

February 2007

BUSINESS SYSTEMS
MODERNIZATION

Internal Revenue
Service's Fiscal Year
2007 Expenditure Plan



G A O

Accountability * Integrity * Reliability



Highlights of [GAO-07-247](#), a report to congressional committees

BUSINESS SYSTEMS MODERNIZATION

Internal Revenue Service's Fiscal Year 2007 Expenditure Plan

Why GAO Did This Study

The Internal Revenue Service's (IRS) Business Systems Modernization (BSM) program is a multibillion-dollar, high-risk, highly complex effort that involves the development and delivery of a number of modernized information systems that are intended to replace the agency's aging business and tax processing systems. As required by law, IRS submitted its fiscal year 2007 expenditure plan, in September 2006, to congressional appropriations committees, requesting \$167.3 million from the BSM account.

GAO's objectives in reviewing the plan were to (1) determine whether it satisfied the conditions specified in the law, (2) determine IRS's progress in implementing prior GAO recommendations, and (3) provide any other observations about the plan and IRS's BSM program. To address these objectives, GAO analyzed the plan, reviewed related documentation, and interviewed IRS officials.

What GAO Recommends

GAO recommends that the Commissioner of Internal Revenue direct the Chief Information Officer to ensure that future expenditure plans include a quantitative measure of progress in meeting project scope expectations. In providing comments on a draft of this report, the Commissioner agreed with the recommendation and outlined the actions that IRS is planning to take to address it.

www.gao.gov/cgi-bin/getrpt?GAO-07-247.

To view the full product, including the scope and methodology, click on the link above. For more information, contact David A. Powner at (202) 512-9286 or at pownerd@gao.gov.

What GAO Found

IRS's fiscal year 2007 expenditure plan satisfies the conditions specified in the law. These conditions include meeting the Office of Management and Budget's capital planning and investment control review requirements and complying with federal systems acquisition requirements and management practices.

IRS has made significant progress in implementing GAO's recommendations and improving its modernization management controls and capabilities. However, controls and capabilities related to requirements development and management and post-implementation reviews have not yet been fully implemented. In addition, more work remains to be done to fully develop a long-term vision and strategy for completing the BSM program.

GAO has the following four observations on the expenditure plan and the BSM program:

- During 2006, IRS made additional progress in implementing BSM projects and in meeting cost and schedule commitments, but two key projects experienced significant cost overruns. IRS deployed additional releases of the following modernized systems: the Customer Account Data Engine (the new taxpayer information database), Modernized e-File (a new electronic filing system), and Filing and Payment Compliance (a tax collection case analysis support system). While each of the five associated project segments delivered during 2006 were completed within the targeted 10 percent schedule variance threshold, two project segments associated with Modernized e-File and the Customer Account Data Engine experienced cost increases of 36 percent and 15 percent, respectively.
- IRS could improve its reporting of progress in meeting project scope expectations. Although IRS's expenditure plan provides descriptive information on changes in project releases' scope (i.e., functionality), it does not provide a quantitative measure of whether project releases delivered planned functionality. Such a measure would be helpful in providing the Congress with more complete information on IRS's performance in implementing BSM project releases.
- Future BSM project releases continue to face significant risks and issues. The agency, however, recognizes the potential impact of these project risks and issues on its ability to deliver planned functionality within cost and schedule estimates, and has developed mitigation strategies to address them.
- IRS has made further progress in addressing high-priority BSM program improvement initiatives. Its high-priority improvement initiatives continue to be an effective means of assessing, prioritizing, and incrementally addressing BSM issues and challenges. IRS is currently focusing on 13 high-priority initiatives, which it plans to complete by the end of March 2007.

Contents

Letter

	1
Recommendation for Executive Action	4
Agency Comments	4

Appendixes

Appendix I: Briefing Slides from the November 14, 2006, Briefing to the Senate and House Appropriations Subcommittee Staffs	6
Appendix II: Comments from the Internal Revenue Service	46
Appendix III: GAO Contact and Staff Acknowledgments	49

Abbreviations

AMS	Accounts Management Services
BSM	Business Systems Modernization
CADE	Customer Account Data Engine
IRS	Internal Revenue Service
OMB	Office of Management and Budget

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United States Government Accountability Office
Washington, D.C. 20548

February 15, 2007

The Honorable Richard J. Durbin
Chairman
The Honorable Sam Brownback
Ranking Minority Member
Subcommittee on Financial Services and
General Government
Committee on Appropriations
United States Senate

The Honorable José E. Serrano
Chairman
The Honorable Ralph Regula
Ranking Minority Member
Subcommittee on Financial Services and
General Government
Committee on Appropriations
House of Representatives

As required by law, the Internal Revenue Service (IRS) submitted its fiscal year 2007 expenditure plan in September 2006 to the congressional appropriations committees, requesting \$167.3 million from the Business Systems Modernization (BSM) account. Our objectives in reviewing the plan were to (1) determine whether the plan satisfied the conditions specified in the law,¹ (2) determine IRS's progress in implementing our prior recommendations, and (3) provide any other observations about the plan and IRS's BSM program.

On November 14, 2006, we briefed the cognizant congressional appropriations subcommittee staffs on the results of our review. This

¹BSM funds are unavailable until IRS submits to congressional appropriations committees for approval a modernization expenditure plan that (1) meets the Office of Management and Budget's (OMB) capital planning and investment control review requirements; (2) complies with IRS's enterprise architecture; (3) conforms with IRS's enterprise life cycle methodology; (4) complies with federal acquisition rules, requirements, guidelines, and systems acquisition management practices; (5) is approved by IRS, the Department of the Treasury, and OMB; and (6) is reviewed by GAO. See Pub. L. No. 109-115, Div. A, Title II, November 30, 2005. Currently, IRS's fiscal year 2007 funding is provided under a Current Resolution, Pub. L. No. 109-289, Div. B, September 29, 2006, as amended by Pub. L. No. 109-383, December 9, 2006, which continues BSM's funding subject to the "authority and conditions" provided in the fiscal year 2006 appropriations act.

report transmits the materials we used at the briefing and provides the recommendation that we made to the Commissioner of Internal Revenue. The full briefing materials, including our scope and methodology, are reprinted as appendix I.

In summary, we made the following major points:

- IRS's fiscal year 2007 plan satisfies each of the six legislative conditions.
- IRS has made significant progress in implementing our recommendations and improving its modernization management controls and capabilities, including efforts to institutionalize configuration management procedures, develop an updated modernization vision and strategy, and improve the quality of the program status information provided in the expenditure plan. However, controls and capabilities related to requirements development and management and post-implementation reviews have not yet been fully implemented. In addition, more work remains to be done by the agency to fully develop a long-term vision and strategy for completing the BSM program, including establishing time frames for consolidating and retiring legacy systems. IRS recognizes this and intends to conduct further analyses and update its vision and strategy to address the full scope of tax administration functions and provide additional details and refinements regarding the agency's plans for legacy system dispositions.
- IRS has made additional progress in implementing BSM projects and in meeting cost and schedule commitments, but two key projects experienced significant cost overruns. During 2006, IRS deployed additional releases of the following modernized systems: the Customer Account Data Engine (the new taxpayer information database), Modernized e-File (a new electronic filing system), and Filing and Payment Compliance (a tax collection case analysis support system). Each of the five associated project segments that were delivered during 2006 were completed on time or within the targeted 10 percent schedule variance threshold, and two of them were also completed within the targeted 10 percent variance threshold for cost. However, two project segments—Modernized e-File Release 3.2, Milestone 4/5 and Customer Account Data Engine Release 2.1, Milestone 4—experienced cost increases of 36 percent and 15 percent, respectively.
- IRS could improve its reporting of progress in meeting project scope expectations. Although IRS's expenditure plan provides descriptive

information on changes in project releases' scope (i.e., functionality), it does not provide a quantitative measure of whether project releases delivered planned functionality. Such a measure would be helpful in providing the Congress with more complete information on IRS's performance in implementing BSM project releases. IRS recognizes the value of having such a measure and, to its credit, recently held a meeting to address ways to develop it. Several BSM projects use earned value management,² a proven technique required by the administration³ for measuring cost, schedule, and functional performance. However, earned value management data are not reported in IRS's expenditure plan.

- Future BSM project releases continue to face significant risks and issues, which IRS is addressing. IRS has identified significant risks and issues with its future planned system deliveries. For example, IRS has reported that there is no slack in the schedule for Release 2.2 of the Customer Account Data Engine, and that late-breaking tax law legislation or other mandatory filing season changes will have an adverse effect on the development and testing schedules. Maintaining alignment between the Customer Account Data Engine and Accounts Management Services⁴ projects is also a key area of concern. The agency, however, recognizes the potential impact of these project risks and issues on its ability to deliver planned functionality within cost and schedule estimates, and has developed mitigation strategies to address them.

