March 2008

BUSINESS SYSTEMS MODERNIZATION

Internal Revenue Service's Fiscal Year 2008 Expenditure Plan

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BUSINESS SYSTEMS MODERNIZATION

Internal Revenue Service's Fiscal Year 2008 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 systems that are intended to replace the agency's aging business and tax processing systems. As required by law, IRS submitted its fiscal year 2008 expenditure plan in August 2007 to congressional appropriations committees, requesting $235.8 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 expenditure plan review recommendations, and (3) provide additional observations about the plan and the BSM program. To accomplish the 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 complete a plan with specific time frames for implementing the initiatives supporting its information technology (IT) human capital strategy. In providing comments on a draft of this report, the Acting Commissioner agreed with the recommendation and outlined actions that IRS is planning to take to address it. IRS also provided technical comments.

What GAO Found

IRS's 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 taken steps to address GAO's prior recommendations to improve modernization management controls and capabilities, including adding a new focus area to its Modernization Vision and Strategy and defining and beginning to implement an approach for developing a quantitative measure of progress in meeting project scope expectations. However, work remains to fully implement GAO's recommendations, including steps to complete the Modernization Vision and Strategy.

GAO's observations about the expenditure plan and the BSM program include the following:

- During 2007, IRS made progress in implementing BSM projects and in meeting cost and schedule commitments for most deliverables, but three project milestones experienced significant cost and schedule delays. Specifically, reported project costs and completion dates showed that 13 of the 14 associated project milestones that were scheduled for completion during this time were completed within 10 percent of cost estimates, and 11 of the 14 milestones were delivered within 10 percent of schedule estimates. However, a milestone for the Customer Account Data Engine (the new taxpayer information database) exceeded its planned schedule by 66 percent and experienced a 15 percent cost increase; another milestone for the same project incurred a 153 percent schedule delay, and a milestone for Modernized e-File (an electronic filing system) experienced a 41 percent schedule delay.

- IRS continues to make progress in addressing high-priority BSM program improvement initiatives. This program improvement process continues to be an effective means of regularly assessing, prioritizing, and incrementally addressing BSM issues and challenges. Key focus areas for high-priority initiatives recently included IT human capital and information security.

- Efforts are under way to address human capital challenges, but more work remains. IRS developed an IT human capital strategy that addresses hiring critical personnel, employee training, leadership development, and workforce retention, and stated that it plans to undertake a number of initiatives to support this strategy. However, a specific plan with time frames for implementing the initiatives has not been developed. Such a plan would help guide IRS's efforts in addressing IT human capital goals and would be useful in measuring progress in implementing the goals.

United States Government Accountability Office

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Abbreviations

AD	Applications Development
AMS	Accounts Management Services
BSM	Business Systems Modernization
CADE	Customer Account Data Engine
EA	enterprise architecture
ELC	enterprise life cycle
F&PC	Filing and Payment Compliance
IRS	Internal Revenue Service
IT	information technology
MeF	Modernized e-File
MV&S	Modernization Vision and Strategy
OMB	Office of Management and Budget

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

March 7, 2008

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 2008 expenditure plan in August 2007 to the congressional
appropriations committees, requesting $235.8 million from the Business
Systems Modernization (BSM) account.[1] Our objectives in reviewing the
plan were to (1) determine whether the plan satisfied the conditions
specified in the law,[2] (2) determine IRS's progress in implementing our

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[1] See the *Financial Services and General Government Appropriations Act, 2008*, contained
in the *Consolidated Appropriations Act, 2008*, Pub. L. No. 110-161, div. D. title I, 121 Stat.
1844, 1972 (Dec. 26, 2007), which provides a new level of funding for BSM. (At the time of
our briefing, IRS reported that it was updating its plans to reflect this new level of funding.)

[2] BSM funds (except labor costs) are unavailable until IRS submits a modernization
expenditure plan to the congressional appropriations committees and obtains their
approval. This plan must (1) meet the Office of Management and Budget's (OMB) capital
planning and investment control review requirements; (2) comply with IRS's enterprise
architecture; (3) conform with IRS's enterprise life cycle methodology; (4) comply with
federal acquisition rules, requirements, guidelines, and systems acquisition management
practices; (5) be approved by IRS, the Department of the Treasury, and OMB; and (6) be
reviewed by GAO. IRS's fiscal year 2008 funding is provided under the *Consolidated
Appropriations Act, 2008*, div. D, title I, Pub. L. No. 110-161, 121 Stat. 1844, 1972 (Dec. 26,
2007). These conditions for BSM funding availability have been in effect for several years,
including the immediately preceding fiscal year.

prior recommendations, and (3) provide any other observations about the plan and IRS's BSM program.

On January 8, 2008, we briefed the cognizant congressional appropriations subcommittee staffs on the results of our review. This 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 included as appendix I. At the request of IRS, we have removed completion dates for project milestones planned for fiscal year 2008 from the briefing because these dates were determined before funding was approved by Congress.

