



*Planning Decisions for Customer Account Data  
Engine 2 Transition State 2 Should Be Effectively  
Linked to Actions Needed to Address the Internal  
Revenue Service's Financial Material Weakness*

**May 1, 2015**

**Reference number: 2015-20-031**

This report has cleared the Treasury Inspector General for Tax Administration disclosure review process and information determined to be restricted from public release has been redacted from this document.

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## HIGHLIGHTS

### **PLANNING DECISIONS FOR CUSTOMER ACCOUNT DATA ENGINE 2 TRANSITION STATE 2 SHOULD BE EFFECTIVELY LINKED TO ACTIONS NEEDED TO ADDRESS THE INTERNAL REVENUE SERVICE'S FINANCIAL MATERIAL WEAKNESS**

## Highlights

**Final Report issued on May 1, 2015**

Highlights of Reference Number: 2015-20-031 to the Internal Revenue Service Chief Technology Officer and Chief Financial Officer.

### **IMPACT ON TAXPAYERS**

Since 1993, the U.S. Government Accountability Office has reported a recurring financial material weakness in the IRS internal control over unpaid tax assessments. The Federal Financial Management Improvement Act of 1996 requires the IRS to complete a remediation plan to address material weaknesses that includes remedies (planned corrective actions), estimated and actual resources, and target dates to bring its financial systems into compliance.

### **WHY TIGTA DID THE AUDIT**

The overall objective of this review was to evaluate the IRS's approach and progress toward developing system requirements that will address the IRS financial material weakness with Transition State 2 (TS2) of the Customer Account Data Engine 2 (CADE 2) system. TIGTA evaluated key milestones and progress for the IRS financial material weakness effort to ensure effective management and direction, determined the status of the preliminary financial system requirements for the financial material weakness effort under CADE 2 TS2, considered expected costs and benefits for CADE 2 TS2 associated with the financial material weakness, and identified and reviewed the key risk mitigation controls related to CADE 2 if it is considered a Federal financial management system.

### **WHAT TIGTA FOUND**

The IRS is currently planning activities for CADE 2 TS2 to address the financial material weakness for individual taxpayer accounts. However, TIGTA is concerned that: (1) the IRS Remediation Plan does not include the CADE 2 TS2 actions for addressing the financial material weakness; (2) the cost estimates specific to CADE 2 TS2 activities for addressing the weakness are not in place; (3) a security strategy is needed to support CADE 2 TS2 development as an authoritative source of data; and (4) the current system classification for the CADE 2 does not provide sufficient guidance for TS2 activities for addressing the IRS financial material weakness.

### **WHAT TIGTA RECOMMENDED**

TIGTA recommended that: (1) the planned TS2 actions and estimated costs for addressing the IRS financial material weakness be included in the IRS Remediation Plan; (2) accurate cost estimates are developed for the planned TS2 activities that align the information technology strategy with the business strategy to address the IRS financial material weakness; (3) complete cost information is captured in the IRS Remediation Plan; (4) a security strategy be established to support the CADE 2 TS2 Program and meet shared goals to protect sensitive systems and data; and (5) CADE 2 TS2 be classified within the OMB guidance to ensure that adequate internal controls for financial management systems are considered and designed into CADE 2.

The IRS agreed with one of the five recommendations. The IRS plans to develop CADE 2 TS2 Basis of Estimate costs by September 2015. However, the IRS disagreed with the remaining four recommendations.



TREASURY INSPECTOR GENERAL  
FOR TAX ADMINISTRATION

DEPARTMENT OF THE TREASURY  
WASHINGTON, D.C. 20220

May 1, 2015

**MEMORANDUM FOR** CHIEF TECHNOLOGY OFFICER  
CHIEF FINANCIAL OFFICER

**FROM:** Michael E. McKenney  
Deputy Inspector General for Audit

**SUBJECT:** Final Audit Report – Planning Decisions for Customer Account Data Engine 2 Transition State 2 Should Be Effectively Linked to Actions Needed to Address the Internal Revenue Service’s Financial Material Weakness (Audit # 201420011)

This report presents the results of our review of the Internal Revenue Service (IRS) approach and progress toward developing system requirements that will address its financial material weakness with Transition State 2 of the Customer Account Data Engine 2 system. This audit was included in the Treasury Inspector General for Tax Administration’s Fiscal Year 2014 Annual Audit Plan and addresses the major management challenges of Modernization and Security for Taxpayer Data and IRS Employees.

Management’s complete response to the draft report is included as Appendix VI. The response conveys the IRS’s disagreement with four of our five recommendations. Because we believe the IRS’s disagreements to our findings and recommendations are significant, we plan to communicate our concerns about these issues to the Department of the Treasury.

Copies of this report are also being sent to the IRS managers affected by the report recommendations. If you have any questions, please contact me or Alan Duncan, Assistant Inspector General for Audit (Security and Information Technology Services).

Attachments (2) – PowerPoint Presentation  
Management’s Response to the Draft Report

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**TREASURY INSPECTOR GENERAL FOR TAX ADMINISTRATION**



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# ***Abbreviations***

<b>Abbreviation</b>	<b>Description</b>
CADE 2	Customer Account Data Engine 2
CFO	Chief Financial Officer
CTO	Chief Technology Officer
ESC	Executive Steering Committee
GAO	Government Accountability Office
IMF	Individual Master File
IRM	Internal Revenue Manual
IRS	Internal Revenue Service
IT	Information Technology
OMB	Office of Management and Budget
TS2	Transition State 2
TIGTA	Treasury Inspector General for Tax Administration



# ***Background***

- ❑ The Customer Account Data Engine (CADE) 2 Program was chartered in 2009 to provide state-of-the-art individual taxpayer account processing and data-centric technology to improve service to taxpayers and enhance Internal Revenue Service (IRS) tax administration.
- ❑ Transition State 1 for the CADE 2 system began in October 2009 and was completed in July 2014. The first transition state provides daily processing and a single centralized relational database for all individual taxpayer accounts.
- ❑ Transition State 2 (TS2) for the CADE 2 system began in October 2010. With TS2, the IRS is planning to reengineer the Individual Master File (IMF) by:
  - ❑ Applying modern programming languages.
  - ❑ Establishing CADE 2 as an authoritative data source.
  - ❑ Implementing functionality to address the IRS financial material weakness over unpaid tax assessments for individual taxpayer accounts.



# ***Background***

- ❑ TS2 is currently in the Vision and Strategy/Enterprise Architecture Phase of the system development life cycle to obtain authorization for beginning TS2 activities.
- ❑ Since 1993, the U.S. Government Accountability Office (GAO) has reported a recurring financial material weakness in the IRS internal control over unpaid tax assessments.
- ❑ In its 2013 and 2014 reports, the GAO concluded that the IRS financial material weakness over unpaid tax assessments was primarily caused by financial system limitations and data entry errors that rendered the IRS system unable to readily distinguish between taxes receivable, compliance assessments, and write-offs in order to properly classify these components for financial reporting purposes.
- ❑ The Federal Financial Management Improvement Act of 1996<sup>1</sup> requires the IRS to complete a remediation plan to address material weaknesses that includes remedies (planned corrective actions), estimated and actual resources, and target dates to bring its financial systems into compliance.