²Earned value management is a project management tool that integrates the investment scope of work with schedule and cost elements for investment planning and control. This method compares the value of work accomplished during a given period with that of the work expected in the period. Differences in expectations are measured in both cost and schedule variances.

³Recent Office of Management and Budget guidance directed agencies to implement earned value management on major information technology investments, in an effort to meet baseline cost, schedule, and performance goals.

⁴Accounts Management Services (AMS) is a strategic project intended to deliver improved customer support and functionality by leveraging existing IRS applications and new technologies to bridge the gap between modernization initiatives, such as the Customer Account Data Engine (CADE), and legacy systems. AMS is to enhance CADE by providing applications for IRS employees and taxpayers to access, validate, and update accounts on demand. The development and implementation of the AMS project is also essential to enabling CADE to accept more complicated tax returns and to deal with taxpayer issues.

-
- IRS has made further progress in addressing high-priority BSM program improvement initiatives. Its high-priority improvement initiatives continue to be an effective means of assessing, prioritizing, and incrementally addressing BSM issues and challenges. IRS is currently focusing on 13 high-priority initiatives, which it plans to complete by the end of March 2007. These initiatives include establishing requirements development/management processes and guidance as well as defining governance structures and processes across all projects.

Recommendation for Executive Action

To allow for more effective congressional oversight of the BSM program, we recommend that the Commissioner of Internal Revenue direct the Chief Information Officer to take the following action:

- Ensure that future expenditure plans include a quantitative measure of progress in meeting project scope expectations. In developing this measure, IRS should consider using earned value management, since this is a proven technique required by the administration for measuring cost, schedule, and functional performance against plans.

Agency Comments

In providing written comments on a draft of this report, the Commissioner of Internal Revenue agreed with our recommendation. In responding to the recommendation, the Commissioner outlined the actions that IRS is planning to take to address it, including evaluating available options and working with GAO and the Treasury Inspector General for Tax Administration to define quantitative measures of project scope. The Commissioner's written comments are reprinted in appendix II.

We are sending copies of this report to the Chairmen and Ranking Minority Members of other Senate and House committees and subcommittees that have appropriation, authorization, and oversight responsibilities for the Internal Revenue Service. We are also sending copies to the Commissioner of Internal Revenue, the Secretary of the Treasury, the Chairman of the IRS Oversight Board, and the Director of the Office of Management and Budget. Copies are also available at no charge on the GAO Web site at <http://www.gao.gov>.

Should you or your offices have questions on matters discussed in this report, please contact me at (202) 512-9286 or at pownerd@gao.gov.

Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made key contributions to this report are listed in appendix III.

A handwritten signature in cursive script that reads "David A. Powner". The signature is written in black ink and is positioned above the printed name.

David A. Powner
Director, Information Technology
Management Issues

Briefing Slides from the November 14, 2006, Briefing to the Senate and House Appropriations Subcommittee Staffs



Review of IRS's Fiscal Year 2007 Business Systems Modernization Expenditure Plan

**Briefing for the Staffs of the
Subcommittee on Transportation, Treasury, the Judiciary,
Housing and Urban Development, and Related Agencies
Senate Committee on Appropriations
and
Subcommittee on the Departments of Transportation, Treasury, and
Housing and Urban Development, the Judiciary, District of Columbia,
and Independent Agencies
House Committee on Appropriations**

November 14, 2006

This briefing has been modified to incorporate editorial changes and updated information on pages 5, 32, and 38.

Page 1 of 40

Appendix I
Briefing Slides from the November 14, 2006,
Briefing to the Senate and House
Appropriations Subcommittee Staffs



Briefing Contents

- Introduction and Objectives
- Results in Brief
- Background
- Scope and Methodology
- Results
- Conclusions
- Recommendation for Executive Action
- Agency Comments
- Appendixes
 - I – Description of Business Systems Modernization (BSM) Projects and Program-Level Initiatives
 - II – Additional Detail on IRS’s Fiscal Year 2007 BSM Expenditure Plan
 - III – IRS Reported Project Cost/Schedule Changes



Introduction and Objectives

The Internal Revenue Service (IRS) has long relied on obsolete automated systems for key operational and financial management functions, and its attempts to modernize these computer systems span several decades. IRS's multibillion-dollar Business Systems Modernization (BSM) program, initiated in fiscal year 1999, is the agency's latest attempt to modernize its systems. IRS contracted with Computer Sciences Corporation (CSC) as the prime systems integration support (PRIME) contractor to assist with designing, developing, and integrating a new set of information systems that are intended to replace IRS's aging business and tax processing systems. BSM is a high-risk, highly complex program that involves the development and delivery of a number of modernized tax administration, internal management, and core infrastructure projects that are intended to provide improved and expanded service to taxpayers as well as IRS internal business efficiencies.

As mandated by IRS's fiscal year 2006 appropriations act,¹ BSM funds are not available until IRS submits a modernization expenditure plan for approval to the congressional appropriations committees. This plan must

- meet the capital planning and investment control review requirements established by the Office of Management and Budget (OMB);
- comply with IRS's enterprise architecture;²
- conform with IRS's enterprise life cycle methodology;³
- comply with federal acquisition rules, requirements, guidelines, and systems acquisition management practices;
- be approved by IRS, the Department of the Treasury, and OMB; and
- be reviewed by GAO.

¹Pub. Law 109-115, Div. A, Title II, Nov. 30, 2005. Currently, IRS's fiscal year 2007 funding is provided under a Current Resolution, Pub. Law 109-289, Div. B, Sept. 29, 2006, which continues BSM's funding subject to the "authority and conditions" provided in the fiscal year 2006 appropriations act.

²An enterprise architecture (EA) is an institutional blueprint defining how an enterprise operates today, in both business and technology terms, and intends to operate in the future. An EA also includes a roadmap for transitioning between these environments.

³IRS refers to its life cycle management program as the enterprise life cycle (ELC).



Introduction and Objectives

Since mid-1999, IRS has submitted a series of expenditure or “spending” plans requesting release of BSM appropriated funds. To date, about \$2.1 billion has been appropriated and released for BSM.

On September 5, 2006, IRS submitted its fiscal year 2007 expenditure plan to the relevant House and Senate appropriations subcommittees, seeking release of \$167.3 million from the BSM account.

As agreed with IRS’s appropriations subcommittees, our objectives were to

- determine whether IRS’s fiscal year 2007 expenditure plan satisfies the legislative conditions specified in IRS’s appropriations act,
- determine IRS’s progress in implementing our prior recommendations, and
- provide any other observations about the plan and IRS’s BSM program.



Results in Brief

IRS's fiscal year 2007 plan satisfies each of the six legislative conditions.

IRS has made significant progress in implementing our recommendations and improving its modernization management controls and capabilities, including efforts to institutionalize configuration management procedures, develop an updated modernization vision and strategy, and improve the quality of the program status information provided in the expenditure plan. However, controls and capabilities related to requirements development and management and post-implementation reviews have not yet been fully implemented. In addition, more work remains to be done by the agency to fully develop a long-term vision and strategy for completing the BSM program, including establishing time frames for consolidating and retiring legacy systems.

We have four observations related to the BSM program and fiscal year 2007 expenditure plan:

- *IRS Has Made Additional Progress in Implementing BSM Projects and in Meeting Cost and Schedule Commitments, but Two Key Projects Experienced Significant Cost Overruns.* During 2006, IRS deployed additional releases of the following modernized systems: the Customer Account Data Engine (the new taxpayer information database), Modernized e-File (a new electronic filing system), and Filing and Payment Compliance (a tax collection case analysis support system). Each of the five associated project segments delivered during 2006 were completed on time or within the targeted 10 percent schedule variance threshold, and two of them were also completed within the targeted 10 percent variance threshold for cost. However, two project segments—Modernized e-File Release 3.2, Milestone 4/5 and Customer Account Data Engine Release 2.1, Milestone 4—experienced cost increases of 36 percent and 15 percent, respectively.
- *IRS Could Improve Its Reporting of Progress in Meeting Project Scope Expectations.* IRS's expenditure plan provides descriptive information on changes in project releases' scope (i.e., functionality). However, the plan does not provide a quantitative measure of whether project releases delivered planned functionality. Such a measure would be helpful in providing the Congress with more complete information on IRS's performance in implementing BSM project releases. IRS recognizes the value of having such a measure and, to its credit, recently held a meeting to address ways to develop it.