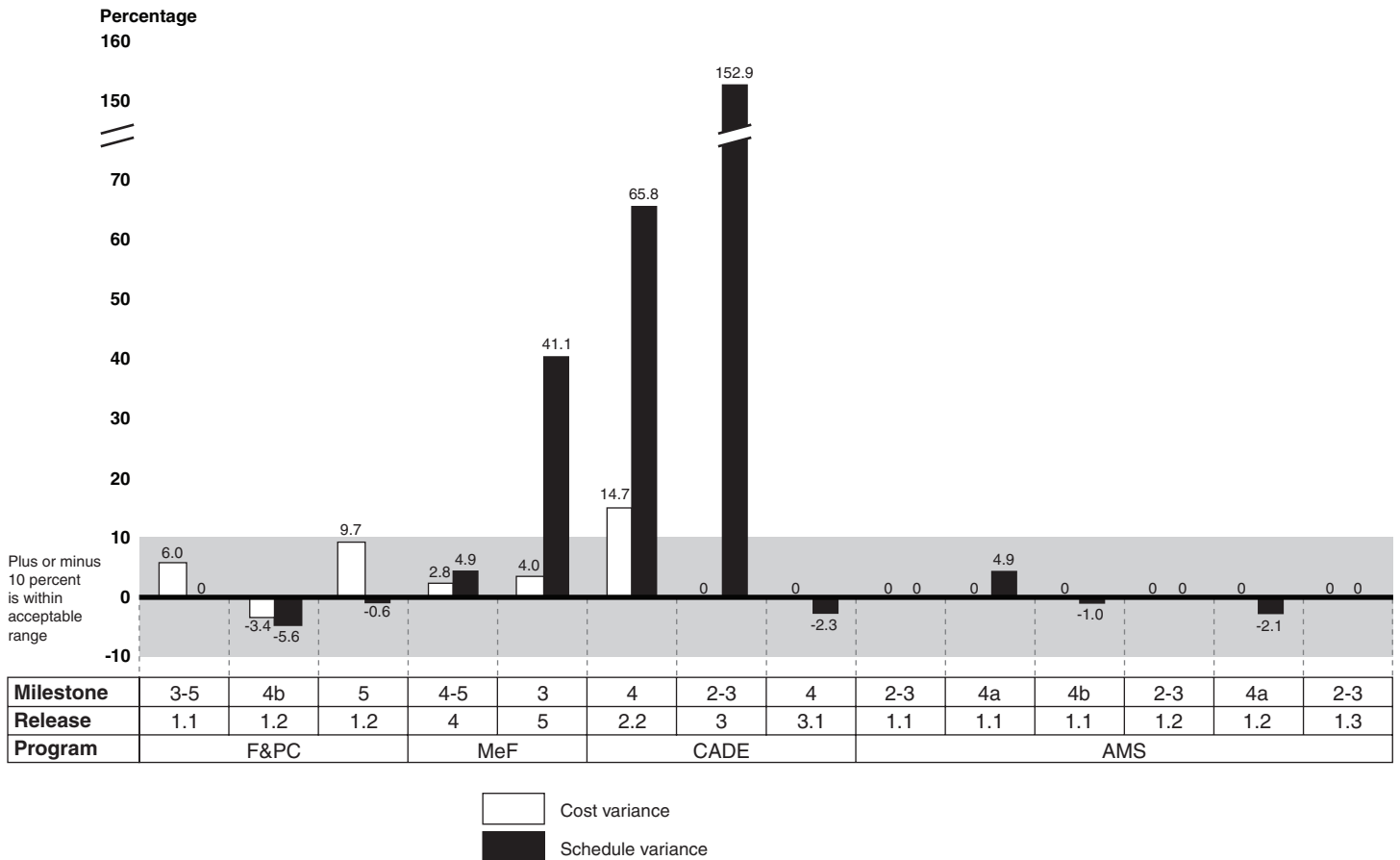In summary, we made the following major points:

- IRS's fiscal year 2008 plan satisfies each of the six legislative conditions. 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 taken steps to address our prior recommendations to improve its modernization management controls and capabilities, including adding a new focus area to its Modernization Vision and Strategy and defining and beginning to implement an approach for developing a quantitative measure of progress in meeting project scope expectations. However, work remains to fully implement our recommendations, including steps to complete the Modernization Vision and Strategy.

- IRS has made progress in implementing BSM projects and in meeting cost and schedule commitments for most deliverables, but three project milestones[3] experienced significant cost or schedule delays. During 2007, IRS completed milestones of the Filing and Payment Compliance (F&PC) (a tax collection case analysis support system), Modernized e-File (MeF) (an electronic filing system), Customer Account Data Engine (CADE) (the new taxpayer information database), and Accounts Management Services (AMS) (a system intended to provide applications for IRS employees and taxpayers to access, validate, and update

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[3]Milestones correspond to phases within IRS's enterprise life cycle (0—vision and strategy/enterprise architecture, 1—project initiation, 2—domain architecture, 3—preliminary design, 4a—detailed design, 4b—system development, 5—system deployment).

accounts on demand). Our analysis of reported project costs and completion dates showed that 13 of the 14 associated project milestones that were scheduled for completion during this time were completed within 10 percent of cost estimates, and 11 of the 14 milestones were delivered within 10 percent of schedule estimates. However, a milestone for CADE exceeded its planned schedule by 66 percent and experienced a 15 percent cost increase; another milestone for the same project incurred a 153 percent schedule delay; and a milestone for MeF experienced a 41 percent schedule delay (see fig. 1).

Figure 1: Summary of Cost and Schedule Performance for Fiscal Year 2007 Project Milestones

Percentage

Plus or minus 10 percent is within acceptable range

Milestone	3-5	4b	5	4-5	3	4	2-3	4	2-3	4a	4b	2-3	4a	2-3
Release	1.1	1.2	1.2	4	5	2.2	3	3.1	1.1	1.1	1.1	1.2	1.2	1.3
Program	F&PC			MeF		CADE			AMS					

☐ Cost variance

■ Schedule variance

Source: GAO analysis of IRS data.

- Future BSM project releases continue to face significant risks and issues, which IRS is addressing. Specifically, the agency has identified significant risks and issues with planned system deliveries of CADE and AMS and reports that maintaining alignment between the two systems will be a significant challenge and source of risk for the BSM program. IRS recognizes the potential impact of identified risks and issues on its ability to deliver projects within cost and schedule estimates and has developed mitigation strategies to address them. While mitigation strategies have been developed, the risks and challenges confronting future releases of CADE and AMS are nevertheless significant, and we will continue to monitor them and actions to address them.

- IRS continues to make progress in addressing high-priority BSM program improvement initiatives. This program improvement process continues to be an effective means of regularly assessing, prioritizing, and incrementally addressing BSM issues and challenges. In September 2007, IRS completed another cycle of initiatives and initiated a new cycle, which will be completed at the end of March 2008. Initiatives that were addressed in the 6-month cycle ending in September 2007 included information technology (IT) human capital, information security, and process improvements (e.g., developing and implementing standardized earned value management[4] practices for major projects).

- Efforts to address human capital challenges continue, but more work remains. IRS developed an IT human capital strategy that addresses hiring critical personnel, employee training, leadership development, and workforce retention, and agency officials stated that they plan to undertake a number of human capital initiatives in support of their human capital strategy, including conducting analyses of turnover rates and continuing efforts to replace key leaders lost to retirement by expanding the Succession Management Program. However, a specific plan with time frames for implementing these initiatives has not been developed. Such a plan would help guide IRS's efforts in addressing its IT human capital gaps and be useful in measuring progress in implementing them.

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[4]Earned 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 between accomplishments and expectations are measured in both cost and schedule variances.

- Security weaknesses affect IRS's modernization environment. As we reported in November 2007,[5] the agency continues to have weaknesses in its information security controls. In addition, IRS has identified security weaknesses through its high-priority initiatives program. While actions to address our report findings and the high-priority initiatives help to improve IRS's security posture, the modernization environment will continue to be at risk until the agency fully implements its security program.

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 complete a plan with specific time frames for implementing the initiatives supporting its IT human capital strategy. Such a plan would help guide IRS's efforts and measure progress in implementing them.

Agency Comments

In providing written comments on a draft of this report, the Acting Commissioner of Internal Revenue agreed with our recommendation and outlined actions that IRS is planning to take to address it. IRS also provided technical comments which we addressed, as appropriate. The Acting Commissioner's written comments are reprinted in appendix II.

