving services. Also, without a clear and transparent process, subjective decision-making may occur, while the requirements of departments may be treated unequally. This negatively impacts organizational efficiency and inter-institutional harmonization of IT investments.

---

<sup>7</sup> Information Technology Audit Manual, IT Governance.

## 2. Documented lack of training for Power BI platform users

*Organizations should regularly monitor and review staff skills and competencies to ensure they are up-to-date and aligned with the requirements of roles and business objectives. This includes conducting periodic knowledge assessments, maintaining up-to-date records of existing skills, using metrics to assess the effectiveness of training, and incorporating these analyses into the performance appraisal cycle, with the aim of identifying and filling gaps through interventions such as training, mentoring, or certifications.<sup>8</sup>*

The Ministry of Finance, Labor and Transfers does not have a complete and standardized database of training on the use of the Power BI reporting system. Although the Application Development Division has provided some evidence (e-mails) of the implementation of training, a structured and documented approach that addresses the needs for professional development of staff is missing.

The lack of official evidence and the movement/departures of staff, especially in the Department for Macroeconomic Modelling, make it impossible to verify the current skills of users and identify the needs for further training, jeopardizing the quality and continuity of analyses in this system.

## 3.2 Development, Procurement, and Outsourcing

In order to support business strategy, IT departments deliver solutions to the business and its users. The process of developing, purchasing, or contracting for a solution must be planned so that risks are managed and opportunities for success are maximized. In addition, the requirements for these solutions must be identified, analysed, documented, and prioritized. Organizations may also outsource quality assurance and testing functions to ensure the quality of these solutions.<sup>9</sup>

### 3. Lack of a documented process for testing and accepting new data

*The organization shall conduct testing of IT systems and shall base the results on the acceptance or rejection of the system. The organization shall have a formalized and documented process for testing IT systems. This process shall include planning, performing technical and functional testing, documenting the results, and basing the decision to accept or reject the system on the concrete test results.<sup>10</sup>*

From the review of the documentation for the Data Warehouse system, it was established that, during the initial installation and integration phase, the Ministry has tested and documented all modules. However, in recent years the need for interconnection with new datasets<sup>11</sup> has arisen, where the MFLT has also interconnected the data for all financial statements, a total of 10 datasets, for pension schemes and social schemes (a total of 36 schemes), 5-digit Treasury data codes, Payroll/salary data from TAK for all employees. But, for these newly integrated datasets, the Ministry has not documented the data integration methodology. According to officials, the lack of documentation of the new datasets is attributed to lack of staff, given that the respective division manages approximately 13 information systems. Lack of documentation for new datasets integrations increases the risk of loss of institutional knowledge in the event of staff turnover,

---

<sup>8</sup> COBIT 2019 in the APO sub-practice07.03.06

<sup>9</sup> Information technology audit manual.

<sup>10</sup> ISO/IEC 12207,

<sup>11</sup> Sets are organized groupings of data prepared for analysis and reporting.

---

complicates system maintenance and further development, and creates ambiguity for end users regarding data sources presented in the Power BI reporting system.

In addition, the Applications Division does not have a written procedure governing the testing and acceptance of new datasets within the Power BI system. Officials have stated that, in practice, testing is conducted by involving competent officials from the entity who receive the data and from officials who use the system and then compare whether the system operates as expected. However, this process remains informal and is not systematically documented. There is no clear procedure for planning tests, test results, no defect identification and remediation process, nor a formally recorded acceptance or rejection decision for newly integrated datasets.

The lack of a written procedure and relevant documentation poses a risk that all datasets are put into use without being sufficiently tested, potentially leading to functional issues, data processing errors, or service disruptions. Furthermore, decisions on dataset acceptance may be made subjectively, without an objective documented basis to support them.

### 3.3 Outsourcing Policies

Organizations should have policies that define which functions can be outsourced and which functions should be developed in-house. An outsourcing policy ensures that proposals for outsourced operations and/or database functions will be developed and implemented in a manner that is beneficial to the organization.

#### 4. *Failure to activate Activity Log for the Data Warehouse System*

*The management team shall ensure that the EO fulfils all performance or delivery obligations in accordance with the terms and conditions of the contract, and shall ensure that the EO submits all required documentation in accordance with these terms and conditions.<sup>12</sup> Sufficient audit trails shall exist in the system<sup>13</sup>.*

The implementation of the contract requirements by the economic operator was monitored by the Management Team, consisting of two members from MFLT and one from TAK.