Page 5 of 40



Results in Brief

- *Future BSM Project Releases Continue to Face Significant Risks and Issues, which IRS Is Addressing.* IRS has identified significant risks and issues with its future planned system deliveries. For example, IRS has reported that there is no slack in the schedule for Release 2.2 of the Customer Account Data Engine, which is planned to be delivered in January 2007, and that late-breaking tax law legislation or other mandatory filing season changes will have an adverse effect on the development and testing schedules. The agency, however, recognizes the potential impact of these project risks and issues on its ability to deliver planned functionality within cost and schedule estimates, and has developed mitigation strategies to address them.
- *IRS Has Made Further Progress in Addressing High-Priority BSM Program Improvement Initiatives.* IRS's high-priority improvement initiatives continue to be an effective means of assessing, prioritizing, and incrementally addressing BSM issues and challenges. IRS is currently focusing on 13 high-priority initiatives, which it plans to complete by the end of March 2007. These initiatives include establishing requirements development/management processes and guidance as well as defining governance structures and processes across all projects.

To allow for more effective congressional oversight of the BSM program, we are recommending that the Commissioner of Internal Revenue direct the Chief Information Officer (CIO) to do the following:

- ensure that future expenditure plans include a quantitative measure of progress in meeting project scope expectations. In developing this measure, IRS should consider using earned value management,⁴ since this is a proven technique required by the administration for measuring cost, schedule, and functional performance against plans.

⁴Earned value management is a project management tool that integrates the investment scope of work with schedule and cost elements for investment planning and control. This method compares the value of work accomplished during a given period with that of the work expected in the period. Differences in expectations are measured in both cost and schedule variances.

Appendix I
Briefing Slides from the November 14, 2006,
Briefing to the Senate and House
Appropriations Subcommittee Staffs



Results in Brief

In commenting on a draft of this briefing, the Associate CIO for Applications Development stated that the briefing is balanced and accurate and that IRS plans to implement the recommendation. She also provided technical comments.



Background

To date, we have reviewed and reported on 13 BSM expenditure plans:

- Since mid-1999, we have reported⁵ on the risks associated with IRS's approach of building systems while concurrently developing and implementing program management capabilities—for example, having a fully operational program management office and implementing its enterprise life cycle (ELC) methodology. IRS's ELC is a structured method for managing system modernization program and project investments throughout their life cycles. We reported that attempting to acquire modernized systems before having the requisite management capability increases the risk that systems will experience cost, schedule, and performance shortfalls. In addition, we have noted numerous modernization management control deficiencies and made recommendations to correct them.

We have also reported⁶ that the risk of cost increases and schedule delays associated with building systems without the requisite management controls is not as severe early in projects' life cycles when they are being planned (project definition and preliminary system design), but escalates as projects are built (detailed design and development) and implemented (deployment). In the case of IRS and its ELC, a key point of risk escalation is milestone 3, at the end of the system architecture phase. From this point through design and development (milestone 4) to system deployment (milestone 5), risk will increase significantly if requisite controls are not in place. In February 2002, we reported that as IRS moved forward with its BSM program, it faced increasing risks that it would be unable to deliver promised system capabilities on time and within budget. To address the escalating risks facing IRS, we recommended that the agency reconsider the planned scope and pace of the BSM program with the goal of better balancing the number of system acquisition projects underway and planned with IRS's capacity to manage the workload.

⁵For example, see GAO, *Business Systems Modernization: Results of Review of IRS' March 2001 Expenditure Plan*, GAO-01-716 (Washington, D.C.: June 29, 2001) and *Internal Revenue Service: Progress Continues But Serious Management Challenges Remain*, GAO-01-562T (Washington, D.C.: April 2, 2001).

⁶For example, see GAO, *Tax Systems Modernization: Results of Review of IRS' Third Expenditure Plan*, GAO-01-227 (Washington, D.C.: January 22, 2001) and *Business Systems Modernization: IRS Needs to Better Balance Management Capacity with Systems Acquisition Workload*, GAO-02-356 (Washington, D.C.: February 28, 2002).

Appendix I
Briefing Slides from the November 14, 2006,
Briefing to the Senate and House
Appropriations Subcommittee Staffs



Background

- In our June 2003 report,⁷ we identified key IRS projects that were approaching or had passed milestone 4 that were experiencing cost, schedule, and performance shortfalls, and concluded that program risks were heightened. In our November 2004 report,⁸ we stated that key agency projects were continuing to incur significant cost increases and schedule delays, and that independent assessments of the BSM program had identified significant weaknesses and risks, consistent with our prior reviews.
- In our July 2005 report,⁹ we noted that IRS had made progress in implementing our prior recommendations to improve its modernization management controls and capabilities; however, certain controls and capabilities related to configuration management, human capital management, cost and schedule estimating, contract management, and post-implementation reviews had not yet been fully implemented or institutionalized. In addition, we noted that IRS had made progress toward addressing issues raised in independent BSM assessments and implementing program improvement initiatives, but significant challenges and high-priority risks remained.

We also reported that although IRS had deployed the initial phases of several modernized systems and met short-term cost and schedule estimates, much more work remained to be done to complete the modernization, and challenges confronted the agency in meeting its longer-term cost and schedule estimates. In addition, we reported that in response to its assessment of the PRIME contractor's performance and budget reductions, IRS (1) was shifting significant BSM program responsibilities from the contractor to the agency, and (2) had made adjustments to project funding allocations and future delivery schedules, including suspending work on the Custodial Accounting Project and postponing future releases of the Integrated Financial System indefinitely. Finally, we concluded that the BSM vision and strategy was no longer current given project delays, and recommended that the agency fully revisit it and develop a new set of long-term program goals, strategies, and plans that is consistent with the budgetary outlook and IRS's management capabilities.

⁷GAO, *Business Systems Modernization: IRS Has Made Significant Progress in Improving Its Management Controls, but Risks Remain*, GAO-03-768 (Washington, D.C.: June 27, 2003).

⁸GAO, *Business Systems Modernization: IRS's Fiscal Year 2004 Expenditure Plan*, GAO-05-46 (Washington, D.C.: November 17, 2004).

⁹GAO, *Business Systems Modernization: Internal Revenue Service's Fiscal Year 2005 Expenditure Plan*, GAO-05-774 (Washington, D.C.: July 22, 2005).



Background

- In our February 2006 report,¹⁰ we noted that IRS had made further progress in implementing BSM, but some projects did not meet short-term cost and schedule commitments. In addition, we noted that future project deliveries faced significant risks and issues, which the agency was actively working to mitigate. We also reported that IRS had made additional progress in addressing high-priority program improvement initiatives; however, much more work remained for the agency to fully address BSM program issues and challenges.

In addition, we reported that, in response to our prior recommendation, IRS was developing a new Modernization Vision and Strategy to address BSM program changes and provide a modernization roadmap. Finally, we concluded that the fiscal year 2006 expenditure plan submitted to the Congress contained outdated program status information and omitted key details concerning deferred BSM functionality. To allow for effective congressional oversight of the BSM program, we recommended that the agency ensure that future expenditure plans provide current and complete program status information and report any changes to prior commitments concerning the delivery of BSM project functionality.

IRS's fiscal year 2007 expenditure plan describes the agency's efforts to

- continue ongoing program-level initiatives (e.g., Architecture & Integration and Program Management) and core infrastructure projects (e.g., Infrastructure Shared Services),
- continue three tax administration project releases (Filing and Payment Compliance Release 1.2, Modernized e-File Release 4, and Customer Account Data Engine Release 2.2) to their next milestones, and
- begin six new tax administration project releases (Modernized e-File Release 5; Customer Account Data Engine Releases 3.1, 3.2, 4, and 5; and Accounts Management Services Release 1.1¹¹).

Table 1 shows a financial summary of the plan.

¹⁰GAO, *Business Systems Modernization: Internal Revenue Service's Fiscal Year 2006 Expenditure Plan*, GAO-06-360 (Washington, D.C.: February 21, 2006).

¹¹IRS plans to use unobligated fiscal year 2005 Management Reserve funding to begin work on the Accounts Management Services project.

Appendix I
Briefing Slides from the November 14, 2006,
Briefing to the Senate and House
Appropriations Subcommittee Staffs



Background

Table 1: Summary of IRS's Fiscal Year 2007 BSM Expenditure Plan (in thousands of dollars)^a

	Amount requested
Tax administration projects	
Filing and Payment Compliance	3,500
Modernized e-File	20,000
Customer Account Data Engine	58,500
Subtotal – tax administration projects	82,000
Core infrastructure projects	
Development, Integration and Testing Environments (DITE)	16,000
Infrastructure Shared Services (ISS)	27,000
DITE/ISS risk adjustment	500
Subtotal – core infrastructure projects	43,500
Architecture, integration & management	
Architecture & Integration	15,220
Business Integration	5,250
Business Rules	3,500
Management Processes	3,920
Federally Funded Research and Development Center—MITRE	7,600
Program Management	3,270
Architecture, integration & management risk adjustment	740
Subtotal – architecture, integration & management	39,500
Management reserve	2,310
Total	\$167,310

Source: IRS.