We are sending copies of this report to the Chairmen and Ranking Minority Members of the Senate and House committees and subcommittees that have appropriations, authorization, and oversight responsibilities for the IRS. 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 OMB. We also will make copies available to others upon request. In addition, the report will be available at no charge on the GAO Web site at http://www.gao.gov.

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[5]GAO, *Financial Audit: IRS's Fiscal Years 2007 and 2006 Financial Statements*, GAO-08-166 (Washington, D.C.: Nov. 9, 2007). Since we briefed the congressional committees, GAO has issued a report focusing on IRS's information security program (GAO, *Information Security: IRS Needs to Address Pervasive Weaknesses*, GAO-08-211 (Washington, D.C.: Jan. 8, 2008).

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.

David A. Powner
Director, Information Technology
  Management Issues

Briefing Slides from the January 8, 2008, Briefing to the Senate and House Appropriations Subcommittee Staffs

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Review of IRS's Fiscal Year 2008 Business Systems Modernization Expenditure Plan

Briefing for the Staffs of the
Subcommittee on Financial Services and General Government
Senate Committee on Appropriations
and
Subcommittee on Financial Services and General Government
House Committee on Appropriations

January 8, 2008

This briefing has been modified to incorporate editorial changes on pages 3, 4, 13, 18, 19, 22, and 37. At the request of IRS, we have also removed completion dates for project milestones planned for fiscal year 2008 from the briefing because these dates were determined before funding was approved by Congress.

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Briefing to the Senate and House
Appropriations Subcommittee Staffs

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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 as the PRIME systems integration support 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 and internal business efficiencies for IRS.

Under the Financial Services and General Government Appropriations Act, 2008,[1] appropriations for the IRS BSM program for fiscal year 2008 are not available for obligation (except for labor costs) until IRS submits a modernization expenditure plan to the congressional appropriations committees and obtains their approval. 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.

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[1]Contained in the *Consolidated Appropriations Act, 2008*, Pub. L. No. 110-161, div. D, title I, 121 Stat. 1844, 1972 (Dec. 26, 2007).
[2]An enterprise architecture is an institutional blueprint that defines how an enterprise operates today, in both business and technology terms, and how it intends to operate in the future. An enterprise architecture also includes a road map for transitioning between these environments.
[3]IRS refers to its life cycle management program as the enterprise life cycle (ELC).

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Introduction and Objectives

Since mid-1999, IRS has submitted a series of expenditure plans requesting release of BSM-appropriated funds. To date, about $2.3 billion has been appropriated and released for BSM.

On August 13, 2007, IRS submitted its fiscal year 2008 expenditure plan to the relevant House and Senate appropriations subcommittees, seeking release of $235.8 million from the BSM account.[4]

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

- determine whether IRS's fiscal year 2008 expenditure plan satisfies the legislative conditions specified in IRS's appropriations,

- determine IRS's progress in implementing our prior expenditure plan review recommendations, and

- provide any other observations about the plan and the BSM program.

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[4]See the *Financial Services and General Government Appropriations Act, 2008*, contained in the *Consolidated Appropriations Act, 2008*, Pub. L. No. 110-161, div. D. title I, 121 Stat. 1844, 1972 (Dec. 26, 2007), which provides a new level of funding for BSM. (According to IRS, it is currently updating its plans to reflect this new level of funding.)

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Results in Brief

IRS's fiscal year 2008 plan satisfies each of the six legislative conditions.

IRS has taken steps to address our prior recommendations to improve its modernization management controls and capabilities, including adding a new focus area to its Modernization Vision and Strategy and defining and beginning to implement an approach for developing a quantitative measure of progress in meeting project scope expectations. However, steps remain to fully implement our recommendations. Until our recommendations are fully implemented, the risk that IRS's modernization program will not be managed effectively will remain and Congress may not have the information it needs to effectively assess IRS's performance in implementing BSM.

We have five observations related to the BSM program and fiscal year 2008 expenditure plan:

- *IRS has made progress in implementing BSM projects and in meeting cost and schedule commitments for most deliverables, but three project milestones[5] experienced significant cost and/or schedule delays.* During 2007, IRS completed milestones of Filing and Payment Compliance (a tax collection case analysis support system), Modernized e-File (MeF) (an electronic filing system), Customer Account Data Engine (CADE) (the new taxpayer information database), and Accounts Management Services (AMS) (a system intended to provide applications for IRS employees and taxpayers to access, validate, and update accounts on demand). Our analysis of IRS' reported project costs and completion dates showed that 13 of the 14 associated project milestones that were scheduled for completion during this time were completed within 10% of cost estimates and 11 of the 14 milestones were delivered within 10% of schedule estimates. However, a milestone for CADE exceeded its planned schedule by 66% and experienced a 15% cost increase; another milestone for the same project incurred a 153% schedule delay, and a milestone for MeF experienced a 41% schedule delay.

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[5]Milestones correspond to phases within IRS's ELC (0 – vision and strategy/enterprise architecture, 1 – project initiation, 2 – domain architecture, 3 – preliminary design, 4a – detailed design, 4b – system development, 5 – system deployment).

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Results in Brief

- *Future BSM project releases[6] continue to face significant risks and issues, which IRS is addressing.* IRS has identified significant risks and issues with planned system deliveries of CADE and AMS. For example, IRS reported that integration testing and system acceptance testing for the release of CADE intended to support taxpayer returns processing for the 2008 filing season was in jeopardy partly because of delays resulting from, among other things, defects and data errors that required correction. IRS recognizes the potential impact of identified risks and issues on its ability to deliver projects within cost and schedule estimates, and has developed mitigation strategies to address them. While IRS has developed mitigation strategies, the risks and challenges confronting future releases of CADE and AMS are nevertheless significant and we will continue to monitor them and IRS's actions to address them.

- *IRS continues to make progress in addressing high-priority BSM program improvement initiatives.* IRS's program improvement process continues to be an effective means of regularly assessing, prioritizing, and incrementally addressing BSM issues and challenges. In September 2007, IRS completed another cycle of initiatives and initiated a new cycle, which will be completed at the end of March 2008. Initiatives that are currently being addressed include standardizing the use of earned value management[7] across major projects.

- *Efforts to address human capital challenges continue, but more work remains.* IRS stated that it plans to undertake a number of human capital initiatives during fiscal year 2008 and beyond in support of its human capital strategy, including conducting analyses of turnover rates and continuing efforts to replace key leaders lost to retirement by expanding its *S*uccession Management Program. However, a specific plan with time frames for implementing these initiatives has not been developed. Such a plan would help guide IRS's efforts in addressing its information technology (IT) human capital gaps and be useful in measuring progress in implementing them.

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[6] Releases are software versions that provide a subset of the total planned project functionality. Each release goes through the ELC's milestones.

[7] Earned 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 between accomplishments and expectations are measured in both cost and schedule variances.