Regarding the acceptance of the implementation of the DATA WAREHOUSE, Power BI and COTS system applications, MFLT has engaged an expert from GIZ to support/assist the commission regarding the security of the implementation of these applications in the system.

The engagement of this expert was intended to leverage his professional knowledge in the field of integrated systems for the Data Warehouse – a domain previously unfamiliar to the Ministry.

One of the contract requirements for the Data WAREHOUSE system was the implementation of an activity logbook, designed to provide real-time visibility of active users and their actions, including the IP address, timestamps and event that occurred. This component should also have an interactive page (interface).

The contract management commission has accepted the implementation of the Data Warehouse by the contractor. However, although the Power BI system has retained user activity logs, up to the

---

<sup>12</sup> Decision on the appointment of the management team of Contract No. 92/2018

<sup>13</sup> Information Technology Audit Manual – Application Security Controls

---

time of the audit, the responsible officials had not requested such report. As a result, the MFLT did not have information on which officials were using the system or how it was being utilised.

### 3.4 Application Controls

Application controls are controls to ensure and protect the accuracy, integrity, availability, and confidentiality of information. These ensure that authorized transactions are initiated properly, valid data is processed, complete recording is performed, and accurate reporting is performed.

#### 5. *Lack of Automation and Evidence in Data Transfer Control*

*The application correctly identifies errors in transactions. Data integrity is maintained even during random interruptions in transaction processing. There is an appropriate mechanism for handling errors in processing, reviewing and clarifying pending files.<sup>14</sup>*

From the evidence provided, we note that the system is capable of detecting duplicate data transfers from source into the Data Warehouse system, but it does not automatically notify users (e.g., via email) whether the transfer of datasets has been completed or not, or if any errors or interruptions occurred during the data transfer from the source into the Data Warehouse system. This task falls on IT officials, who, although they reported performing this control on a daily basis, do not maintain or provide reports documenting this control.

In addition to IT, an additional verification is performed by the users of the Power BI system, primarily staff from the Macroeconomic Modelling Division. These users receive the same data via email and, in order to ensure the accuracy of the data presented in Table 1 is accurate, they compare the report received by email on a daily basis with the data available in the Power BI system. However, the staff of Macroeconomic Modelling Division noted that, due to the high staff turnover, this comparison is performed on a weekly basis. If neither IT nor end users perform this comparison, there is the risk that the data presented in Table 1 within the Power BI system may be incomplete and inaccurate.

As a result, decision-making based on this data may be uncertain and lead to wrong decisions, which jeopardize the quality and fairness of managerial and strategic processes.

On the other hand, there are cases where the Treasury generates new five-digit budget codes for expenditures or uses budget codes that are not included in Table 1<sup>15</sup>, which had not been utilised up to a certain point in time. This information is not forwarded by the Treasury to the applications division, which must intervene in the codes to modify them, and as a result, the report generated by the Data Warehouse system is not accurate. Treasury officials state that they have no obligation or procedure for notifying the change/addition of new budget codes. In the absence of this formal coordination between the Treasury and the applications division, officials of this division are obliged to contact the responsible officials in the Treasury to be notified of the changes in the new codes.

---

<sup>14</sup> Information Technology Audit Manual – Application Controls

<sup>15</sup> Table 1 – Daily budget execution report for the given year

---

## 6. *Department officials of the Macroeconomic Modelling Division continue to use double reports*

*In order to unify the software systems of the MFLT, Kosovo Customs, Kosovo Tax Administration, and other institutions, the MFLT has developed a data warehouse and implemented a business analysis or business intelligence engine in order to have real-time information on the status and implementation of government policies on the one hand, and the advancement of government policies and increased transparency on the other hand.<sup>16</sup>*

MFLT officials, as the main users of the Data Warehouse System, in addition to reports generated by the Power BI system, still continue to use reports from Open Data that are generated by agencies such as TAK, and Customs. For illustration, we have the case of Customs, when data items/categories that have been entered into Customs reports, but have not been synchronized in the Data Warehouse System. This non-synchronization comes as a result of not initiating a formal meeting between the Macroeconomic Modelling Division and Customs so that these changes are forwarded to the IT officers of the departments in question, and then the latter do the technical part - data synchronization.

According to MFLT, another reason for using duplicate reports, as stated by officials, is that some reports they receive from agencies (generated through Open Data), are more practical for operational use than those generated by Power BI.