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<sup>1</sup> Pub. L. No. 104-208, 110 Stat. 3009.



# ***Background***

- ❑ The IRS Management Controls Executive Steering Committee (ESC) has overall responsibility for ensuring that the IRS has an effective internal control program.
- ❑ The committee focuses on achieving sustainable results on high-impact initiatives, including remediation plan actions and actions to correct the IRS material weaknesses, which require approval by the committee.
- ❑ The CADE 2 TS2 Core Team was established in January 2013 to lay the foundation for TS2.
- ❑ In May 2013, the team provided three deliverables:
  - ❑ TS2 Scope Recommendation.
  - ❑ TS2 Conceptual Architecture.
  - ❑ TS2 Planned Results Chart.



# ***Background***

- ❑ In October 2014, key stakeholders accepted an invitation from the IRS Chief Technology Officer (CTO) to join the CADE 2 TS2 ESC as a voting member. The stakeholders included:
  - ❑ All IRS business operating division commissioners.
  - ❑ The IRS Deputy Commissioner, Wage and Investment Division.
  - ❑ The IRS Chief Financial Officer (CFO).
  - ❑ The IRS Deputy Chief Information Officers.
  - ❑ The Treasury Chief Information Officer.
- ❑ At that time, the CTO also shared a proposed draft TS2 Release Plan for discussion at the first ESC meeting.



# ***Background***

- ❑ The proposed TS2 Release Plan identifies three priority scope areas:
  - ❑ Address core IMF financial material weakness requirements for individual taxpayer accounts.
  - ❑ Leverage the CADE 2 Database as the authoritative data source (for the Financial Statement Audit and Reporting).
  - ❑ Migrate core IMF functions off of Assembly Language Code (with an ultimate goal of moving to Java).
- ❑ In November 2014, the CTO requested the newly formed CADE 2 TS2 ESC to cast virtual votes to approve the proposed TS2 Release Plan. All of the ESC members had voted to approve the plan as of November 19, 2014.



# ***Audit Objective***

- ❑ **Overall Audit Objective:** To evaluate the IRS approach and progress toward developing system requirements that will address the IRS financial material weakness with TS2 of the CADE 2 system. Specifically, we:
  - ❑ Evaluated key milestones and progress for the IRS financial material weakness effort to ensure effective management and direction.
  - ❑ Determined the status of the preliminary financial system requirements for the financial material weakness effort under CADE 2 TS2.
  - ❑ Considered the IRS expected costs and benefits for CADE 2 TS2 associated with the financial material weakness.
  - ❑ Identified and reviewed the key risk mitigation controls related to CADE 2 if it is considered a Federal financial management system.



## ***Results of Review***

- ❑ The IRS Remediation Plan Does Not Include the CADE 2 TS2 Actions for Addressing the IRS Financial Material Weakness (see slides 12 through 17).
- ❑ The Cost Estimates Specific to CADE 2 TS2 Activities for Addressing the IRS Financial Material Weakness Are Not In Place (see slides 18 through 21).
- ❑ A Security Strategy Is Needed to Support CADE 2 TS2 Development as an Authoritative Source of Data (see slides 22 through 29).
- ❑ The Current System Classification for CADE 2 Does Not Provide Sufficient Guidance for TS2 to Ensure That Planned Activities Address the IRS Financial Material Weakness (see slides 30 through 36).



## ***The IRS Remediation Plan Does Not Include the CADE 2 TS2 Actions for Addressing the IRS Financial Material Weakness***

- ❑ The Federal Financial Management Improvement Act of 1996 requires the IRS to develop a remediation plan to address its financial material weakness.
- ❑ The IRS Internal Revenue Manual (IRM) states that:
  - ❑ The CFO and the Deputy CFO are responsible for overseeing plans to correct IRS material weaknesses.<sup>2</sup>
  - ❑ The CFO is the IRS Internal Control Officer and has operational responsibility for the IRS internal control program. As such, the CFO ensures timely correction and validation of all identified program and operations deficiencies whether material or nonmaterial.<sup>3</sup>
  - ❑ A remedy requires giving a complete description of the action to be taken, the anticipated completion date or date completed, and the resources required.<sup>4</sup>

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<sup>2</sup> IRM 1.1.21.7.1(5)g (Aug. 20, 2014).

<sup>3</sup> IRM 1.4.2.6(2)f (Dec. 14, 2012).

<sup>4</sup> IRM 1.4.2.13(8)d (Dec. 14, 2014).



## **The IRS Remediation Plan Does Not Include the CADE 2 TS2 Actions for Addressing the IRS Financial Material Weakness**

- ❑ In the GAO Financial Audit Report, *IRS's Fiscal Years 2014 and 2013 Financial Statements*,<sup>5</sup> the GAO stated that “*IRS's current corrective action plan does not fully address all of the system enhancements needed to accurately classify unpaid tax assessment transactions, and identify the underlying control deficiencies.*”
- ❑ According to the CFO, the individual taxpayer accounts represent the most significant portion of the control deficiencies associated with the unpaid tax assessments.
- ❑ Therefore, the CFO believes that, once completed, TS2 will address a significant portion of the IRS financial material weakness.

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<sup>5</sup> GAO, GAO-15-173, *IRS's Fiscal Years 2014 and 2013 Financial Statements 2* (Nov. 2014).



## ***The IRS Remediation Plan Does Not Include the CADE 2 TS2 Actions for Addressing the IRS Financial Material Weakness***

- ❑ However, the CFO plans to include in the IRS Remediation Plan ***only*** the actions and costs needed to update and enable the financial systems to leverage the data from TS2 once it is available.
- ❑ The CFO's position is that the TS2 actions and costs should remain in the Business System Modernization plans rather than including TS2 actions and costs to address the financial material weakness in the IRS Remediation Plan.
- ❑ If the planned TS2 actions and costs are not included in the Remediation Plan, the IRS may be unable to establish accountability and ensure adequate progress with TS2 activities. These steps are needed to effectively guide system enhancements for correcting control deficiencies and addressing the IRS's long-standing financial material weakness over unpaid tax assessments.



## ***Recommendation***

**Recommendation 1:** The CFO should include the planned TS2 actions and estimated costs related to addressing the financial material weakness over unpaid tax assessments in the IRS Remediation Plan with concurrence from the Management Controls ESC.