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Results in Brief

- *Security weaknesses affect IRS's modernization environment.* As we reported in November 2007, IRS continues to have weaknesses with its information security controls.[8] In addition, IRS has identified security weaknesses through its high priority initiatives program. While actions to address our report findings and the high priority initiatives help to improve IRS's security posture, the modernization environment will continue to be at risk until the agency fully implements its security program.

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 to complete a plan with specific time frames for implementing the initiatives supporting its human capital strategy. Such a plan would help guide IRS's efforts and measure progress in implementing them.

In e-mail comments on a draft of this briefing, the Associate Chief Information Officer for Applications Development stated that it addresses many of BSM's positive accomplishments from 2007. She also provided clarifying and technical comments that we addressed, as appropriate.

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[8]GAO, *Financial Audit: IRS's Fiscal Years 2007 and 2006 Financial Statements*, GAO-08-166 (Washington, D.C.: Nov. 9, 2007).

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Background

Since 1999, we have reviewed and reported on 14 BSM expenditure plans. In particular, we have reported on program management capabilities and controls that are critical to the effective management of the BSM program. They include:

- cost and schedule estimates: we reported that IRS did not have effective procedures for validating contractor-developed cost and schedule estimates;[9]

- contract management: we reported that IRS did not have effective processes for determining the type of task order to be awarded in acquiring modernized systems;[10]

- requirements development and management: we reported that IRS did not have adequate policies and procedures in place to guide its system modernization projects in developing and managing requirements;[11] and

- post implementation reviews: we reported that post implementation reviews conducted were incomplete and did not follow IRS procedures.[12]

In our reports, we have made recommendations aimed at strengthening IRS's program management controls and capabilities. Over the years, IRS has addressed several of these recommendations. However, more work remains for some capabilities and controls to be fully institutionalized or implemented.

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[9]GAO, *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).
[10] GAO-03-768.
[11]GAO, *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.: Mar. 20, 2006).
[12]GAO, *Business Systems Modernization: IRS's Fiscal Year 2004 Expenditure Plan,* GAO-05-46 (Washington, D.C.: Nov. 17, 2004).

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Background

IRS's Applications Development (AD) organization has primary responsibility for managing and delivering the BSM program. This group, within the Office of the Chief Information Officer, was established in 2006 and integrates Business Systems Modernization—whose primary mission was delivering IRS modernization—with the Business Systems Development Division—whose primary focus was maintaining the current production systems environment. It is headed by the Associate Chief Information Officer for Applications Development.

The AD organization includes three core competency areas:

- Domains: focus on a major functional mission area of the IRS that provides IT legacy and modernized systems in support of the business (e.g., Compliance and Customer Service).
- Matrix domains: support functions for the primary operating domains and are tasked with improving the effectiveness of AD operations (e.g., the Test, Assurance, and Documentation Office and the Program Management Office).
- Front office teams: perform administrative, human resources, and financial management functions for the entire organization (e.g., Resource Management).

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Background

IRS's fiscal year 2008 expenditure plan describes the agency's efforts to

- continue ongoing program-level initiatives (e.g., architecture and integration and program management) and core infrastructure projects (e.g., infrastructure shared services),
- fund internal management projects (i.e., common services),[13]
- continue nine tax administration project releases to their next milestones, and
- begin five new tax administration project releases.

Key tax administration projects include
- *Modernized e-File,* which is to provide a single standard for filing electronic tax returns;
- *Customer Account Data Engine,* which is intended to provide the modernized database foundation to replace the existing Individual Master File processing system that contains the repository of individual taxpayer information; and
- *Accounts Management Services,* which is intended to enhance the *Customer Account Data Engine* by providing applications for IRS employees and taxpayers to access, validate, and update accounts on demand.

Details on these and other BSM projects and program-level initiatives are provided in appendix 1.

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[13]Common Services is a new portal infrastructure that IRS plans to acquire. The infrastructure will replace the existing three vendor-hosted external portals, whose contracts expired in May 2006.

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Background

Table 1 shows a financial summary of the plan.

Table 1: Summary of IRS's Fiscal Year 2008 BSM Expenditure Plan[a]

	Amount requested (in thousands)
Tax administration projects	
Modernized e-File	$55,802
Customer Account Data Engine	58,500
Accounts Management Services	28,983
Subtotal—tax administration projects	**143,285**
Core infrastructure projects	
Development, Integration, and Testing Environments	13,167
Infrastructure Shared Services	25,983
Subtotal—core infrastructure projects	**39,150**
Architecture, integration, and management	
Architecture and integration	13,784
Business integration	4,753
Business rules	3,169
Management processes	3,549
Federally funded research and development center	6,883
Program management	2,962
Subtotal—architecture, integration, and management	**35,100**
Internal management projects	**16,000**
Management reserve	**2,310**
Total	**$235,845**

Source: IRS.

[a]See appendix II for additional details on the plan.

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Scope and Methodology

To accomplish our objectives, we

- reviewed the fiscal year 2008 expenditure plan submitted by IRS in August 2007;[14]

- analyzed the plan for compliance with the legislative conditions;

- 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 did not, however, assess the accuracy and reliability of the information reported in these briefings.

We performed our work between September and December 2007, in Washington, D.C., in accordance with generally accepted government auditing standards.

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[14]As previously noted, the *Consolidated Appropriations Act, 2008*, which was enacted on December 26, 2007, provides a new level of funding for BSM and, according to IRS, plans are currently being updated to reflect this new level.

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Results

Legislative Conditions

Objective 1: The plan satisfies the conditions applicable to IRS's fiscal year 2008 appropriations.

Table 2: Fiscal Year 2008 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 2008 expenditure plan identifies funding for managing 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. IRS also stated that it plans to conduct post implementation reviews on CADE release 2.2 in mid-fiscal year 2008 and on AMS release 1.1 at the end of fiscal year 2008. These planned actions are consistent with OMB capital planning and investment control review requirements.
2. Complies with IRS's enterprise architecture	The plan identifies funding for complying with IRS's enterprise architecture by providing for continued definition and implementation of the EA. For example, it identifies funding needed for • 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 (ELC) methodology	The plan conforms with IRS's enterprise life cycle methodology in that it calls for meeting the requirements in IRS's ELC management program. For example, the plan calls for • maintaining responsibility for coordinating, tracking, and integrating all programwide costs, schedules, releases, issues, and risks and • maintaining and enhancing the ELC. For example, according to the plan, IRS intends to update the ELC to reflect modifications to testing policies, procedures, processes, plans, and schedule due to the assumption of the integrator role.
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 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.
5. Approved by IRS, the Department of the Treasury, and OMB	• IRS—July 30, 2007 • Treasury—August 3, 2007 • OMB—August 2, 2007
6. Reviewed by GAO	• GAO—January 8, 2008, briefing to IRS's appropriations subcommittees

Source: *The Financial Services and General Government Appropriations Act, 2008*, appropriations for IRS's BSM program for fiscal years 2008-2010, as provided in the *Consolidated Appropriations Act, 2008*, Pub. L. No. 110-161, div. D, title 1, 121 Stat. 1844, 1972 (Dec. 26, 2007), and IRS's fiscal year 2008 expenditure plan submitted to Congress in August 2007.