^aSee appendix I for a description of each BSM project and program-level initiative. See appendix II for additional detail on the plan.



Scope and Methodology

To accomplish our objectives, we

- reviewed the fiscal year 2007 expenditure plan submitted by IRS in September 2006;
- analyzed the plan against the legislative conditions to identify any variances;
- interviewed IRS program and project management officials to corroborate our understanding of the plan and other BSM activities;
- analyzed available evidence on recent agency efforts to implement our prior recommendations, including progress on improving its modernization management controls and capabilities;
- reviewed and analyzed modernization program review and project management briefings and related documentation to assess program/project status and associated issues and risks; and
- reviewed program management reports to assess the progress IRS has made in completing actions and implementing program management improvements related to the BSM Highest Priority Initiatives.

To assess the reliability of the cost and schedule information contained in this expenditure plan, we interviewed IRS officials in order to gain an understanding of the data and discuss our use of the data. In addition, we checked that information in the plan was consistent with information contained in IRS internal briefings.

We performed our work between September and November 2006, in Washington, D.C., in accordance with generally accepted government auditing standards.

**Appendix I
Briefing Slides from the November 14, 2006,
Briefing to the Senate and House
Appropriations Subcommittee Staffs**



Results

Objective 1: The plan satisfies the conditions in IRS's Fiscal Year 2007 appropriations act.

Table 2: Fiscal Year 2007 Expenditure Plan Provisions for Satisfying Legislative Conditions

Legislative conditions	Expenditure plan provisions
1. Meets OMB capital planning and investment control review requirements	IRS's fiscal year 2007 expenditure plan identifies funding required for managing information technology (IT) investments as part of a single portfolio through its capital planning and investment control process. This includes conducting periodic reviews to select and control IT investments.
2. Complies with IRS's enterprise architecture	The plan identifies funding required to continue definition and implementation of the enterprise architecture (EA). For example, it identifies funding needed for <ul style="list-style-type: none"> • finalizing and publishing updates to the EA based on change requests, • supporting the performance of EA compliance certification activities, and • improving the IRS Enterprise Transition Strategy and Release Architecture.
3. Conforms with IRS's enterprise life cycle methodology	The plan identifies funding required for meeting the requirements in IRS's enterprise life cycle (ELC) management program. For example, the plan calls for <ul style="list-style-type: none"> • maintaining responsibility for coordinating, tracking, and integrating all programwide costs, schedules, releases, issues, and risks and • maintaining and enhancing the ELC.
4. Complies with the acquisition rules, requirements, guidelines, and systems acquisition management practices of the federal government	As part of the ELC, IRS has defined processes, roles, and responsibilities for implementing Carnegie Mellon University's Software Engineering Institute (SEI) Software Acquisition Capability Maturity Model™ practices for the key process areas within the repeatable level (level 2) of the 5-stage model. ^a These practices are consistent with federal acquisition requirements and management practices, and the plan calls for implementation of the ELC on all projects. Further, all PRIME contractor cost reimbursement task orders are subject to a final independent audit by the Defense Contract Audit Agency to ensure that costs are incurred only for tasks actually completed on the contract.
5. Approved by IRS, the Department of the Treasury, and OMB	<ul style="list-style-type: none"> • IRS – May 19, 2006 • Treasury – July 13, 2006 • OMB – August 18, 2006
6. Reviewed by GAO	<ul style="list-style-type: none"> • GAO – November 14, 2006, briefing to IRS's appropriations subcommittees

Source: IRS's fiscal year 2006 appropriations act (Pub. Law 109-115), fiscal year 2007 Current Resolution (Pub. Law 109-289), and GAO analysis of IRS data.

^aThese are acquisition planning, solicitation, requirements development and management, project management, contract tracking and oversight, evaluation, and transition to support.



Results

Objective 2: IRS has made significant progress in implementing our prior recommendations and improving its modernization management controls and capabilities, although some have not yet been fully addressed.

- IRS has made significant progress in addressing our prior recommendations and improving its modernization management controls and capabilities, as the following table illustrates:

Table 3: Status of IRS Progress in Implementing Prior GAO Recommendations

Prior GAO recommendations	Implemented	In progress	Status as of fiscal year 2007 plan
Configuration management			
Institutionalize configuration management (CM) procedures for the Business Systems Modernization Office	√		Since January 2005, IRS has (1) developed an implementation guide and checklist for establishing CM across the organization, (2) developed and conducted various CM training modules, (3) established several Configuration Control Boards, (4) conducted additional CM process compliance assessments on BSM projects, and (5) revised the compliance assessment procedure to assign the issues and risks resulting from these reviews to the applicable projects for mitigation. Future plans include continuing CM process compliance assessments (four per year, depending on resources) on modernization projects both under development as well as transitioned to production.
Human capital management			
Implement plans for obtaining, developing, and retaining requisite human capital resources	√		In October 2005, IRS completed its BSM Human Capital Strategy, which includes a detailed recruitment plan to bring necessary personnel on board as well as strategic plans for employee training, leadership development, and workforce retention. IRS is implementing its strategy to

Page 14 of 40

**Appendix I
Briefing Slides from the November 14, 2006,
Briefing to the Senate and House
Appropriations Subcommittee Staffs**



Results

Prior GAO recommendations	Implemented	In progress	Status as of fiscal year 2007 plan
			<p>develop and maintain a knowledgeable and highly-skilled workforce to more effectively manage the BSM program and support future operations of modernized IT systems. For example, within the new Applications Development (AD) organization (formed by merging BSM and the Business Systems Development production information applications systems support organization), IRS has established a Centers of Excellence office to, among other things, (1) determine required skill sets and level of competency for each area of expertise and grade level in the AD organization and (2) develop a recruitment strategy and define training requirements. The AD organization recently hired and trained 25 entry-level programmers to support project development efforts.</p>
<p>Cost and schedule estimation</p>			
<p>Implement effective procedures for validating contractor-developed cost and schedule estimates</p>	<p>√</p>		<p>During 2005 and 2006, IRS has taken a number of actions to further improve the BSM cost and schedule estimation process and procedures. For example, IRS mapped its existing estimation capabilities to the Software Engineering Institute's requisites for reliable estimating processes, identified and prioritized gaps between the agency's existing capabilities and industry best practices, and developed a phased improvement approach. Consistent with its prioritized phased approach, IRS has contracted with an estimation support contractor to augment the agency's project estimation capability and has established a Cost and Schedule Estimation Support Services Concept of Operations</p>

Appendix I
Briefing Slides from the November 14, 2006,
Briefing to the Senate and House
Appropriations Subcommittee Staffs



Results

Prior GAO recommendations	Implemented	In progress	Status as of fiscal year 2007 plan
			<p>identifying support paths for requesting, managing, and overseeing in-house and contractor estimation support. In addition, the agency is creating an estimation data repository to capture historical cost and schedule data to enable identification and extraction of relevant baseline data to support estimation development. In a related effort, IRS has also developed and implemented, in May 2006, a scalable Basis of Estimate guide to promote uniform standards for development and submission of supporting documentation to enable comprehensive evaluation, replication, and assessment of estimates. IRS plans to continue to leverage and expand upon its current capabilities, within resource constraints, to achieve a cost-effective BSM cost and schedule estimating system.</p>
<p>Contract management</p>			
<p>Establish and implement a process for determining the type of task order to be awarded in acquiring modernized systems</p>	√		<p>During fiscal years 2005 and 2006, IRS (1) issued a Milestone 4A Statement of Work template for use in developing performance-based task orders, (2) developed revised guidance on the selection of appropriate contract types for BSM task orders, (3) issued a BSM performance monitoring directive establishing the requirement for preparing task order monitoring plans, (4) conducted performance-based contracting and performance monitoring training sessions, and (5) performed semiannual compliance assessments. As of September 2005, four assessments had been completed on a total of 19 statements of work and 18 monitoring plans, resulting in a cumulative average of about 80</p>

Appendix I
Briefing Slides from the November 14, 2006,
Briefing to the Senate and House
Appropriations Subcommittee Staffs