**Management's Response:** The IRS disagreed with this recommendation and stated that the IRS Remediation Plan was never intended to capture the cost information on specific information technology projects such as CADE 2. Instead, the plan describes the resources, remedies, and scheduled milestones needed for the IRS financial systems. The plan is updated as necessary to include all remedies, in addition to those dependent on CADE 2 TS2. As the IRS completes CADE 2 TS2 projects and implements the functionality to address the unpaid tax assessment financial material weakness for individual taxpayers, the CFO will insert actions in the Remediation Plan that reference the transfer of CADE 2 data to the financial systems and the programming updates that will improve the financial classification of unpaid tax assessments. The IRS also stated it addressed this recommendation in Audit Report 2013-10-091, dated August 29, 2013.



## Recommendation

**Office of Audit Comment:** We do not agree that the IRS has addressed Recommendation 1 with its response to a previous TIGTA report.<sup>6</sup> Further, the GAO concluded in its November 2014 report on the IRS's financial statements that, "*IRS's current corrective action plan does not fully address all of the system enhancements needed to accurately classify unpaid tax assessment transactions...*"<sup>7</sup> The Federal Financial Management Improvement Act of 1996 requires the IRS to complete a remediation plan to address material weaknesses that includes remedies (planned corrective actions), estimated and actual resources, and target dates to bring its financial systems into compliance.

TIGTA believes that it is very important for the CFO to identify the functionality for CADE 2 TS2 that will support the IRS Remediation Plan to address the financial material weakness over unpaid tax assessments.

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<sup>6</sup> TIGTA, Ref. No. 2011-10-041, *Challenges Continue With Reporting Complete and Accurate Information in the Federal Financial Management Improvement Act Remediation Plan* p. 4 (May 2011).

<sup>7</sup> GAO, GAO-15-173, *IRS's Fiscal Years 2014 and 2013 Financial Statements* p. 2 (Nov. 2014).



## ***Recommendation***

Further, because the IRS needs to develop and deliver new system functionality with TS2, the CFO should carefully consider estimates for TS2 functionality that are aimed at addressing the financial material weakness over unpaid tax assessments. Taking such steps could help the IRS to more effectively guide ongoing and planned TS2 actions, as needed, to meet its goal for timely correction and validation of its long-standing financial material weakness of individual taxpayers. By not developing and implementing a corrective action plan for this recommendation, the IRS may not achieve the system functionality needed to address the financial material weakness over unpaid tax assessments with TS2 projects.



## ***The Cost Estimates Specific to CADE 2 TS2 Activities for Addressing the IRS Financial Material Weakness Are Not In Place***

- ❑ The IRM states that:
  - ❑ The Director, Internal Control Office, ensures IRS compliance with Federal laws and regulations related to internal and management controls. This includes responsibility for overseeing the development and implementation of corrective action plans to remedy internal control weaknesses.<sup>8</sup>
  - ❑ Governance is a process of putting structure around how the IRS aligns its information technology strategy with its business strategy, ensuring that it stays on track to achieve its strategies and goals and implementing good ways to measure performance. It makes sure that all stakeholders' interests are taken into account and that processes provide measurable results.<sup>9</sup>

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<sup>8</sup> IRM 1.1.21.7.1.3.2 (Aug. 20, 2014).

<sup>9</sup> IRM 2.16.8(1) (May 21, 2014).



## ***The Cost Estimates Specific to CADE 2 TS2 Activities for Addressing the IRS Financial Material Weakness Are Not In Place***

- ❑ The Information Technology (IT) organization provided the latest projected cost estimate,<sup>10</sup> approximately \$1.48 billion for TS2 through Fiscal Year 2026. However, the initial cost estimates associated with the planned TS2 activities to address the financial material weakness have not yet been itemized.
- ❑ The CFO does not plan to include the specific actions or cost estimates for TS2 that will address the financial material weakness in the IRS Remediation Plan. Instead, the CFO *only* plans to include the costs and actions to modify the IRS financial systems in order to leverage expected data from CADE 2 TS2.
- ❑ However, without itemized cost estimates for TS2, the IRS may be unable to capture adequate management information about planned activities needed to address the financial material weakness.

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<sup>10</sup> The TS2 officials stated that this is a preliminary estimate that is subject to change.



## ***Recommendations***

**Recommendation 2:** The CTO should ensure that cost estimates are developed for planned TS2 activities to effectively: 1) align the information technology and business strategies; 2) strengthen internal control over unpaid tax assessments for individual taxpayer accounts; and 3) address the IRS's financial material weakness requirements.

**Management's Response:** The IRS agreed with this recommendation. The IRS is currently developing the TS2 Basis of Estimate costs as part of the Milestone 2 which is estimated to be completed by September 2015.

**Recommendation 3:** The CFO should ensure that complete cost information, including cost estimates for the planned TS2 activities, to address the financial material weakness is captured in the IRS Remediation Plan.

**Management's Response:** The IRS disagreed with this recommendation. The IRS response stated that the CADE 2 TS2 project and spend plan are tracked as part of the Business Systems Modernization appropriation. The IRS remediation plan, developed with input from the GAO, was never intended to capture the cost information on specific information technology projects such as CADE 2.



## ***Recommendations***

**Office of Audit Comment:** During this audit, we found that the IT organization projected the cost estimate for TS2 through Fiscal Year 2026 at approximately \$1.48 billion. As pointed out in our report, this initial cost estimate for TS2 is not itemized to identify costs for addressing the IRS financial material weakness. The IRS could better ensure the delivery of IRS priorities through the budget process and also identify and address risks associated with financial management and systems internal controls by ensuring that complete cost information, including cost estimates for financial material weakness activities, are captured in the IRS Remediation Plan. TIGTA is concerned that because the IRS has not itemized for the needed system functionality to address its financial material weakness, the current TS2 cost estimate may not be complete or sufficient for guiding CADE 2 project and risk management decisions going forward.



## ***A Security Strategy Is Needed to Support CADE 2 TS2 Development as an Authoritative Source of Data***

- ❑ According to the IRM:
  - ❑ The authorization to begin a project occurs at the end of the Vision and Strategy/Enterprise Architecture Phase. This phase includes the development of the enterprise vision and strategy, Enterprise Architecture, and transformation strategy.<sup>11</sup>
  - ❑ The foundation to implement and manage information systems security within the IRS requires:<sup>12</sup>
    - ❑ Managing risk for individual information systems consistently across the enterprise, reflecting the IRS's risk tolerance, and considering other organizational risks in order to ensure mission or business success.
    - ❑ Identifying security risk-related considerations for individual information systems must be viewed from an organizationwide perspective with regard to the overall strategic goals and objectives for carrying out the missions of the IRS and its business functions.

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<sup>11</sup> IRM 2.16.1.2.1 (May 21, 2014).

<sup>12</sup> IRM 10.8.2.2 (Dec. 3, 2010).