[a]These key process areas are acquisition planning, solicitation, requirements development and management, project management, contract tracking and oversight, evaluation, and transition to support. For this condition, we did not determine whether the expenditure plan comports with the Federal Acquisition Regulation or other federal requirements beyond those encompassed by the Software Engineering Institute's Capability Maturity Model.

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Objective 2: IRS has made progress in addressing recommendations to improve its modernization management controls and capabilities, but steps remain to fully implement them.

During 2007, IRS made progress in addressing our recommendations to improve its modernization management controls and capabilities from prior expenditure plan reviews. For example, it has developed and begun to implement an approach for developing a quantitative measure of scope performance. However, steps remain to fully implement them.

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

Prior GAO recommendations	Implemented	In progress	Status as of fiscal year 2008 plan
Requirements development and management—Ensure that BSM completes the delivery of policies and procedures for requirements development and management as planned		√	See p. 15
Post implementation reviews—Perform analyses of investment data to determine whether completed projects have achieved expected benefits		√	See p. 16
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. 17
Quantitative measures of progress in scope—Ensure that future expenditure plans include a quantitative measure of progress in meeting project scope expectations		√	See pp. 18-19

Source: GAO analysis of IRS data.

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Requirements Development and Management

In March 2006, we recommended that IRS complete requirements development and management policies and procedures.[15] IRS agreed with our recommendation, and in response, developed policies, procedures, and tools for developing and managing project requirements through its Business Rules and Requirements Management office. Specifically, IRS developed (1) a standardized process for the elicitation and documentation of requirements; (2) guidance on establishing and maintaining full bidirectional requirements traceability; (3) guidance on tracking cost and schedule impacts of changes to requirements; and (4) a process for ensuring that formal peer reviews are planned and completed for key requirements. IRS stated that it started using these policies, procedures, and tools to manage requirements for several projects, including CADE and AMS, and that it plans to deploy the capabilities it has developed to a wider range of projects and also develop programwide reusable requirements during fiscal year 2008. We are currently reviewing the policies, procedures, and tools that IRS has developed to determine the extent to which they address our recommendations.

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[15]GAO-06-310.

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Post Implementation Reviews

In November 2004, we recommended that post implementation reviews of deployed BSM projects include an analysis of quantitative and qualitative investment data to determine whether expected benefits were achieved.[16] IRS agreed with our recommendation, and, in response developed a new procedure for conducting PIRs and conducted a pilot PIR which identified process improvement opportunities. IRS also recently stated that, due to fiscal year 2007 constraints and other priorities, it plans to conduct streamlined PIRs on CADE release 2.2 and AMS release 1.1 12-18 months after those releases are deployed. Specifically, for CADE release 2.2, IRS expects to conduct the PIR in mid-fiscal year 2008, and for AMS release 1.1, it expects to start the PIR at the end of the fiscal year. For other projects, IRS stated that it would conduct lessons learned activities and implement changes based on those activities. We believe that these are reasonable plans given resource constraints and other priorities and will monitor IRS's actions to implement them.

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[16]GAO-05-46.

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Modernization Vision and Strategy

In July 2005, 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.[17] We also noted that the vision and strategy should include time frames for consolidating and retiring legacy systems. IRS agreed with our recommendation, and, in response, developed an initial cycle of its Modernization Vision and Strategy (MV&S) and 5-year enterprise transition strategy in fiscal year 2006[18] to guide IT investment decisions during fiscal years 2007 through 2011. The MV&S framework was built on a functional segmentation of IRS into core mission business functions (business domains) supported by services necessary for their effective and secure execution (service domains). The Enterprise Transition Strategy described the overall IRS vision and strategy and how existing and proposed investments align to it. It also documented the scope, business challenges, current and transition architectures, redesign opportunities, strategy, proposed projects and associated release strategies, and the planned evolution (i.e., reuse, consolidation, retirement) of related key current production environment systems for each of the MV&S business domains. During 2007, IRS updated its 5-year Enterprise Transition Strategy.[19] The strategy includes security and privacy (a new service domain), planned business domains, and opportunities for retirement. IRS also developed an initial list of systems for consolidation and retirement for fiscal year 2008 but stated that it plans to develop a methodology for doing this on an annual basis. IRS also stated that it is building on the current retirement efforts by application development and efforts to address OMB's directive for a segment architecture for each business domain in 2008 for the filing payment and compliance business domain. Lessons learned from this activity are to be incorporated into the methodology for retiring and consolidating systems. While these actions are positive steps, actions remain for IRS to fully address our recommendation, including developing long-term plans for completing BSM and finalizing and implementing the methodology for consolidating and retiring legacy systems.

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[17]GAO, *Business Systems Modernization: Internal Revenue Service's Fiscal Year 2005 Expenditure Plan,* GAO-05-774 (Washington, D.C., July 22, 2005).
[18]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.
[19]IRS, *Enterprise Transition Plan: Enterprise Transition Strategy and Enterprise-Wide Sequencing Plan*, version 3.1 (Washington, D.C: Sept. 28, 2007).

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Quantitative Measure of Progress in Meeting Scope Expectations

In February 2007, we recommended that IRS ensure that future expenditure plans include a quantitative measure of progress in meeting scope expectations.[20] We also recommended that, in developing this measure, IRS consider using earned value management[21] since this is a proven technique required by OMB for measuring cost, schedule, and functional performance (i.e., scope of work) against plans. While IRS agreed with our recommendation to develop a quantitative measure of progress in meeting scope expectations, it has stated that it does not believe earned value management would provide this measure, given the manner in which the technique is being used at the agency.[22] Instead, IRS has developed an incremental approach to address our recommendation. Specifically, as an initial step, it has proposed a more detailed qualitative measure than previously used that would consist in showing the difference between a project release's planned and delivered capabilities. This was implemented in the fiscal year 2008 expenditure plan. As a next step, IRS stated that it plans to leverage its requirements management tools to assign quantitative values to the capabilities. IRS intends to implement this approach for the fiscal year 2009 expenditure plan. While these are steps in the right direction, until IRS fully implements them, Congress may not have the information it needs to effectively assess IRS's performance in implementing BSM. For the long-

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[20] GAO, *Business Systems Modernization: Internal Revenue Service's Fiscal Year 2007 Expenditure Plan,* GAO-07-247 (Washington, D.C., Feb. 15, 2007).