Results

Prior GAO recommendations	Implemented	In progress	Status as of fiscal year 2007 plan
			percent compliance with the applicable performance-based contracting templates and guidance.
Requirements development and management			
Ensure that BSM completes the delivery of policies and procedures for requirements development and management as planned		√	(See p. 19)
Immediately implement interim policies while the final policies and procedures are being developed	√		(See p. 19)
Post-implementation reviews			
Perform analyses of investment data to determine whether completed projects have achieved expected benefits		√	(See pp. 20-21)
Modernization vision and strategy			
Fully revisit the vision and strategy for the BSM program and develop a new set of long-term goals, strategies, and plans that are consistent with the budgetary outlook and IRS's management capabilities		√	(See pp. 22-24)

**Appendix I
Briefing Slides from the November 14, 2006,
Briefing to the Senate and House
Appropriations Subcommittee Staffs**



Results

Prior GAO recommendations	Implemented	In progress	Status as of fiscal year 2007 plan
Expenditure plan timeliness and completeness			
Ensure that future expenditure plans submitted to the congressional appropriations subcommittees provide current and complete program status information and report any changes to prior commitments concerning the delivery of BSM project functionality	√		In February 2006, IRS coordinated with the Department of the Treasury and OMB to develop a timeline and process to effect timelier review and submission of future expenditure plans. In April 2006, IRS issued a directive that established a process to ensure prompt notification and centralized recording of all changes to BSM projects and program-level initiatives. Implementation of this new policy facilitated near real-time updates to program and project status information contained in the fiscal year 2007 expenditure plan throughout the development and review process. Also, the fiscal year 2007 plan includes a new change request summary that provides information on BSM project scope changes.

Source: GAO analysis of IRS data.



Results

Requirements Development and Management

According to the Software Engineering Institute's (SEI) Capability Maturity Model Integration¹² (CMMIsm), the requirements for a system describe the functionality needed to meet user needs and perform as intended in the operational environment. A disciplined process for developing and managing requirements can help reduce the risk of developing or acquiring a system. In addition, a well-defined and managed requirements baseline can improve understanding among stakeholders and increase stakeholder buy-in and acceptance of the resulting system.

In March 2006, we reported¹³ that BSM did not yet have adequate policies and procedures in place to guide its systems modernization projects in developing and managing requirements. As a result of the lack of policies and procedures, BSM projects did not consistently follow disciplined requirements development and management practices. We recommended that IRS ensure that BSM completes the delivery of policies and procedures for requirements development and management as planned. We also recommended that IRS immediately implement interim guidance for ongoing BSM projects while the final policies and procedures are being developed.

In response to our first recommendation, IRS has established a schedule for developing and issuing detailed requirements management and development policies, procedures, and guidance. High-level policies have been issued, and lower level policies, procedures, and templates are being developed. IRS expects to complete the development of these items by March 2007. In response to our second recommendation, IRS has made draft policies and procedures available to BSM projects through the agency's Business Rules and Requirements Management online repository. Until IRS completes the development of detailed policies and procedures to ensure disciplined requirements development and management processes, BSM projects will continue to face risks, including cost overruns, schedule delays, and performance shortfalls.

¹²The CMMI is SEI's process model, which describes how to develop the processes needed for software development and specific practices that organizations should follow.

¹³GAO, *Business Systems Modernization: IRS Needs to Complete Recent Efforts to Develop Policies and Procedures to Guide Requirements Development and Management*, GAO-06-310 (Washington, D.C.: March 20, 2006).



Results

Post-Implementation Reviews

Conducting post-implementation reviews (PIR) is a process for reviewing IT projects to identify lessons learned from investments and determine whether the benefits anticipated in the business case for the investment have been realized.

OMB Guidance,¹⁴ GAO's Information Technology Investment Framework¹⁵, and IRS's ELC require that post implementation reviews be performed on deployed information systems. According to our framework, the reviews should include (1) the collection, evaluation, and analysis of both quantitative and qualitative investment data, and (2) documentation of lessons learned and recommendations for improving the information technology investment process.

In November 2004, we reported¹⁶ that IRS had performed PIRs on deployed projects; however, these reviews were incomplete and did not follow IRS's procedure. Although the PIRs documented lessons learned in implementing the projects and provided recommendations for future improvements, the reviews did not (1) compare and analyze actual versus planned benefits and systems performance, (2) determine the validity of original business assumptions, or (3) compare and analyze actual versus planned cost and schedule estimates. We recommended that future post-implementation reviews of deployed BSM projects include an analysis of quantitative and qualitative investment data to determine whether expected benefits were achieved.

In July 2005, we reported¹⁷ that IRS had issued a new procedure for conducting post-milestone reviews and PIRs on BSM projects, which we found to be compliant with established federal guidance. The post-milestone

¹⁴Executive Office of the President, Office of Management and Budget, *Evaluating Information Technology Investments: A Practical Guide* (November 1995) and Circular A-130, Transmittal Memorandum #4, *Management of Federal Information Resources* (November 2000).

¹⁵GAO, *Information Technology Investment Management: A Framework for Assessing and Improving Process Maturity*, GAO-04-394G (Washington, D.C.: March 2004).

¹⁶GAO-05-46.

¹⁷GAO-05-774.



Results

reviews are to focus on the processes used in systems development, while the PIRs are to focus on outcomes related to expected business benefits, user expectations, and technical performance requirements.

Between May and July 2006, IRS conducted a pilot PIR on the e-Services Transcript Delivery System, utilizing the new procedure. The pilot review identified process improvement opportunities that will be considered during a planned PIR redesign effort.

However, IRS reported that no additional PIRs are scheduled to be conducted at this time, due to fiscal year 2007 resource constraints and other priorities. By not performing PIRs on all deployed BSM projects, the agency lacks important information on whether expected benefits have been achieved or expectations have been met for these projects.



Results

Modernization Vision and Strategy

In July 2005, we reported¹⁸ that the significant delays and other substantive changes that the BSM program had experienced since the development of the initial BSM vision and strategy in 2000 and 2001 indicated a need for IRS to revisit its long-term goals, strategies, and plans for the modernization program. To address the many changes associated with the BSM and clearly describe what the modernization program is intended to accomplish, when it will be completed, and at what cost, we recommended that IRS fully revisit the vision and strategy for the BSM program and develop a new set of long-term goals, strategies, and plans consistent with the budgetary outlook and IRS's management capabilities.

During fiscal year 2006, IRS conducted the initial cycle of a new IT Modernization Vision and Strategy (MV&S) activity. The MV&S initiative established a 5-year plan (also known as the Enterprise Transition Strategy) to guide IT investment decisions during fiscal years 2007 through 2011 and address priorities around modernizing front-line tax administration functions and the supporting technical capabilities provided by the infrastructure and security. Key characteristics of the new vision and strategy include a partnership among IRS's IT and business leadership; an emphasis on delivering smaller, more frequent incremental releases; the leveraging of existing systems (or components of existing systems) where appropriate; and a unified, portfolio-level view of investments.

The MV&S framework is built on a functional segmentation of the IRS into the following core mission business functions that directly relate to front-line tax administration:

- Submissions Processing,
- Manage Taxpayer Accounts,
- Customer Service,
- Reporting Compliance,
- Filing and Payment Compliance, and
- Criminal Investigation.

¹⁸GAO-05-774.



Results

These six segments, referred to as “Business Domains”, reflect a purely functional, rather than organizational, view of the business. They are supported by services necessary to provide for the effective and secure execution of the core mission-critical business functions. These services are addressed by two “Service Domains” that provide cross-cutting data, infrastructure, and security services as well as common business functions, which can be leveraged to support the Business Domains. Within each domain, opportunities have been defined that reflect the priorities that are expected to yield the greatest benefit to taxpayers and the IRS.

The agency’s Enterprise Transition Strategy describes the overall IRS vision and strategy and how existing and proposed investments align to it. It also provides an organization-wide view of programs and projects, including known dependencies, across the agency, and is intended to give leadership the visibility to use the agency’s enterprise architecture for organization-wide planning. The Enterprise Transition Strategy documents the scope, business challenges, current and transition architectures, redesign opportunities, strategy, proposed projects and associated release strategies (e.g., Accounts Management Services¹⁹), and the planned evolution (i.e., reuse, consolidation, retirement) of related key current production environment (CPE) systems for each of the MV&S Business Domains.

IRS’s MV&S initiative is intended to be an annual process through which the agency integrates the strategic plans, business concepts of operations, IT planning roadmaps, and proposed investments into a set of integrated strategies and investment proposals for each domain and ultimately into a proposed IT investment portfolio. During the initial fiscal year 2006 MV&S cycle, IRS recognized that the six Business Domains and two Service Domains addressed did not represent the entire scope of IRS activities, but felt that the limited scope was appropriate, given time and resource constraints.