## ***A Security Strategy Is Needed to Support CADE 2 TS2 Development as an Authoritative Source of Data***

- ❑ Cooperation and collaboration among authorizing officials to include authorization actions requiring shared responsibility.
- ❑ The IRS Privacy Program leverages the use of technology and privacy processes by designing privacy into the IRS modernization initiative to further improve protection of Personally Identifiable Information throughout the IRS.
- ❑ For instance, at each phase of the systems development, appropriate activities should be conducted to ensure that security mechanisms provide the means of adequately protecting Personally Identifiable Information.
- ❑ Overall risks associated with changing data flows and major components for the current CADE 2 TS1 and the planned CADE 2 TS2 environments are illustrated in Figures 1 and 2 of Appendix V. The illustrations also highlight the need to address new requirements for protecting Personally Identifiable Information in the new environment.



## ***A Security Strategy Is Needed to Support CADE 2 TS2 Development as an Authoritative Source of Data***

- ❑ One of the three primary goals for TS2 is to be the authoritative source of data for individual taxpayer accounts. The IRS informed TIGTA of the following five areas of requirements related to TS2 as the authoritative source of data:
  - ❑ Operational.
  - ❑ Legal.
  - ❑ Financial.
  - ❑ Privacy.
  - ❑ Enterprise Architecture.
- ❑ Our review found that to support requirement development in each of these areas, it is important as the IRS completes Milestone 0 for TS2 to establish a security strategy for managing current and future risks from a CADE 2 Program perspective.



## ***A Security Strategy Is Needed to Support CADE 2 TS2 Development as an Authoritative Source of Data***

- ❑ On September 29, 2014, the Cybersecurity organization proposed a high-level methodology for securing future CADE 2 TS2 data. The proposal stressed the importance of:
  - ❑ Developing security requirements and planning for implementation across releases and projects to successfully guide key activities for TS2.
  - ❑ Protecting CADE 2 data through a collaborative approach for evaluating and mitigating risks with the new CADE 2 TS2 Program and downstream systems.
- ❑ TIGTA believes that to support the Cybersecurity organization's proposed methodology for securing TS2 data, it is important for the IRS to establish a vision and strategy for the CADE 2 TS2 Program that will ensure adequate: 1) risk management; 2) strategic goals for TS2 business functions; and 3) cooperation and collaboration among system authorizing officials as required by IRS security policy.



## ***A Security Strategy Is Needed to Support TS2 Development as an Authoritative Source of Data***

- ❑ TIGTA also believes that the proposed TS2 data security framework should be strengthened to include:
  - ❑ Data migration.
  - ❑ Data distribution services.
  - ❑ Integration and implementation of the TS2 Program network, software, and hardware.
  - ❑ Activities needed for the protection of Personally Identifiable Information as required by the IRS Privacy Program.



## ***Recommendation***

**Recommendation 4:** The CTO should establish a security strategy to support the CADE 2 TS2 Program and meet IRS goals for protecting sensitive systems and data.

**Management's Response:** The IRS disagreed with this recommendation. The IRS stated that a separate security strategy is not needed and that a systems security strategy is built into the IRS enterprise life cycle process in accordance with IRM 2.16.1 and IRM 10.8.1. The IRS had also provided TIGTA with the first version of the CADE 2 TS2 Security and Privacy Framework.



## ***Recommendation***

**Office of Audit Comment:** During the audit, CADE 2 TS2 was in the Vision and Strategy phase of the enterprise life cycle. TIGTA believes that the IRM policy noted in the IRS management response, along with other risk management policy<sup>13</sup> for IRS systems, requires a security strategy to be developed to mitigate potential risks during this phase of TS2 as part of the Enterprise Architecture. Our review of the TS2 Technical Roadmap and the TS2 Release Plan; however, found that important security and privacy risk management steps had not yet been completed for TS2. Further, our audit results found examples of existing and emerging risks with user access to the CADE 2 database, incomplete planning for UNAX capabilities, and new exposure for Personally Identifiable Information that are not covered by an existing security and privacy strategy specifically for guiding TS2.

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<sup>13</sup> IRM 10.8.2.2 (Dec. 3, 2010).



## ***Recommendation***

Following our fieldwork, as noted by the IRS, TIGTA was provided the first version of the “*CADE 2 TS2 Security and Privacy Framework*” document. While this framework document was not available for review during our audit, TIGTA believes that the IRS should complete the document as part of establishing an approved strategy for security and privacy controls that will effectively mitigate specific risks for the CADE 2 TS2 Program. Moreover, by not identifying and implementing action steps to address this recommendation, the IRS has not yet adequately mitigated security and privacy control risks for TS2 activities and projects including the protection of new systems and data, as needed.



## ***The Current System Classification for CADE 2 Does Not Provide Sufficient Guidance for TS2 to Ensure That Planned Activities Address the IRS Financial Material Weakness***

- ❑ Office of Management and Budget (OMB) Circular A-11<sup>14</sup> requires each Government agency to provide Agency IT investment business cases, the Major IT Business Case (Exhibit 300A), and the Agency IT Portfolio Summary (Exhibit 53A) to demonstrate the agency's management of information technology investments and how governance processes are used to plan, select, develop, implement, and operate those information technology investments.
- ❑ The IRS classified the CADE 2 system as a Management Mission system on the Exhibit 53A using the mission areas provided by the Department of the Treasury.
- ❑ However, the CADE 2 Project Management Office stated that mission areas are not defined, and consequently, the IRS could not provide a justification for using the Management Mission classification for CADE 2.

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<sup>14</sup> OMB Circular No. A-11 (rev.), *Preparation, Submission, and Execution of the Budget* (Aug. 2012).



## ***The Current System Classification for CADE 2 Does Not Provide Sufficient Guidance for TS2 to Ensure That Planned Activities Address the IRS Financial Material Weakness***

- ❑ Further, the IRS informed TIGTA that CADE 2 is not managed as a financial management system because it does not perform financial requirements.
- ❑ TIGTA considered Appendix D to OMB Circular A-123,<sup>15</sup> Section 806 of the Federal Financial Management Improvement Act, and the Framework for Federal Financial Management System Requirements<sup>16</sup> regarding controls for developing, operating, evaluating, and reporting on financial management systems. These guidance documents define various types of *financial management systems*. The following are applicable excerpts:
  - ❑ *Financial systems* are information systems comprised of various financial applications that include supporting the preparation of financial statements.

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<sup>15</sup> Appendix D to OMB Circular No. A-123, *Compliance with the Federal Financial Management Improvement Act of 1996* (Sep. 2013).

<sup>16</sup> Joint Financial Management Improvement Program, *Framework for Federal Financial Management Systems* (Apr. 2004).