The System's inability to automatically detect data transfer issues necessitates the involvement of IT officials to perform this check.

The lack of reporting by IT officials regarding the verification of data transfers results in the Macroeconomic Modelling Division not having sufficient assurance regarding the accuracy and reliability of the report (Table 1). As a result, the division is required to perform additional verification procedures independently to confirm the validity of the reported data.

Currently, a number of departments within the MFLT actively use the Data Warehouse system, namely the Power BI system for reporting and data analysis, while the Cost Business Intelligence (COST BI) system is not used by MFLT officials. The Power BI system is used by: the Minister, the Office of the Secretary General, the Department of Economic Policies, the Department of Financial Reporting, the Department of Financing, the Department of Property Tax, the Division for Transparency and the Department of Budget and Finance. Meanwhile, the Budget Department, although it has full access to the system and possesses the relevant data, does not use the system.

From the discussions we have had with MFLT officials, although they use the system on a daily basis, they also receive reports via email from Customs which are also included in Open Data (Customs system) and in the Power BI system, but according to officials, receiving data through the Power BI system takes longer because a data classification/selection process is required. Also, TAK stores data in the Open Data system and in the Power BI system, and sends reports via email in Excel format. However, as for debt data, they are not placed in the Power BI system according to the specified format. Instead of using data from the Data Warehouse system, the relevant officials use data from other platforms such as: Customs Open Data, TAK Open Data, or data received via email in Excel format.

---

<sup>16</sup> Tender dossier for the public framework contract – service with an economic operator

## 4 Conclusions

The MFLT has taken steps toward developing IT systems to improve reporting and data management. The Data Warehouse data integration system has enabled the collection of data from the MFLT, TAK, Customs, Budget, Property Tax systems by collecting information on a daily, weekly and monthly basis on revenues, expenditures and budget at the country level. However, the lack of formalized processes, comprehensive process documentation, and internal coordination has resulted in weaknesses in data testing of datasets and data integrity controls for the daily budget execution reports (Table 1). Consequently, the system has been underutilized for daily budget reporting, leading to the use of duplicate reports, which poses risks to the efficiency and reliability of the reports.

### IT Governance

The Ministry of Finance, Labor and Transfers (MFLT) has not formalized a strategy for Information Technology management, operating without an approved IT strategy and without mechanisms for analysing and prioritising requirements for new systems. This lack of planning carries risks for ineffective allocation of resources and development of solutions that do not address priority needs. Furthermore, there is a lack of documentation of training on the use of the Power BI system, which makes it impossible to assess the current skills of staff and creates uncertainty in the quality and sustainability of the analyses.

### Development, Procurement, and Outsourcing

The MFLT has not documented the methodology used for integrating new datasets into the Data Warehouse. There is also a lack of a written procedure for testing and accepting new datasets. Testing is carried out informally and without evidence, which increases the risk of operational errors and lack of transparency.

### Outsourcing Policies

MMFLT has not ensured the practical use of real-time system logs and the user-tracking interface. The absence of requests for log-based reports has resulted in MFPT lacking information on the system's active users.

### Application Controls

The lack of an automated process for verifying data transfer to the Data Warehouse system, as well as the lack of documentation of manual controls by IT, increases the risk of inaccuracies and lack of data reliability. Users are forced to compare data through reports sent by e-mail. Also, the lack of coordination and formal communication on changes in budget codes leads to inaccuracies in reports.

## 5 Recommendations

### We recommend the Ministry of Finance, Labor and Transfers:

1. **IT Strategic Plan**, MFLT should ensure formal approval of the IT Strategic Plan and establish a clear and approved mechanism for identifying and prioritising IT requirements, with the aim of effective use of resources and harmonization of inter-institutional investments.
2. **Training Plan**, develop and implement a clear and standardized mechanism for planning, documenting and monitoring staff training on the use of IT systems, namely the Power BI system.
3. **New datasets Acceptance and Testing**, MFLT should develop and implement a formalized and documented procedure for testing and acceptance of new datasets. This should include planning tests, documenting results and making decisions for acceptance/rejection of the new datasets based on the test results, to ensure functionality, accuracy and sustainability of the systems.
4. **Contract management and implementation of security requirements**, should ensure that the user activity logbook is continuously enabled and that periodic reviews of the logs are performed. This would enable comprehensive traceability of system usage by users.
5. **Automation and documentation of data transfer control**, MFLT should automate and document the data transfer control process, ensuring regular evidence and reporting. A formal communication procedure should be developed between source agencies and the Macroeconomic Modelling Division, in order for any changes in the structure or content of the data to be tracked in a timely manner and included in the Data Warehouse System reports.
6. **Coordination and synchronization of systems**, MFLT should improve coordination and synchronization of data between Data Warehouse systems and data source entities, as well as promote and ensure the use of reports from Power BI to eliminate the use of duplicate reports and increase efficiency.