¹⁹Accounts Management Services (AMS) is a strategic project intended to deliver improved customer support by leveraging legacy systems. As a part of the fiscal year 2006 MV&S process, a strategy was developed to create and retain Customer Account Data Engine (CADE) account data by processing on-line transactions. The development and implementation of the AMS project is integral to this strategy and essential to enabling CADE to accept more complicated tax returns and to deal with taxpayer issues. AMS project releases are to provide functional components synchronized with the CADE development schedule as well as other components delivered independent of the CADE schedule.



Results

For the current MV&S cycle, IRS is adding a Business Domain (Internal Management) and splitting one of the Service Domains into three separate domains (Data, Infrastructure, and Security). Of these redefined Service Domains, the Security domain is being addressed during the current cycle. Additional refinements and extensions are anticipated in future cycles to address additional Business Domains (e.g., Financial Management) and develop a more comprehensive plan for the Service Domains. IRS expects to regularly revise and update the content of the MV&S to address the full scope of tax administration functions and the changing business priorities.

In addition, IRS recognizes the need to proactively plan for the disposition (i.e., consolidation, retirement, or potential reuse) of each of the over 700 legacy systems comprising the current production environment, but noted that it has not been able to conduct all of the necessary detailed, highly complex analyses due to resource constraints. The CPE system evolution information contained in the current (June 2006) version of the Enterprise Transition Strategy is preliminary and is largely driven by the planning activities of individual modernization projects and, therefore, limited to plans for related key CPE systems. IRS intends to conduct further analyses and provide additional details and refinements in the future regarding its plans for legacy system dispositions.

IRS's new IT MV&S and associated 5-year plan embodied in the Enterprise Transition Strategy represent significant progress toward defining the agency's future plans for the modernization program. However, more work remains for IRS to fully address our prior recommendation of developing a long-term vision and strategy for completing BSM, including establishing time frames for consolidating and retiring legacy systems.



Results

Objective 3: Observations about IRS's BSM Program and Expenditure Plan

Observation 1: IRS Has Made Additional Progress in Implementing BSM Projects and in Meeting Cost and Schedule Commitments, but Two Key Projects Experienced Significant Cost Overruns.

During 2006, IRS's BSM program has delivered additional releases of the following modernized systems that have provided benefits to taxpayers and the agency:

- **Customer Account Data Engine (CADE).** CADE is intended to provide the modernized database foundation that will eventually replace IRS's antiquated Master File processing system, which contains the agency's repository of taxpayer information, and, therefore, is the BSM program's cornerstone and highest priority project. CADE facilitates faster refund processing and timelier response to taxpayer inquiries. In January 2006, IRS implemented Release 1.3.2 of CADE, which was used to process a subset of filing year 2006 Form 1040EZ, 1040, and 1040A tax returns with no schedules for single taxpayers with refund or even-balance returns and no dependents. In September 2006, IRS deployed CADE Release 2.1, which adds the capability to process Form 1040 and 1040A tax returns with certain schedules and supporting forms as well as returns for taxpayers filing as head of household. According to IRS, CADE has processed about 7.4 million tax returns and issued about 6.6 million refunds totaling over \$3.4 billion during the 2006 filing season.
- **Modernized e-File (MeF).** This project is intended to initially provide electronic filing for large corporations, small businesses, and tax-exempt organizations and ultimately replace the 1040 e-file program. In March 2006, IRS completed MeF Release 3.2, which enables corporations and tax-exempt organizations to file joint federal/state tax returns electronically and allows states to retrieve their applicable returns from MeF. IRS reported that, during the 2006 filing season, over 900,000 tax returns have been received using MeF, including over 13,000 mandated returns (corporations with assets of over \$50 million) and about 600 state returns, which have been made available to the three participating states (as of September 24, 2006).



Results

- **Filing and Payment Compliance (F&PC).** F&PC is intended to provide support for detecting, scoring, and working non-filer (filing compliance) and delinquency (payment compliance) cases. F&PC Release 1.1, which began full production operation in September 2006, provides advanced software to analyze tax collection cases and separate the complex cases requiring IRS involvement from the simpler (balance due) cases that can be handled by private collection agencies (PCAs) for case resolution. On September 7, 2006, an initial inventory of over 11,500 collection cases was delivered to the three PCAs for processing.

IRS continued to make progress in meeting cost and schedule commitments for completed and ongoing project releases during 2006, but two key projects experienced significant cost increases. Our analysis of IRS's reported project costs and completion dates shows that each of the five project segments delivered during 2006 were completed on time or within the targeted 10 percent schedule variance threshold, and two of them were also completed within the targeted 10 percent variance threshold for cost. For example, F&PC Release 1.2 exited Milestones 3 and 4a on time, and Milestone 4a was completed at the estimated project cost. Also, CADE Release 1.3.2 was delivered within the targeted 10 percent variance threshold for both cost and schedule. However, two project segments—MeF Release 3.2, Milestone 4/5 and CADE Release 2.1, Milestone 4—experienced cost increases of 36 percent and 15 percent, respectively, against the original commitments. The MeF project cost increase was due to unplanned functionality related to security and large file/mandate requirements, stress test requirements, the large number of change requests received late in development, and higher than expected defect reports in production. The CADE project cost overrun was driven by restart/rework of the business process engineering effort and the associated Design Specification Report. Appendix III provides the complete list of BSM project cost and schedule changes reported by IRS.



Results

Observation 2: IRS Could Improve Its Reporting of Progress in Meeting Project Scope Expectations.

- IRS's expenditure plan includes tables showing, for each project release segment, the status of activities that were planned as of the fiscal year 2006 expenditure plan and an explanation of changes in these plans, if any. The expenditure plan also features a list of changes (i.e., additions, deletions, and deferrals) to requirements/scope for its project releases. While the tables and list provide information on the status of project releases, they do not provide a quantitative measure of IRS's progress in meeting scope expectations. Such a measure would help to provide the Congress with more complete information on IRS's performance in delivering BSM project releases. IRS recognizes the value of having a quantitative measure of progress in meeting functional performance, and, to its credit, recently held a meeting to address ways to develop it. Several BSM projects use earned value management,²⁰ a proven technique required by the administration²¹ for measuring cost, schedule, and functional performance. However, earned value management data are not reported in IRS's expenditure plan.

²⁰Earned value management is a project management tool that integrates the investment scope of work with schedule and cost elements for investment planning and control. This method compares the value of work accomplished during a given period with that of the work expected in the period. Differences in expectations are measured in both cost and schedule variances.

²¹Recent OMB guidance directed agencies to implement earned value management on major IT investments, in an effort to meet baseline cost, schedule, and performance goals.



Results

Observation 3: Future BSM Project Releases Continue to Face Significant Risks and Issues, which IRS Is Addressing.

IRS has reported that significant challenges and risks confront future planned project releases. For example,

- **Customer Account Data Engine Release 2.2.** IRS has reported that there is no slack in the schedule for Release 2.2, which is planned to be delivered in January 2007. Late-breaking tax law legislation or other mandatory filing season changes will have an adverse effect on the development and testing schedules. Also, the implementation of last minute changes to the Telephone Excise Tax Refund (TETR)²² functionality has the potential to impact Release 2.2 scope and schedule.
- **Customer Account Data Engine Release 3.** According to IRS, potential scope problems could result in schedule delays and loss of planned functionality for Releases 3.1 and 3.2, which are currently scheduled to be deployed in August 2007 and December 2007, respectively. Maintaining alignment with the Accounts Management Services project is also a key area of concern.
- **Accounts Management Services Release 1.1.** If the Release Content Master Plans for the Accounts Management Services and Customer Account Data Engine projects are not aligned, then a coordinated release structure may not be possible, and delivery of Release 1.1 functionality, planned for September 2007, may be impacted. Also, if additional resources, including technical project staff, are not provided to the Accounts Management Services project office, then the project may experience significant schedule delays.
- **Filing and Payment Compliance Release 1.2.** IRS reports that Release 1.2, which is scheduled to be deployed in January 2007, faces risks associated with the delivery of business and system requirements.

²²Under the TETR, taxpayers are being refunded the telephone excise tax they have paid over the last three years, including interest. Individuals and businesses are affected. This is a one time event.

Appendix I
Briefing Slides from the November 14, 2006,
Briefing to the Senate and House
Appropriations Subcommittee Staffs



Results

- **Modernized e-File Release 4.** Release 4, which is planned to be completed in March 2007, also faces critical risks, including the potential impact of the Excise Tax e-File and Compliance (ETEC)²³ application on the Modernized e-File development and infrastructure as well as tight budget constraints and the potential for shortfalls if additional issues arise.