## ***The Current System Classification for CADE 2 Does Not Provide Sufficient Guidance for TS2 to Ensure That Planned Activities Address the IRS Financial Material Weakness***

- ❑ *Nonfinancial systems* are information systems that support nonfinancial functions that any financial data are insignificant to agency financial management or not required for the preparation of financial statements.
- ❑ *Mixed systems* are information systems that support both financial and nonfinancial functions of the Federal Government or components.
- ❑ The CFO's position is that CADE 2 is a tax processing system, and the IRS considers CADE 2 as a nonfinancial system.
- ❑ Currently, CADE 2 TS1 does not include financial system requirements and it is budgeted under the Business Systems Modernization plans within the Management Mission classification.



## ***The Current System Classification for CADE 2 Does Not Provide Sufficient Guidance for TS2 to Ensure That Planned Activities Address the IRS Financial Material Weakness***

- ❑ Our review, however, found that CADE 2 TS2 will need to meet 40 Federal Financial Management System Requirements as part of the planned activities to address the financial material weakness.
- ❑ During initial TS2 planning, the IRS should reconsider whether the CADE 2 Management Mission classification and the system classification under OMB A-123 is appropriate going forward because TS2 will need to meet Federal Financial Management System Requirements to leverage the individual taxpayer data for financial statement reporting and address the IRS financial material weakness.



## ***Recommendation***

**Recommendation 5:** The CFO, in consultation with the CTO, should classify CADE 2 TS2 within the guidance provided by Appendix D to OMB Circular A-123 to ensure that adequate internal controls for developing, operating, evaluating, and reporting on financial management systems are considered and designed into CADE 2.

**Management's Response:** The IRS disagreed with this recommendation and stated that CADE 2 is a modernization project to leverage existing tax administration systems, including IMF applications, to perform core tax account functions related to accessing and updating individual taxpayer account data, managing cases, and resolving account issues. It is not managed as a financial system or part of the IRS financial system for revenue accounting.



## ***Recommendation***

**Office of Audit Comment:** Our audit found that CADE 2 TS2 is expected to address 40 Federal Financial Management System Requirements, which will enable the planned CADE 2 data to be leveraged for financial reporting and to address the IRS long-standing financial material weakness over unpaid taxpayer assessments. The initial TS1 phase for CADE 2 was not managed as a financial system in accordance with OMB guidelines because the IRS considers CADE 2 as a tax processing system. According to OMB Circular A-123 Appendix D, however, a “mixed system” is defined as an information system that supports both financial, *e.g.*, providing data to support the preparation of financial statements, and nonfinancial functions of the Federal Government. Given the expectations are for CADE 2 TS2 to address Federal Financial Management System Requirements and to provide new functionality for the IRS to address its long-standing financial material weakness over unpaid tax assessments, TIGTA believes that OMB Circular A-123 system classification guidance should be applied to TS2 as it relates to these key IRS goals.



## ***Recommendation***

Classifying the CADE 2 TS2 within OMB guidance would help the IRS to ensure that adequate internal controls for developing, operating, evaluating, and reporting on financial management systems are considered and designed into CADE 2, as needed. By not taking appropriate action steps for this recommendation, including properly classifying the CADE 2 TS2, the IRS has not yet adequately mitigated risks for new system requirements and functionality necessary to address its financial material weakness over unpaid tax assessments.



## *Detailed Objective, Scope, and Methodology*

- ❑ **Overall Audit Objective:** To evaluate the IRS approach and progress toward developing system requirements that will address the IRS financial material weakness with TS2 of the CADE 2 system. Specifically, we:
  - ❑ Considered the IRS's expected costs and benefits for CADE 2 TS2 associated with the financial material weakness. We conducted interviews with CFO personnel and requested and reviewed the related documentation.
    - ❑ Obtained an understanding of the benefits of the financial material weakness activities to address the IRS financial material weakness in CADE TS2.
    - ❑ Evaluated the status of the funding and the costs directly related to the financial material weakness effort.
    - ❑ Obtained a copy of impact analysis conducted on the interfaces and affected systems included in the February 24, 2014, Draft CADE 2 TS2 Scope Document.



- ❑ Identified and reviewed the key risk mitigation controls related to CADE 2 if considered a Federal financial management system. We conducted interviews with IRS personnel and requested and reviewed related documentation.
  - ❑ Reviewed related documentation for the CADE 2 system classification.
  - ❑ Identified whether the IRS has classified the CADE 2 system as a Federal financial management system.
  - ❑ Evaluated whether the project team has considered whether the CADE 2 system is in compliance with OMB Circular No. A-123, Appendix D, and other related Federal financial management system guidance.
- ❑ This review was performed at the Office of the CFO in Washington, D.C., and the IT organization in Lanham, Maryland, during the period April through December 2014.



- We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objective. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objective.



## **Internal Controls Methodology**

- ❑ Internal controls relate to management’s plans, methods, and procedures used to meet their mission, goals, and objectives. Internal controls include the processes and procedures for planning, organizing, directing, and controlling program operations. They include the systems for measuring, reporting, and monitoring program performance.
- ❑ We determined the following internal controls were relevant to our audit objective: the IRM and related IRS systems development guidelines applicable to CADE 2 TS2, relevant OMB circulars and guidance, and applicable IRS security and privacy control policies and procedures.
- ❑ We evaluated these controls by conducting interviews with management and staff from the Office of the CFO, the Wage and Investment Division, and the IT organization, and reviewing relevant policies and procedures.
- ❑ We reviewed the CADE 2 TS2 Program planning documents, associated downstream systems Application Audit Plans and System Security Plans, and other documents that provided evidence as to whether the IRS is adequately planning for addressing the IRS financial material weakness in CADE 2 TS2.