---

## Appendix I. Audit design

### Risk areas and audit problem indicators

The integration of systems, the creation of a Data Warehouse and the implementation of Business Intelligence within the Ministry of Finance, Labor and Transfers constitutes one of the most ambitious and strategically important projects for the modernization of the digital infrastructure of public finances in Kosovo. Supported by USAID and with a cost of around 2.5 million euros, this project, through the unification of data from key institutions such as Customs, TAK, Treasury and others, has been developed with the aim of increasing transparency, improving data-based decision-making and ensuring real-time monitoring of public finances.

However, despite the intended objectives, this project presents some shortcomings from an audit perspective. Referring to the 2020 audit report on investments in the field of IT by public institutions<sup>17</sup> and during the pre-study phase, after reviewing the documents related to this system and after conducting interviews with the officials responsible for the system, we have indications that:

- MFLT has not conducted a proper feasibility analysis for the development of information systems that would help identify and specify the necessary requirements of the institution;
- the degree of effective use of this system by responsible officials in the ministry and the ministry's agencies is not complete;
- this project has not been developed in accordance with the contracted conditions.

These issues are essential to assess the reasonableness of the investment made, the operational efficiency of the system and its impact on decision-making processes and on increasing accountability within the public finance system.

### System description

The system for creating a data warehouse and implementing business intelligence has been implemented by the Department for Technology Systems Management in order to plan, develop, administer, monitor, maintain and implement efficient and effective information technology services for the Ministry, through cooperation and coordination with internal institutions.

The duties and responsibilities of the Department for Information Technology Systems Management are as follows:

- Develops policies, procedures, projects and strategies for the highest quality functioning of the Ministry's IT;
- Develops and implements technological policies and procedures in accordance with those of the organization, to ensure the efficient operation of specific departments;
- Implements policies and instructions issued by the Ministry, in accordance with the legal framework;
- Cooperates with departments in the drafting, implementation and maintenance of policies, objectives, short-term and long-term planning in the field of IT;  
Develops, administers, monitors and maintains the overall network, system and applications of the Ministry;

---

<sup>17</sup> For more information, consult ISSAI 300, Criteria, p.7.

- Cooperates and holds regular meetings with the organizational units of the Ministry to address requests for advancement, development, administration, improvement, change, treatment and resolution of occasional problems (ad-hoc) that may arise in relation to IT systems;

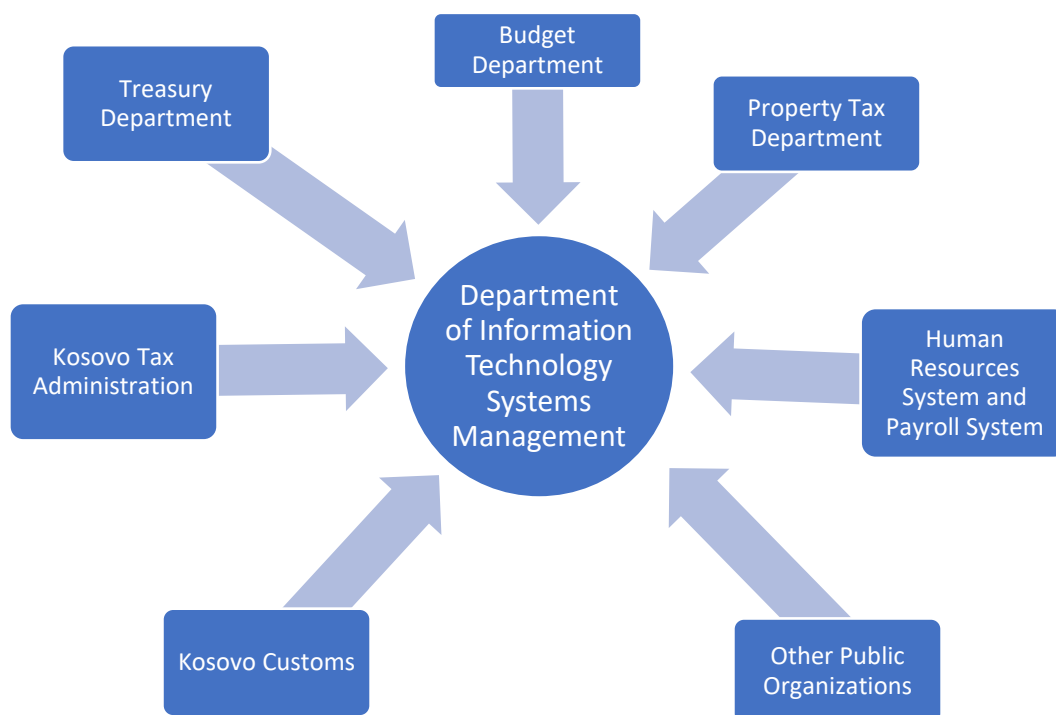
The Department includes the following divisions:

- IT Infrastructure and Security Division;
- IT Operations Division; and
- Application Management Division.

The Ministry of Finance, Labor and Transfers, through this project, has aimed to unify the software systems of Kosovo Customs, the Kosovo Tax Administration, the Ministry of Finance, Labor and Transfers, and other institutions through a data warehouse and to implement a business analysis or business intelligence engine in order to possess real-time information on the status and implementation of government policies on the one hand, advancing government policies and increasing transparency on the other hand.

### Data Source

Chart 2. Data warehouse with current system population actors.



According to the description of the system above, the responsible Agencies and departments of the Ministry store their data within the Information Technology system at the Ministry of Finance, Labor and Transfers and create an analytical reporting system.

Table 2. Current systems used by the MFLT and its agencies.

Id	Organization	System Name and Version	Technology
1	Ministry of Finance/Treasury	Freebalance	Oracle
2	Ministry of Finance/Budget Department	Budget Management System	Oracle
3	Ministry of Finance/Budget Department	PIP- Capital Investment Management System	MySQL, PHP app
4	MF-TAK	Sigtas	Oracle
5	MF- Property Tax Department	Property Tax System	PosgreSQL - Java app
6	MF Kosovo Customs	Asycuda	Oracle
7	MAP	Salary System	MS SQL- Visual Studio .Net

### Audit scope and questions

The scope of this audit covers the Ministry of Finance, Labour and Transfers, namely the Information Technology Systems Management Department, within which operate the following divisions: IT Infrastructure and Security Division, IT Operations Division and Applications Management Division. Part of the scope will be the Macroeconomic Modelling Division, the Financial Accounting Framework, the Budget Execution and Reporting Division.

The audit will cover the period from 2023 to 2025, with the aim of analysing the implementation and impact of the project "Systems Integration, Data Warehouse Creation and Business Intelligence Implementation". Additionally, to assess the justification for initiating and implementing such a project, the period starting from 2017 will also be analysed.

### Audit questions

To answer the audit objective, we have posed the following questions:

1. *How does the MFLT identify, prioritize, and manage IT system requirements?*
2. *Does the MFLT management effectively assess and monitor the use of the IT system in the organization, in order to fulfil the organization's mission?*
3. *How does the development or acquisition of approved MFLT IT projects manage and control?*
4. *Do the application controls ensure the integrity and completeness of its transactions?*

---

### **Audit criteria<sup>18</sup>**

The criteria used in this audit are derived from the Active IT Audit Manual<sup>19</sup>, the Information Systems Audit Certification Workbook of the Information Systems Audit and Control Association<sup>20</sup>, and the Contract for Systems Integration, Data Warehouse Creation, and Business Intelligence Implementation.<sup>21</sup>

To assess the management of MFLT projects and the functioning of the systems from needs identification, planning to project implementation and project monitoring, the following criteria have been established:

- The organization should analyse, prioritize, and manage requirements to ensure that user needs are met optimally and cost-effectively.
- Organizations should manage their IT projects and investments with the objective of maximizing benefits, while considering factors such as risk, capacity, and prioritization among competing investments.
- The organization should conduct testing of IT systems and base the system acceptance or rejection on the results of these tests.
- The application correctly identifies errors in transactions. Data integrity is maintained even during random interruptions in transaction processing. An appropriate error-handling mechanism is in place for the processing, review, and resolution of suspended files.<sup>22</sup>