IRS recognizes the potential impact of these project risks and issues on its ability to deliver planned functionality within cost and schedule estimates, and has developed mitigation strategies to address them.

²³The ETEC project is funded by the Department of Transportation and supports the compliance of highway use and fuel excise tax. It leverages the Modernized e-File capabilities for filing excise tax forms.



Results

Observation 4: IRS Has Made Further Progress in Addressing High-Priority BSM Program Improvement Initiatives.

During 2004, the Associate CIO for BSM established the following seven key focus areas for improving IRS's capability to design, develop, and deliver modernized IT systems:

- Staffing and Skill Sets,
- Contractor Management,
- Requirements and Demand Management,
- Systems Engineering,
- Project Management Disciplines,
- Communication and Collaboration, and
- Empowerment/Accountability.

Corrective actions recommended by GAO and the Treasury Inspector General for Tax Administration for improving modernization management controls and processes as well as several additional IRS-defined improvement initiatives were then mapped to these key focus areas to form a BSM program improvement framework.

In August 2004, the Associate CIO initiated an incremental approach to assess, prioritize, and address the "highest priority initiatives" from the program improvement framework in 6-month cycles. As of October 2005, IRS reported it had completed 27 highest priority initiatives during the first two cycles, and was in the process of addressing a third set of 22, which was planned to be completed by the end of March 2006. In April 2006, IRS reported that 17 of these 22 initiatives had been completed and closed, 1 initiative had been dropped due to a lack of resources, and the remaining 4 were being carried over to the next 6-month period.



Results

In October 2006, IRS reported that it had successfully completed and closed its fourth set of 15 highest priority initiatives, which included efforts related to implementing an Applications Development productivity measurement system, integrating the change management process into the configuration management function, institutionalizing the Modernization Vision and Strategy approach and integrating it with IRS's capital planning and investment control process, hiring and training 25 entry-level programmers to support development of the Customer Account Data Engine, and developing an electronic filing strategy through 2010.

IRS is currently focusing on its fifth set of 13 newly selected high priority improvement initiatives, which are scheduled to be completed by the end of March 2007. These initiatives involve functions within the agency's Applications Development and Enterprise Services organizations and include

- defining the governance structures and process across all projects,
- establishing requirements development processes as well as guidance on requirements traceability and tracking the cost/schedule impact of requirements changes (in response to our prior recommendation),
- continuing to strengthen Enterprise Services technical capabilities through filling current systems integration vacancies,
- aligning IRS's Service Oriented Architecture with the Modernization Vision and Strategy, and
- refining the new Applications Development organization.

IRS's program improvement process continues to be an effective means of regularly assessing, prioritizing, and incrementally addressing BSM issues and challenges.



Conclusions

IRS's fiscal year 2007 plan satisfies the legislative conditions.

Although IRS has made significant progress in addressing our recommendations to improve its modernization management controls and capabilities, critical controls and capabilities have not yet been fully implemented. The new IT Modernization Vision and Strategy represents a significant step towards defining IRS's future plans for the modernization program; however, more work remains for the agency to fully develop the long-term strategy for completing BSM, including establishing time frames for consolidating and retiring legacy systems. IRS recognizes this and intends to conduct further analyses and update its vision and strategy to address the full scope of tax administration functions and provide additional details and refinements regarding the agency's plans for legacy system dispositions.

IRS has made further progress in implementing BSM and in meeting cost and schedule commitments during 2006, but two key projects experienced significant cost overruns. While the expenditure plan includes information on changes in projects' scope, it does not provide the quantitative measure of progress in delivering planned functionality that earned value management, for example, provides.

Future project deliveries continue to face significant risks and issues, which the agency is actively working to mitigate. In addition, IRS has significant program challenges and issues that it must resolve, and has established an effective process for continual improvement to incrementally assess, prioritize, and address them.



Recommendation for Executive Action

To allow for more effective congressional oversight of the BSM program, we recommend that the Commissioner of Internal Revenue direct the CIO to take the following action:

- ensure that future expenditure plans include a quantitative measure of progress in meeting project scope expectations. In developing this measure, IRS should consider using earned value management, since this is a proven technique required by the administration for measuring cost, schedule, and functional performance against plans.

Appendix I
Briefing Slides from the November 14, 2006,
Briefing to the Senate and House
Appropriations Subcommittee Staffs



Agency Comments

In providing written comments on a draft of this briefing, the Associate CIO for Applications Development stated that the briefing is balanced and accurate and that IRS plans to implement the recommendation. She also provided specific technical comments that we have incorporated into the briefing, as appropriate.

**Appendix I
Briefing Slides from the November 14, 2006,
Briefing to the Senate and House
Appropriations Subcommittee Staffs**



**Appendix I: Description of Business Systems Modernization (BSM)
Projects and Program-Level Initiatives**

Proposed modernization initiative	Description
Tax administration projects	
Filing and Payment Compliance (F&PC)	Is to provide support for detecting, scoring, and working nonfiler (filing compliance) and delinquency (payment compliance) cases through advanced case selection methods.
Modernized e-File	Is to provide a single standard for filing electronic tax returns. Initial releases will address large corporations, small businesses, and tax-exempt organizations. Its ultimate goal is the conversion of IRS's 1040 e-file program.
Customer Account Data Engine (CADE)	Is to build the modernized database foundation to replace the existing Master File processing system that contains the repository of taxpayer information.
Accounts Management Services (AMS)	Is to deliver improved customer support and functionality by leveraging existing IRS applications (Desktop Integration and Correspondence Imaging System) and new technologies to bridge the gap between modernization initiatives, such as CADE, and legacy systems. AMS is to enhance CADE by providing applications for IRS employees and taxpayers to access, validate, and update accounts on demand.
Core infrastructure projects	
Development, Integration, & Testing Environments	Is to provide oversight for laboratory environments that support evaluation, development, and testing of components from multiple projects: (1) Virtual Development Environment provides a software development environment and a standardized set of tools; (2) Enterprise Integration and Test Environment provides an integration and testing environment for all projects.
Infrastructure Shared Services	Is to deliver, in incremental releases over multiple years, a fully integrated shared information technology infrastructure to include hardware, software, shared applications, data, telecommunications, security, and an enterprise approach to systems and operations management.

Appendix I
Briefing Slides from the November 14, 2006,
Briefing to the Senate and House
Appropriations Subcommittee Staffs



Appendix I: Description of Business Systems Modernization (BSM)
Projects and Program-Level Initiatives

(continued from previous page)

Proposed modernization initiative	Description
Architecture, integration & management	
Architecture & Integration	Is to ensure that systems solutions meet IRS business needs and that the development projects are effectively integrated into the business environment.
Business Integration	Is to ensure that IRS's BSM program is aligned with the business units' vision and delivers the desired business results. It provides support to key activities such as transition management, business rules enterprise management, and requirements development and management operations.
Business Rules	Is to support business process analysis and redesign, business rules harvesting and management, and business requirements definition.
Management Processes	Is to provide sustaining support for program-level management processes, including quality assurance, risk management, program control and process management, and ELC maintenance and enhancements.
Federally Funded Research and Development Center—MITRE	Is to provide program management and systems engineering support.
Program Management	Is to ensure that projects achieve their objectives; provide the management information and IT infrastructure that supports risk management, project cost and schedule estimating, and financial management; and provide procurement management for the CSC contract and associated task orders.

Source: IRS.