## *Major Contributors to This Report*

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# Glossary of Terms



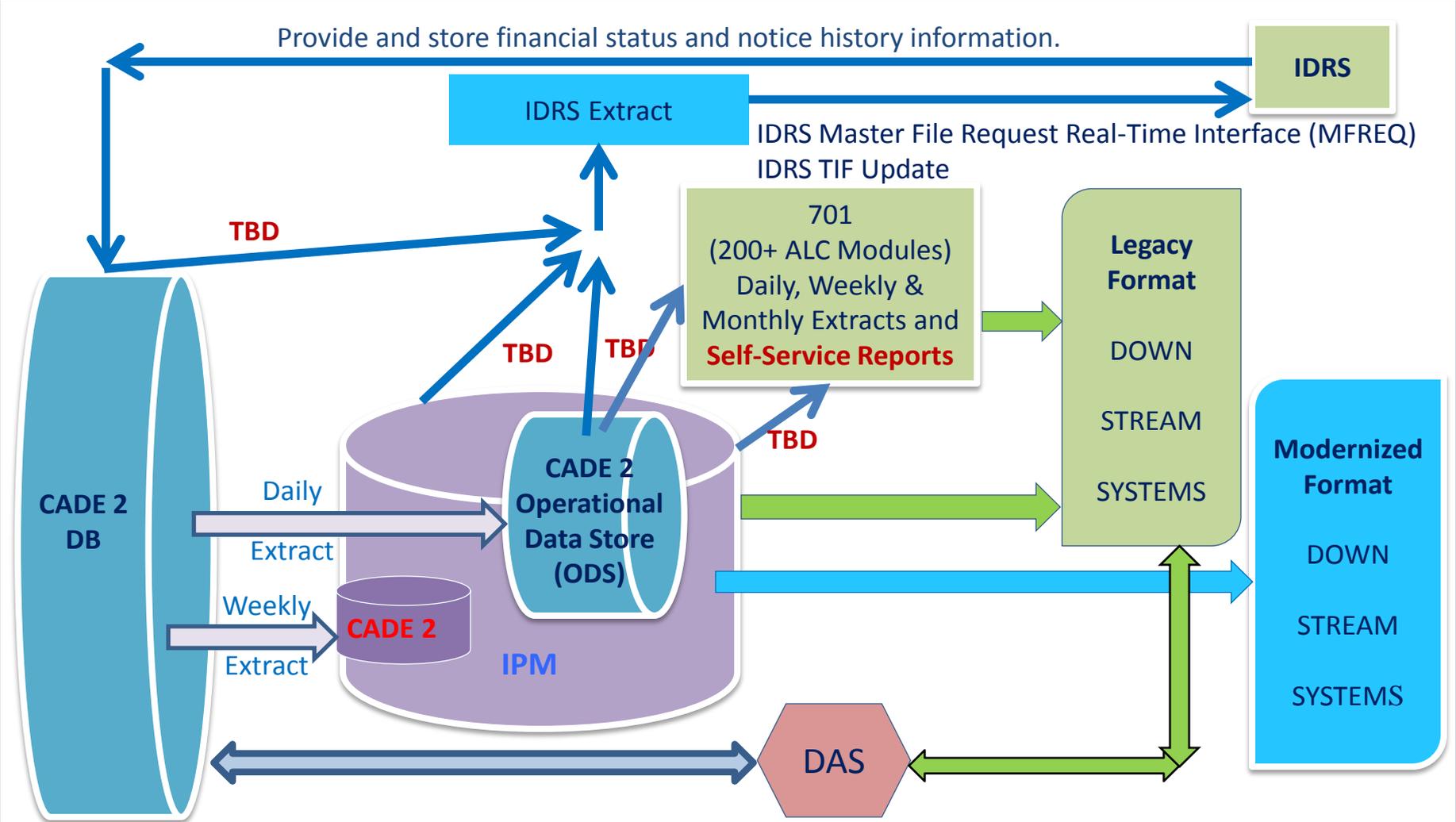
Term	Definition
Assembly Language Code	Type of low-level computer programming language consisting mostly of symbolic equivalents of a particular computer's machine language. Some assembly languages can be used to convert the code that programmers write (source code) into machine language (readable by the computer) and have functions to facilitate programming, <i>e.g.</i> , by combining a sequence of several instructions into one entity.
Compliance Assessments	Compliance assessments are proposed tax assessments for which neither the taxpayer (when the right to disagree or object exists) nor the court has affirmed that the amounts are owed.
Customer Account Data Engine	A major component of the IRS's Modernization Program. The system consists of current and planned databases and related applications that work with the IRS Master File system (see Master File).
Individual Master File	The IRS database that maintains transactions or records of individual tax accounts.
Java Programming Code	Computer program instructions used by computer programmers to develop applications, scripts, or other sets of instructions for a computer to execute.
Material Weakness	A deficiency, or combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of the entity's financial statements will not be prevented, or detected and corrected, on a timely basis. A deficiency in internal control exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct misstatements on a timely basis.



Term	Definition
Milestone	Scheduled time period for providing a “go/no-go” decision point in a program or project (can be associated with funding approval to proceed).
Milestone 0	High-level direction setting for the enterprise. (This is the only phase for enterprise planning projects.)
Personally Identifiable Information	Information that can be used to uniquely identify an individual. Some examples of Personally Identifiable Information are: name, Social Security Number, date of birth, place of birth, address, and biometric record.
Requirement	A formalization of a need and statement of a capability or condition that a system must have or meet to satisfy a contract, standard, or specification.
Stakeholders	An individual or organization that is materially affected by the outcome of the system. Key stakeholders represent both business and technical functions that fully participate in the architecture development effort to ensure that directional guidance is both accurate and sufficient. These stakeholders are empowered to make project and architectural decisions. Examples of project stakeholders include the customer, the user group, the project manager, the development team, and the testers.
System Development Life Cycle	A process for planning, creating, testing, and deploying an information system.
Taxes Receivable	Federal taxes receivable are taxes due from taxpayers for which the IRS can support the existence of a receivable through, for example, taxpayer agreement or a court ruling determining an assessment.
Write-Offs	Write-offs represent unpaid tax assessments for which the IRS does not expect further collections because of factors such as the taxpayer’s death, bankruptcy, or insolvency.