### **Audit methodology**

To answer the audit questions and to support the audit conclusions, we will apply the following methodology:

To answer the audit questions, the audit team will carry out several activities in the responsible institutions using a range of audit techniques:

- Analysis of the legal and regulatory framework of the Ministry of Finance for IT systems;
- Assessment of the reasonableness of the request for initiating this activity;
- Analysis of the contract for the project "Systems integration, creation of a data warehouse and implementation of business intelligence", with protocol number 1058;
- Analysis of the contract management plan;
- Analysis of contract monitoring reports;

---

<sup>18</sup> For more information, consult ISSAI 300, Criteria, p.7.

<sup>19</sup> The Information Technology Audit Manual is a product of the EUROSAI Working Groups on Information Technology (WGITA) and the INTOSAI Development Initiative (IDI) for the definition of rules and standards for Information Technology Auditing. - further Information Technology Audit Manual

<sup>20</sup> ISACA - Revised 27th Edition Manual, updated for 2019 work practices, for the Certification of Information Systems Auditor

<sup>21</sup> Public Framework Contract: "Creation of the Data Warehouse and Implementation of Business Intelligence".

<sup>22</sup> The Information Technology Audit Manual is a product of the EUROSAI Working Groups on Information Technology (WGITA) and the INTOSAI Development Initiative (IDI) for the definition of rules and standards for Information Technology Auditing. - further Information Technology Audit Manual.

---

- Interviewing responsible persons and leading structures of institutions;
- Interviewing agency officials, users of this system;
- Analysis of manuals for using the system;
- Factual assessment of the effect of the system in facilitating access to data.

### **Relevant documents**

#### **Laws**

- Law No. 03/1-048 on public financial management and accountability

#### **Regulations**

##### **Regulation No. 02/2011 on the Areas of Administrative Responsibility of the Office of the Prime Minister and Ministries**

This regulation determines the areas of responsibility and the number of high authorities of the state administration, as well as the areas of responsibility and the number of high bodies of the state administration.

#### **Relevant documents**

- Technical documentation 201-17-46-211,
- Assessment and strategic plan ITC Plan.

## Annex II: Letter of Confirmation



### Republika e Kosovës

Republika Kosova-Republic of Kosovo

Qeveria - Vlada - Government

Ministria e Financave, Punës dhe Transfereve

Ministarstvo Finansija, Rada i Transfera - Ministry of Finance, Labour and Transfers

DATE/A:	22.08.2025
REFERENCË:	/ 2024
PËR/ZA/TO:	z. Samir Zymberi, Drejtor i Departamentit të Auditimit të Teknologjisë Informative, Zyra Kombëtare e Auditimit
NGA/OD/FROM:	z. Artan Ahmeti, Sekretar i Përgjithshëm i Ministrisë së Financave, Punës dhe Transfereve
TEMA/SUBJEKAT/SUBJECT:	Letër konfirmimi për pajtueshmërinë me gjetjet e Auditorit të Përgjithshëm për raportin e auditimit të teknologjisë së informacionit Integrimi i Sistemeve, Krijimi i Depos (Warehouse) së të Dhënave dhe Implementimi i Inteligjencës Artificiale

I nderuar z. Zymberi,

Përmes kësaj, konfirmojmë se:

- Kemi pranuar draft Raportin e Zyrës Kombëtare të Auditimit për raportin e auditimit të teknologjisë së informacionit Integrimi i Sistemeve, Krijimi i Depos (Warehouse) së të Dhënave dhe Implementimi i Inteligjencës Artificiale (në tekstin e mëtejshëm "Raporti");
- Lidhur me të gjeturat dhe rekomandimet e dhëna pajtohem, dhe nuk kemi ndonjë koment shtesë për përmbajtjen e Raportit;
- Ju njoftojmë se brenda 30 ditëve nga pranimi i Raportit përfundimtar, do t'ju dorëzojmë një plan të veprimit për zbatimin e rekomandimeve të dhëna, i cili do të përfshijë edhe afatet kohore dhe stafin përgjegjës për zbatimin e tyre.

Me respekt,

Artan Ahmeti,

Sekretar i Përgjithshëm i Ministrisë së Financave, Punës dhe Transfereve



National Audit Office of Kosovo  
Arbëria District,  
St. Ahmet Krasniqi, 210  
10000 Pristina  
Republic of Kosovo