[21] Earned 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 between accomplishments and expectations are measured in both cost and schedule variances.

[22] According to the Associate Chief Information Officer for Applications Development, IRS uses earned value management to measure progress in completing ELC deliverables, not in delivering functionality, and consequently the agency's application of earned value management does not provide a quantitative measure of progress in meeting scope expectations.

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term, IRS should consider using earned value management to measure progress in meeting scope expectations as required by OMB policy as this is a proven technique for doing so.

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

Observation 1: IRS made additional progress in implementing BSM projects and in meeting cost and schedule commitments for most deliverables, but three project milestones experienced significant cost and/ or schedule delays.

During 2007, IRS completed releases and milestones of its modernized systems that have provided benefits to the taxpayers and the agency. For example, according to IRS,

- Release 1.1 of F&PC provides IRS with an automated standalone system used to analyze tax collection cases and route selected cases to private collection agencies and then tracks their success in resolving the cases.

- Release 1.2 of F&PC was completed and became the first modernized application to use the enterprise application integration broker[23] for integration with the legacy systems in support of assigning cases to private collection agencies. This release fully implemented inventory management capabilities using the IRS infrastructure and during fiscal year 2007, according to IRS officials, gross revenue received as a result of the Private Debt Collection program amounted to approximately $31 million.

- Release 4 of MeF allows the processing of Form 1065 (U.S. Return of Partnership Income), 1065-B (U.S. Return of Income for Electing Large Partnerships) and associated forms and schedules for tax year 2006 submissions.

- Release 1.2 of AMS includes a new inventory and workflow that automates the assignment, research, resolution, and closure for internally generated cases currently worked in a paper-based manual process.

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[23]The enterprise application integration broker is a commercial off-the-shelf platform that provides the infrastructure for integration between the current production environment and modernization platforms.

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- Release 1.3 of AMS provides for the migration of current platform and software products to the enterprise architecture standard products.

IRS continued to make progress in meeting cost and schedule commitments for completing project milestones during 2007, but 3 of the 14 project milestones that were scheduled to be completed experienced significant cost and/or schedule delays. Specifically, our analysis of IRS's reported project costs and completion dates shows that 13 of the 14 associated project milestones that were scheduled for completion during this time were completed within 10% of cost estimates and 11 of the 14 milestones were delivered within 10% of schedule estimates. However, a milestone for CADE release 2.2 exceeded its planned schedule by 66% and experienced a15% cost increase; a milestone for MeF release 5 experienced a 41% schedule delay; and a milestone for CADE release 3 incurred a 153% schedule delay. Figure 1 shows the cost and schedule variances of the project milestones that were scheduled to be delivered during fiscal year 2007.

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Figure 1: Summary of Cost and Schedule Performance for Fiscal Year 2007 Project Milestones

Percentage

Milestone	3-5	4b	5	4-5	3	4	2-3	4	2-3	4a	4b	2-3	4a	2-3
Release	1.1	1.2	1.2	4	5	2.2	3	3.1	1.1	1.1	1.1	1.2	1.2	1.3
Program	F&PC			MeF		CADE			AMS					

Plus or minus 10 percent is within acceptable range

Values shown: 6.0, 0, -3.4, -5.6, 9.7, -0.6, 2.8, 4.9, 4.0, 41.1, 14.7, 65.8, 0, 152.9, 0, -2.3, 0, 0, 0, 4.9, 0, -1.0, 0, 0, 0, -2.1, 0, 0

☐ Cost variance
■ Schedule variance

Source: GAO analysis of IRS data.

Note: Variances for projects through milestone 3 are based on rough order of magnitude estimates. Post-milestone 3 variances are based on more specific estimates.

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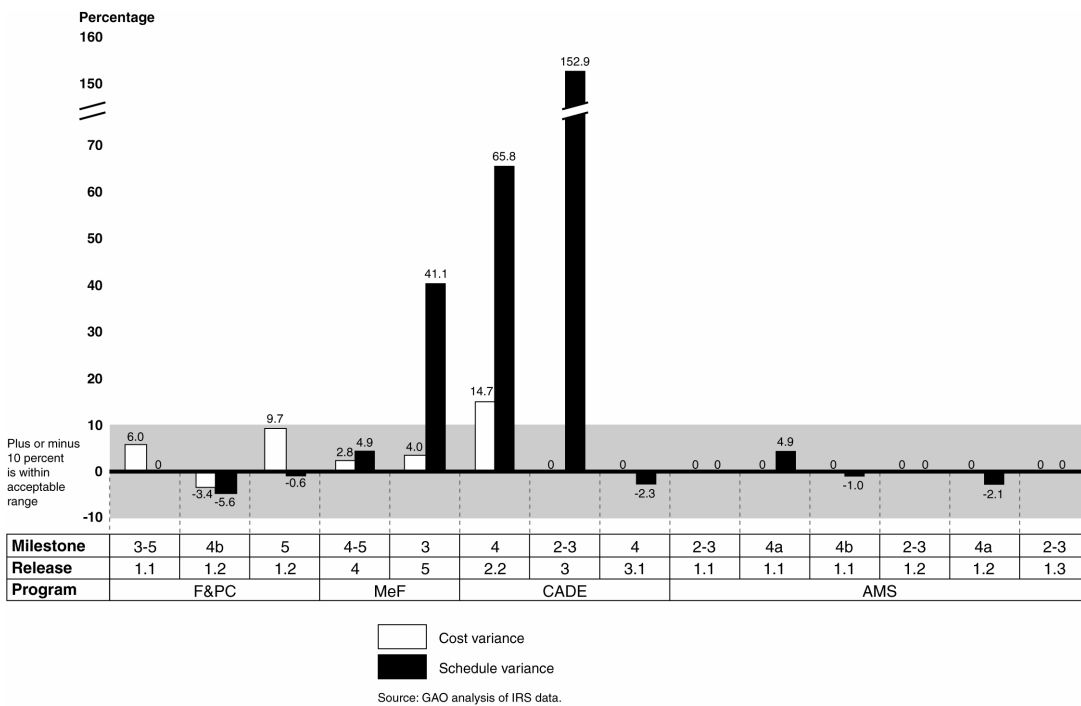
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Following are details on the project milestones that experienced significant cost and/or schedule delays:

- **CADE:** Release 2.2 of CADE began supporting the 2007 filing season in March but completed milestone 4 (development) 123 days behind schedule. This delay amounted to a 66% increase over the planned schedule for completing milestone 4 and was accompanied by a final cost that was 15% greater than budgeted. According to IRS, the overrun was caused by the complexity of the requirements, which extended the requirements elicitation process and delayed the physical design phase and resulted in delays through the rest of the development life cycle. The delay in full implementation impacted the number of returns that could be processed through the speedier CADE system. IRS had originally intended CADE to post 33 million taxpayer returns during the 2007 filing season (more than four times the estimated 7.4 million posted by CADE during 2006), but as of September, the system had posted only about 11.2 million returns.