# Figure 1: Planned CADE 2 TS2 Major Components and Data Flows

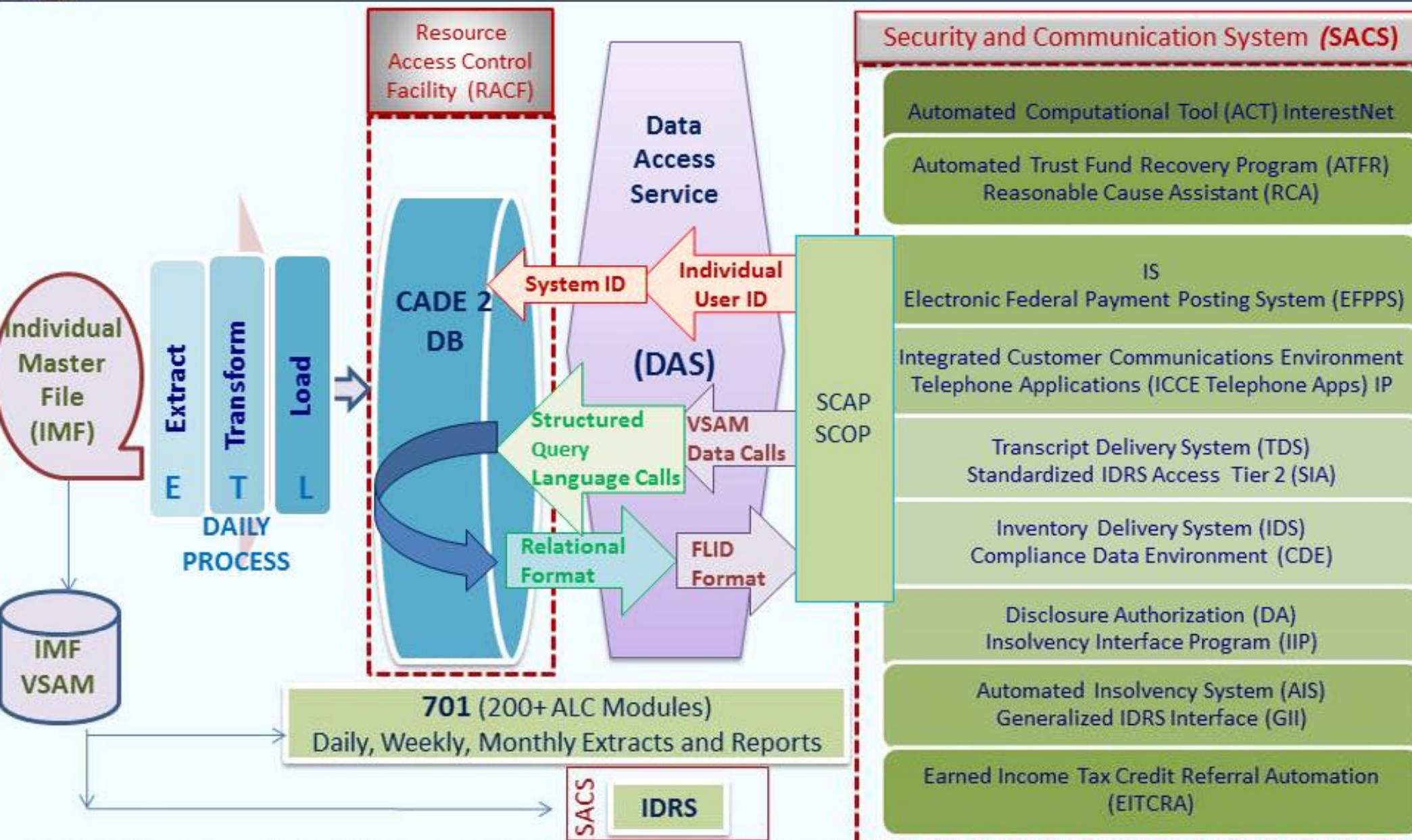


ALC=Assembler Language Codes, CADE 2 DB=Customer Account Data Engine 2 Database, DAS=Data Access Service, IDRS=Integrated Data Retrieval System, IPM=Integrated Production Model, TBD=To Be Determined, TIF=Taxpayer Information File

Source: TIGTA's analysis of TS2 planned activities and documentation.



# Figure 2: Current IMF – CADE 2 Database – Downstream Systems Data Flow



ALC=Assembler Language Codes, CADE 2 DB=Customer Account Data Engine 2 Database, CFOL=Corporate File On-Line FLID=Field Identifier Format, SCAP=Standard CFOL Access Protocol, SCOP=Standard CFOL Overnight Processing, VSAM=Virtual Storage Access Method

Source: TIGTA's analysis of current IMF-CADE 2 environment.



*Planning Decisions for Customer Account Data Engine 2  
Transition State 2 Should Be Effectively Linked to Actions Needed  
to Address the Internal Revenue Service's Financial Material  
Weakness*

## **Management's Response to the Draft Report**



CHIEF TECHNOLOGY OFFICER

DEPARTMENT OF THE TREASURY  
INTERNAL REVENUE SERVICE  
WASHINGTON, D.C. 20224

**MAR 16 2016**

MEMORANDUM FOR DEPUTY INSPECTOR GENERAL FOR AUDIT

FROM: Terence V. Mitholland *Terence V. Mitholland*  
Chief Technology Officer

SUBJECT: Draft Audit Report – Planning Decisions for  
Customer Account Data Engine 2 Transition State  
2 Should Be Effectively Linked to Actions Needed  
to Address the IRS Financial Material Weakness  
(201420011)

Thank you for the opportunity to review your draft audit report and to discuss earlier draft report observations with the audit team. We provide the following comments to clarify and put additional context around issues you raise in your report. We also address your recommendations below.

CADE 2 is a modernization project to leverage existing tax administration systems, including Individual Master File (IMF) applications, to perform core tax account functions related to accessing and updating individual taxpayer account data, managing cases, and resolving account issues. It is not a financial system or part of the IRS financial system for revenue accounting.

The IRS financial system for revenue accounting is a mixed system comprised of the Financial Management Information System (FMIS), including the Accounts Receivable Management Information System (ARMIS); the Custodial Detail Database (CDDb) as the sub-ledger for unpaid assessments (UA), revenue receipts and refunds; and the Redesigned Revenue Accounting and Control System (RRACS) as the general ledger system. CADE 2 and the current master file systems provide detailed transactional data from the core taxpayer account in order to provide the support needed for the summary level details in the financial systems. All reporting for unpaid tax assessments, both for operational and financial reporting, primarily come from FMIS, including all analysis to derive financial classifications in accordance with federal accounting standards; and derive variables including age of assessment, collection status, source of assessment, etc. used for managing day-to-day operations and reporting on operational inventory completed in ARMIS. No financial reporting comes directly from the core tax systems.



## *Planning Decisions for Customer Account Data Engine 2 Transition State 2 Should Be Effectively Linked to Actions Needed to Address the Internal Revenue Service's Financial Material Weakness*

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To remedy the material weakness, the IRS initiated a gap analysis to determine where it made the most sense to build in Federal Financial System Requirements in order to address the accuracy of the taxpayer account, which contributes largely to inaccuracies in financial classifications coming from the financial systems. IRS determined, by changing the account structure in the core taxpayer account, the IRS could ensure that the IRS downstream systems, which send bills to taxpayers, and provide key account information needed for servicing taxpayer inquiries, would provide accurate tax balances. Improving the accuracy and detail in the core tax account will improve the ability for IRS financial systems to leverage this data for accurate reporting, which will remediate the material weakness.

Recommendation #1 states that the Chief Financial Officer (CFO) should include the planned CADE 2 Transition State 2 (TS2) actions and estimated costs related to addressing the Financial Material Weakness (FMW) for unpaid tax assessments in the IRS Remediation Plan, with concurrence from the Management Controls Executive Steering Committee. Also, Recommendation #3 states that the CFO should ensure that complete cost information, including cost estimates for the planned TS2 activities to address the FMW, is captured in the IRS Remediation Plan.

We disagree with both recommendations. The CADE 2 TS2 project and spend plan are tracked as part of the Business Systems Modernization appropriation. The IRS remediation plan was never intended to capture the cost information on specific IT projects such as CADE 2. Instead, the plan describes the resources, remedies, and scheduled milestones needed for the financial systems (e.g., Financial Management Information System (FMIS), Custodial Detail Database (CDDDB), and Redesigned Revenue Accounting and Control System (RRACS) to leverage capabilities, when implemented, to remedy problems on individual taxpayer cases contributing to the unpaid tax assessment material weakness. The plan is updated as necessary to include all remedies, in addition to those dependent on CADE 2 TS2.