Appendix I
Briefing Slides from the November 14, 2006,
Briefing to the Senate and House
Appropriations Subcommittee Staffs



Appendix II: Additional Detail on IRS's Fiscal Year 2007 BSM
Expenditure Plan (in thousands of dollars)

Proposed modernization initiative	Release ^a	Milestone ^b	Milestone date	Amount requested
Tax administration projects				
Filing and Payment Compliance (F&PC)	R1.2	5	Jan. 08	\$3,500
F&PC Risk Adjustment				0
Subtotal – F&PC project				3,500
Modernized e-File (MeF)	R5	4a-5	Mar. 08	13,000
MeF Risk Adjustment				7,000
Subtotal – MeF project				20,000
Customer Account Data Engine (CADE)	R3.1	4	Aug. 07	19,000
CADE	R3.2	4	Dec. 07	18,000
CADE	R4	2,3	Feb. 09	8,800
CADE	R5	2,3	Feb. 10	2,000
CADE	Operations and Maintenance	N/A	Dec. 07	7,000
CADE	Project Mgmt. and Transition Mgmt.	N/A	Sep. 09	2,000
CADE Risk Adjustment				1,700
Subtotal – CADE project				58,500
Subtotal – tax administration projects				82,000
Core infrastructure projects				
Development, Integration & Testing Environments (DITE)		FY 07 ^c	Sep. 07	16,000
Infrastructure Shared Services (ISS)		FY 07 ^c	Sep. 07	27,000
DITE/ISS Risk Adjustment				500
Subtotal – core infrastructure projects				43,500

**Appendix I
Briefing Slides from the November 14, 2006,
Briefing to the Senate and House
Appropriations Subcommittee Staffs**



**Appendix II: Additional Detail on IRS's Fiscal Year 2007 BSM
Expenditure Plan (in thousands of dollars)**

(continued from previous page)

Proposed modernization initiative	Release^a	Milestone^b	Milestone date	Amount requested
Architecture, integration & management				
Architecture & Integration		FY 07 ^c	Sep. 07	\$15,220
Business Integration		FY 07 ^c	Sep. 07	5,250
Business Rules		FY 07 ^c	Sep. 07	3,500
Management Processes		FY 07 ^c	Sep. 07	3,920
Federally Funded Research and Development Center—MITRE		FY 07 ^c	Sep. 07	7,600
Program Management		FY 07 ^c	Sep. 07	3,270
Architecture, Integration & Management Risk Adjustment				740
Subtotal – architecture, integration & management				39,500
Management reserve				2,310
Total fiscal year 2007 BSM program				\$167,310

Source: IRS.

^aReleases are software versions that provide a subset of the total planned project functionality.

^bMilestones correspond to phases within IRS's ELC (0 – Vision & Strategy / Enterprise Architecture, 1 – Project Initiation, 2 – Domain Architecture, 3 – Preliminary Design, 4a – Detailed Design, 4b – System Development, 5 – System Deployment).

^cCore infrastructure projects and management initiatives are funded on a fiscal year (FY) basis rather than by milestone.

Appendix I
Briefing Slides from the November 14, 2006,
Briefing to the Senate and House
Appropriations Subcommittee Staffs



Appendix III: IRS Reported Project Cost/Schedule Changes
(in thousands of dollars)

Project segment	Original commitment date and funding	Current commitment date and funding	Change (%)	IRS explanation of change
Filing and Payment Compliance Release 1.1 Milestone 3-5	1/31/07 \$8,100	1/31/07 \$8,584	+\$484 (+6%)	A legal protest of the private collection agency procurement and a related suspension of work order delayed full production implementation of F&PC Release 1.1. During the extended partial production period, IRS identified potential problems that resulted in several change requests. Management Reserve funding was allocated to cover the costs of the change requests as well as other project activities during the extended partial production phase.
Filing and Payment Compliance Release 1.2 Milestone 3	2/28/06 16,550	2/28/06 9,014	-7,536 (-46%)	IRS combined Milestones 2 and 3 into a firm fixed-price contract, which resulted in savings of \$1.507 million. Due to competing priorities, IRS also removed the previously planned Release 2 activities from this effort, which freed up an additional \$6.029 million. IRS realigned the resulting \$7.536 million to fully fund F&PC Release 1.2, Milestone 4a activities.
Filing and Payment Compliance Release 1.2 Milestone 4a	6/30/06 10,536	7/10/06 10,536	+0.3 months (+7%)	F&PC Release 1.2 exited MS4a on 6/30/06, but the official governance approval decision did not occur until 7/10/06.

**Appendix I
Briefing Slides from the November 14, 2006,
Briefing to the Senate and House
Appropriations Subcommittee Staffs**



Appendix III: IRS Reported Project Cost/Schedule Changes
(in thousands of dollars)

Project segment	Original commitment date and funding	Current commitment date and funding	Change (%)	IRS explanation of change
Modernized e-File Release 3.2 Milestone 4/5	3/31/06 \$23,773	3/22/06 \$32,323	-0.3 months (-2%) +\$8,550 (+36%)	The milestone exit occurred earlier than planned, based on the availability of the voting members. The cost increase was due to unplanned functionality related to security and large file/mandate requirements, stress test requirements, the large number of change requests received late in development, and higher than expected defect reports in production.
Customer Account Data Engine Release 1.3.2	12/31/05 20,767 ^a	1/17/06 20,833 ^a	+0.5 months (+3%) +66 (+0.3%)	Production deployment was later than planned, due to testing delays. During the CADE funding realignment effort review period, the project continued to execute against its original plan, and some requisitions were not captured correctly in the new plan structure.
Customer Account Data Engine Release 2.1 Milestone 4	8/10/06 27,049 ^a	8/25/06 31,239 ^a	+0.5 months (+7%) +4,190 (+15%)	The milestone exit was delayed due to delays in completing System Application Testing. The cost overrun was driven by restart/rework of the business process engineering effort and the associated Design Specification Report.

Source: IRS.

^aDuring FY 2006, IRS realigned a significant portion of the costs previously identified with the CADE Requirements Management Engineering and Project Management/Transition Management initiatives to the specific project release/milestone those funds directly supported. The CADE project funding amounts shown in this table include the realigned costs.

Comments from the Internal Revenue Service



COMMISSIONER

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

February 2, 2007

Mr. David A. Powner
Director, Information Technology Management Issues
U.S. Government Accountability Office
441 G Street, N.W.
Washington, DC 20548

Dear Mr. Powner:

I have reviewed the Government Accountability Office (GAO) draft report titled "Business Systems Modernization: Internal Revenue Service's Fiscal Year 2007 Expenditure Plan" GAO-07-247 (Job Code No. 310835). We continue to appreciate the sound and balanced work of the GAO and are pleased that it:

- Confirmed that the Internal Revenue Service's (IRS) Fiscal Year 2007 expenditure plan satisfies the conditions specified in the law. This includes meeting the Office of Management and Budget's capital planning and investment control review requirements and complying with the federal systems acquisition requirements and management practices.
- Recognized that the IRS made further progress in 2006 toward implementing Business Systems Modernization (BSM) projects and meeting cost and schedule commitments. Under the jurisdiction of BSM, we deployed additional releases of three systems: Customer Account Data Engine (the new taxpayer database); Modernized e-File (a new electronic filing system); and Filing and Payment Compliance (a tax collection case analysis support system). In 2006, each of the five associated project segments was delivered within the targeted 10 percent schedule variance threshold.
- Acknowledged the potential impact of significant risks and issues on the IRS' ability to deliver planned functionality within cost and schedule estimates, and that we have developed mitigation strategies.
- Validated that we have made further progress in addressing high-priority BSM program improvement initiatives, which continue to be an effective means of assessing, prioritizing, and incrementally addressing BSM issues and challenges.

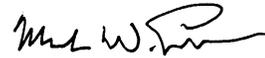
In summary, we are in agreement with the audit recommendation and plan to work with GAO and the Treasury Inspector General for Tax Administration to define quantitative measures in meeting project scope expectations.

2

Additionally, in accordance with your recommendation, we evaluated options available, including the use of Earned Value Management (EVM), to determine the best approach for providing quantitative measures in meeting scope expectations. Our preliminary plan is to implement the results of our analysis in phases, with an interim approach targeted for September 2007. Our comments on the draft report's recommendation are enclosed.

We appreciate your continued support, along with the assistance and guidance provided by your staff. If you have any questions, or if you would like to discuss our response in more detail, please contact Richard A. Spires, Chief Information Officer, at (202) 622-6800.

Sincerely,



Mark W. Everson

Enclosure

Draft Report – Business Systems Modernization: Internal Revenue Service's Fiscal Year 2007 Expenditure Plan Report GAO-07-247 (Job Code No. 310835)

RECOMMENDATION # 1: GAO recommends that the Commissioner of Internal Revenue direct the Chief Information Officer to ensure that future expenditure plans include a quantitative measure of progress in meeting project scope expectations.

CORRECTIVE ACTION #1: The IRS plans to work with GAO and the Treasury Inspector General for Tax Administration to define such a measure. In accordance with your recommendation, we evaluated options available, including the use of earned value management (EVM), to determine the best approach for providing quantitative measures in meeting scope expectations. Our preliminary plan is to implement the results of our analysis in phases, with an interim approach targeted for September 2007. Phase II process implementation is currently targeted for May 2008.

IMPLEMENTATION DATE: May 1, 2008

RESPONSIBLE OFFICIAL: Associate Chief Information Officer, Applications Development

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.

GAO Contact and Staff Acknowledgments

GAO Contact

David A. Powner, (202) 512-9286

**Staff
Acknowledgments**

In addition to the contact person named above, Timothy D. Hopkins, Paul B. Middleton, and Sabine R. Paul made key contributions to this report.

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