  The demand on available resources to complete release 2.2 also impacted the planned schedule for subsequent releases of CADE. As a result, milestone 3 of release 3 of CADE was completed 214 days behind schedule.

- **MeF:** Milestone 3 of release 5 of MeF was completed 30 days behind schedule.[24] According to IRS, this was due primarily to delays in getting started that occurred early in the design phase and IRS is currently indicating no change in the projected completion date for milestones 4 and 5. Details on the cost and schedule status of project releases as reported by IRS are in appendix III.

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[24]The original schedule for completing this design phase is a "rough order of magnitude" estimate based on preliminary project plans.

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Observation 2: Future BSM project releases continue to face significant risks and issues, which IRS is addressing.

IRS has reported that challenges and risks continue to confront future planned project releases. For example:

CADE: The August 2007 results of an independent assessment IRS commissioned to examine its plans for completing the core functionality of the release of CADE intended to support taxpayer returns processing starting in January 2008 (release 3.2) noted the following concerns:

- the potential lack of resource availability with parallel testing activities;
- the insufficient use of project management and control artifacts to help identify where schedule risk exists and facilitate predicting the outcome; and
- the lack of a detailed, executable contingency plan in the event significant difficulty is encountered in delivering the release.

In addition, as of September, IRS reported that integration testing for the first build[25] was in jeopardy due to delays resulting in part from defects and data errors that required correction. Systems acceptance testing for data conversion was also in jeopardy.

Future releases of AMS: IRS reports that future releases of AMS are expected to increase in complexity. According to IRS, maintaining alignment between the CADE and AMS programs will also be a significant challenge and source of risk for the BSM program, and will require careful monitoring and management of both programs.

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. For example, to address the risks and issues confronting CADE release 3.2, IRS developed a task network for use

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[25] Current plans call for CADE release 3.2 to be deployed in a series of four builds.

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in managing risk and also began working with the PRIME contractor to develop detailed contingency plans in the event that delivery of this release becomes seriously threatened. Status meetings are also held weekly to ensure early visibility of potential problems and to optimize the opportunity to devise and implement effective mitigating strategies. "Tiger teams" were also established to help minimize schedule delays in both these areas. The independent assessment of CADE release 3.2 noted that, as a result of the mitigation steps being taken, there was no reason to shift directions for the release, and IRS officials stated that they expect to deploy the release on time for the filing season. To address the challenge of maintaining alignment between CADE and AMS releases, IRS developed a release content master plan that defines the relationship between releases of CADE and AMS. According to IRS, several factors, stemming largely from the delay in deployment of CADE release 2.2, have led to a need to modify the plan. During our review, IRS told us that this plan would be updated by November 2007. However, as of December, officials reported that it was still undergoing review.

While IRS has developed mitigation strategies, the risks and challenges facing future releases of CADE and AMS are nevertheless significant and we will continue to monitor them and IRS's actions to address them.

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Observation 3: IRS continues to make progress in addressing high-priority BSM program improvement initiatives.

IRS's high-priority program improvement initiatives process[26] continues to be an effective means of regularly assessing, prioritizing, and incrementally addressing BSM issues and challenges. In September 2007, IRS completed another cycle of high priority initiatives and is currently working on a cycle that is scheduled to be completed by the end of March 2008. The key focus areas for the most recent cycle included:

- *human capital improvements* (developing succession and staffing plans across organizational levels and reducing the hiring gap),
- *security improvements* (updating the ELC to embed security processes, procedures, and tools throughout the entire life cycle), and
- *process improvements* (developing and implementing standardized earned value management practices for all major applications development projects).

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[26]In August 2004, the Associate Chief Information Officer initiated an incremental approach to assess, prioritize, and address the highest priority initiatives from the program improvement framework in 6-month cycles. These initiatives are derived from corrective actions recommended by GAO and the Treasury Inspector General for Tax Administration for improving modernization management controls and processes.

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Observation 4: Efforts are under way to address human capital challenges, but more work remains.

In March 2007, IRS developed the Applications Development Strategic Plan 2007-2011[27] to establish a road map to ensure that applications development decisions are focused on delivering the mission in a manner consistent with the organization's vision. This document includes a human capital strategy that addresses hiring critical personnel, employee training, leadership development, and workforce retention.

To support this strategy, IRS undertook high priority initiatives, including convening a tiger team to identify challenges to the hiring process and establishing the Executive Hiring Council to coordinate recruitment actions and strategies to address the hiring gap for the Modernization Information Technology Services organization. In addition, IRS stated that during fiscal year 2008, it plans to conduct analyses of turnover rates, use a cost index model to determine the cost and drivers of turnover, and increase the hiring base for mission critical positions through automation, simplification of the application process, and the use of hiring incentives and continue its efforts to quickly replace key leaders lost to retirement by expanding its Succession Management Program and expanding use of its Leadership Succession Review tool to levels below senior executive.

While IRS has identified these initiatives, it has not developed a specific plan, including time frames for addressing them across the AD organization. During our review, officials told us that such a plan would be completed by the end of fiscal year 2007. However, it was not completed by that date, and IRS has not specified a new completion date. Until IRS develops a plan for addressing its various human capital initiatives, it may be challenged in having the staff resources it needs to effectively support BSM.

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[27]IRS, *Applications Development Strategic Plan 2007-2011, Version 1.0,* (Washington, D.C.: Mar. 30, 2007).

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Observation 5: Security weaknesses affect IRS's modernization environment.

IRS has security weaknesses affecting its modernization environment. Specifically, in November 2007, we reported that IRS continued to have weaknesses with its information security controls.[28, 29] For example, we noted that there were significant control weaknesses that allowed unauthorized users to access sensitive information, including user IDs, passwords, and software code for mission critical applications without having to login to the network. We identified a key reason for the presence of these and other weaknesses as the lack of a fully implemented security program.

In written comments on a draft of our report, IRS's Deputy Commissioner agreed that our report fairly represented IRS's challenges and noted actions it has taken to address the issues we identified including establishing the Office of Privacy, Information Protection, and Data Security to provide direction and oversight of the security and protection of sensitive information; developing an integrated IT security schedule and plan and a comprehensive IRS security strategy; and encrypting all laptop data and tapes used in electronic data exchange, and implementing an enterprise anti-virus Internet gateway solution to detect and quarantine malicious content from invading systems.