As IRS completes projects in Releases 2 through 5 of the CADE 2 TS2 release plan and implements functionality to address the Federal Financial System Requirements (FFSR) and Custodial Financial Requirements Board (CFRB) requirements related to the Unpaid Assessment FMW for individual taxpayer accounts, the CFO will insert actions in the remediation plan that reference the transfer of CADE 2 data to the financial systems and the programming updates that will improve the financial classification of unpaid assessments.

Recommendation #4 focuses on the need for a security strategy to support development of CADE 2 TS2 as the authoritative data source. In the draft report, TIGTA states "Our review found that to support requirements development in each of these areas, it is important as the IRS completes Milestone 0 for TS2 to establish a security strategy for managing current and future risks from a CADE 2 Program perspective."



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While IRS disagrees with TIGTA's conclusions, we have provided the auditors with the CADE 2 security framework that we believe addresses TIGTA's security concerns regarding this investment. The security baseline of an IT system is driven by the FIPS-199 Security Categorization process. CADE 2 was determined to be a FIPS-199 Moderate system. The security control baseline was applied based on IRM and NIST 800-53. Further, a systems security strategy is built into the IRS Enterprise Lifecycle (ELC) process in accordance with IRM 2.16.1, Enterprise Life Cycle (ELC) – Enterprise Life Cycle Guidance and IRM 10.8.1, Information Technology (IT) Security, Policy and Guidance .

Last, we disagree with TIGTA's recommendation #5 that the Chief Financial Officer, in consultation with the Chief Technology Officer, should classify CADE 2 TS2 within the guidance provided by Appendix D to OMB Circular A-123 to ensure that adequate internal controls for developing, operating, evaluating, and reporting on financial management systems are considered and designed into CADE 2.

It should be noted that TIGTA referred to the 2006 Federal Financial Standards throughout the course of this audit. Updated standards exist as of 2013, and the IRS provided a crosswalk from the 2006 to the 2013 standards to TIGTA as an appendix to the Governance Board's approved re-baselined TS2 scope document.

We are committed to continuously improving our information technology systems and processes. We value your continued support and the assistance and guidance your team provides. If you have any questions, please contact me at (240) 613-9373 or Karen Mayr at (202) 368-8396.



*Planning Decisions for Customer Account Data Engine 2  
Transition State 2 Should Be Effectively Linked to Actions Needed  
to Address the Internal Revenue Service's Financial Material  
Weakness*

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*Planning Decisions for Customer Account Data Engine 2 Transition State 2 Should Be  
Effectively Linked to Actions Needed to Address the IRS Financial Material Weakness  
(201420011)*

**RECOMMENDATION #1:** The Chief Financial Officer (CFO) should include the planned Transition State 2 (TS2) actions and estimated costs related to addressing the Financial Material Weakness for unpaid tax assessments in the IRS Remediation Plan, with concurrence from the Management Controls Executive Steering Committee.

**CORRECTIVE ACTION #1:** IRS has addressed this recommendation in Audit Report 2013-10-091, dated August 29, 2013. Currently, the Chief Financial Officer is working with IRS business units to determine when the IRS financial systems will begin to be available in CADE 2 so that actions can be added to the remediation plan for making changes to the financial systems.

As IRS completes projects in Releases 2 through 5 of the CADE 2 TS2 release plan and implements functionality to address the Federal Financial System Requirements (FFSR) and Custodial Financial Requirements Board (CFRB) requirements related to the Unpaid Assessment Financial Material Weakness (FMWV) for individual taxpayer accounts, the CFO will insert actions in the remediation plan to transfer CADE 2 data to the financial systems, and update programming to improve financial classification of unpaid assessments.

**IMPLEMENTATION DATE:** N/A

**RESPONSIBLE OFFICIAL:** N/A

**CORRECTIVE ACTION MONITORING PLAN:** N/A

**RECOMMENDATION #2:** The CTO should ensure that cost estimates are developed for planned TS2 activities to effectively: (1) align the information technology and business strategies; (2) strengthen internal control over unpaid tax assessments for individual taxpayer accounts; and (3) address the IRS's financial material weakness requirements.

**CORRECTIVE ACTION #2:** IRS agrees with this recommendation. We are currently developing the TS2 Basis of Estimate (BOE) costs as part of the Milestone 2. We anticipate completing the BOE by September 2015.

**IMPLEMENTATION DATE #2:** September 25, 2015

**RESPONSIBLE OFFICIAL #2:** Associate CIO, Enterprise Program Management Office

**CORRECTIVE ACTION MONITORING PLAN:** We enter accepted Corrective Actions into the Joint Audit Management Enterprise System (JAMES). These Corrective Actions are monitored on a monthly basis until completion.

**RECOMMENDATION #3:** The CFO should ensure that complete cost information, including cost estimates for the planned TS2 activities to address the financial material weakness is captured in the IRS



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Effectively Linked to Actions Needed to Address the IRS Financial Material Weakness  
(201420011)*

Remediation Plan.

**CORRECTIVE ACTION #3:** IRS disagrees with this recommendation. The CADE 2 TS2 project and spend plan are tracked as part of the Business Systems Modernization appropriation. The remediation plan, developed with input from the Government Accountability Office, was never intended to capture the cost information on specific IT projects such as CADE 2.

**IMPLEMENTATION DATE #3:** N/A

**RESPONSIBLE OFFICIAL #3:** N/A

**CORRECTIVE ACTION MONITORING PLAN:** N/A

**RECOMMENDATION #4:** The CTO should establish a security strategy to support the CADE 2 TS2 Program and meet IRS goals for protecting sensitive systems and data.

**CORRECTIVE ACTION #4:** IRS disagrees that a separate security strategy is needed. As noted in our Management Response, a systems security strategy is built into the IRS Enterprise Lifecycle (ELC) process in accordance with IRM 2.16.1 (ELC) and IRM 10.8.1. IRS has provided TIGTA with the security framework developed in line with this guidance.

**IMPLEMENTATION DATE:** N/A

**RESPONSIBLE OFFICIAL:** N/A

**CORRECTIVE ACTION MONITORING PLAN:** N/A

**RECOMMENDATION #5:** The CFO, in consultation with the CTO, should classify CADE 2 TS2 within the guidance provided by Appendix D to OMB Circular A-123 to ensure that adequate internal controls for developing, operating, evaluating, and reporting on financial management systems are considered and designed into CADE 2.

**CORRECTIVE ACTION #5:** IRS disagrees with this recommendation. CADE 2 is a modernization project to leverage existing tax administration systems, including Individual Master File (IMF) applications, to perform core tax account functions related to accessing and updating individual taxpayer account data, managing cases, and resolving account issues. It is not a financial system, or part of the IRS financial system for revenue accounting.

**IMPLEMENTATION DATE:** N/A

**RESPONSIBLE OFFICIAL:** N/A

**CORRECTIVE ACTION MONITORING PLAN:** N/A