IRS has also identified security weaknesses through its high priority initiatives program, and, to its credit, it is working to address them. For example, through this program, IRS recently updated its enterprise life cycle methodology to incorporate processes, procedures, and tools into the early stages of the enterprise life cycle.[30] Through its high priority initiatives program, IRS is also addressing these three additional security practices across the enterprise life cycle:

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[28]GAO-08-166.
[29]Because testing these controls involved assessing the enterprisewide information security program, our findings for IRS's financial reporting system also apply to IRS's modernization environment.
[30]This high priority initiative was closed in September 2007.

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- Implementing the first phase of a comprehensive audit trails program. This effort will establish program-level requirements and create release plans that apply to enterprise audit trail capture, storage, and management for all IRS Federal Information Security Management Act systems.

- Realigning the Modernization Information Technology Services General Support Systems boundaries to improve security accountability and ensure that acceptable levels of security are maintained.

- Establishing an enterprisewide strategy and phased implementation plan to automate security posture monitoring for major systems and network platforms. Develop security posture monitoring plans that address the compliance of security configurations, vulnerability management, and patch management.

While actions to address our report findings and the high priority initiatives help to improve its security posture, IRS's modernization environment will continue to be at risk until the agency fully implements its security program.

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Conclusions

During 2007, IRS continued to make progress in delivering BSM projects that provided benefits to both taxpayers and the agency. IRS also continued to improve its management capabilities and controls by, among other things, taking steps to address our recommendations from prior expenditure plan reviews and addressing its high priority initiatives. These actions will likely result in more effective management of BSM and help mitigate the risks inherent in managing such a large and complex program. However, IRS is still facing significant challenges in consistently meeting its cost and schedule commitments, managing project-specific risks, addressing high priority initiatives, and securing its many systems. In addition, it has not yet fully implemented recommendations we have made. To bolster its human capital efforts, IRS has developed a strategy to address hiring critical personnel, employee training, leadership development, and workforce retention. However, a specific plan with time frames for implementing initiatives supporting this strategy has not yet been developed.

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Recommendation for Executive Action

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 to complete a plan with specific time frames for implementing the initiatives supporting its human capital strategy. Such a plan would help guide IRS's efforts and measure progress in implementing them.

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Agency Comments

In e-mail comments on a draft of this briefing, the Associate Chief Information Officer for Applications Development stated that it addresses many of BSM's positive accomplishments from 2007. She also provided clarifying and technical comments that we addressed, as appropriate.

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Description of BSM Projects and Program-level Initiatives

Proposed modernization initiative	Description
Tax administration projects	
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	Is to build the modernized database foundation to replace the existing Individual Master File processing system that contains the repository of individual taxpayer information.
Accounts Management Services	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 the Customer Account Data Engine and legacy systems. Accounts Management Services is to enhance the Customer Account Data Engine by providing applications for IRS employees and taxpayers to access, validate, and update accounts on demand.
Internal management projects	
Common Services	Is to provide a new portal infrastructure. The infrastructure will replace the existing three vendor-hosted external portals, whose contracts expired in May 2006.
Core infrastructure projects	
Development, Integration, and 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 and (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 IT infrastructure to include hardware, software, shared applications, data, telecommunications, security, and an enterprise approach to systems and operations management.

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Description of BSM Projects and Program-level Initiatives

Proposed modernization initiative	Description
Architecture, integration, and management	
Architecture and 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 enterprise life cycle maintenance and enhancements.
Federally funded research and development center	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 PRIME contract and associated task orders.

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Additional Detail on IRS's Fiscal Year 2008 BSM Expenditure Plan

Proposed modernization initiative	Release[a]	Milestone[b]	Amount requested (in thousands)
Tax administration projects			
Modernized e-File (MeF)	6	3	$7,000
MeF	6	4a-5	39,802
MeF	7	3	9,000
Subtotal—MeF project			**55,802**
Customer Account Data Engine (CADE)	4.1	4	22,410
CADE	4.2	4	20,265
CADE	5	2,3	4,025
CADE	operations and maintenance		8,580
CADE	project management and transition management		3,220
Subtotal—CADE project			**58,500**
Accounts Management Services (AMS)	1.3	4b	3,747
AMS	1.3	5	1,006
AMS	2.1	4a	2,522
AMS	2.1	4b	4,402
AMS	2.1	5	1,097
AMS	2.2	2,3	2,952
AMS	2.2	4a	2,590
AMS	2.2	4b	4,228
AMS	3.1	2	3,376
AMS	3.1	3	3,063
Subtotal—AMS project			**28,983**
Subtotal—tax administration projects			**143,285**
Internal management projects			
Common Services	1	4b	$5,500
Common Services	project management		5,600
Common Services	operations and maintenance		4,900
Subtotal—internal management projects			**16,000**

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Additional Detail on IRS's Fiscal Year 2008 BSM Expenditure Plan

Core infrastructure projects			
Development, integration, and testing environments		FY 08[c]	13,167
Infrastructure Shared Services		FY 08[c]	25,983
Subtotal—core infrastructure projects			**39,150**
Architecture, integration, and management			
Architecture and integration		FY 08[c]	$13,784
Business integration		FY 08[c]	4,753
Business rules		FY 08[c]	3,169
Management processes		FY 08[c]	3,549
Federally funded research and development center		FY 08[c]	6,883
Program management		FY 08[c]	2,962
Subtotal—architecture, integration, and management			**35,100**
Management reserve[d]			**2,310**
Total fiscal year 2008 BSM program			**$235,845**

Source: IRS.

[a]Releases are software versions that provide a subset of the total planned project functionality.

[b]Milestones correspond to phases within IRS's enterprise life cycle (0 – vision and strategy/enterprise architecture, 1 – project initiation, 2 – domain architecture, 3 – preliminary design, 4a – detailed design, 4b – system development, 5 – system deployment).

[c]Core infrastructure projects and management initiatives are funded on a fiscal year basis rather than by milestone.

[d]If the fiscal year 2008 BSM request is approved, $4.2 million from MeF release 6, milestone 2-3 will transfer to management reserve and the balance will be reprogrammed.

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Appendix III

IRS Reported Cost/ Schedule for Projects Scheduled for Completion in Fiscal Year 2007

This table shows the projects completed in fiscal year 2007. The highlighted rows indicate project segments where actual reported costs and/or schedules differ from planned by more than 10%.

Note: Variances for projects through milestone 3 are based on rough order of magnitude estimates. Post-milestone 3 variances are based on more specific estimates.

Project segment	Estimated completion date and funding (in thousands)	Milestone exit and cost (in thousands)	Change (%)	IRS explanation of change
Filing and Payment Compliance (F&PC) release 1.1 milestone 3-5	1/31/07 $8,100	1/31/07 $8,584	$484 (6.0%)	Cost variance of $484,000 allocated from management reserve to replenish continuing resolution funds used to pay for partial production extension; provides approximately 3 full time equivalent staff to continue configuration management support, test private collection agency interfaces, support production data conversion, and conduct acceptability test and safety compliance reviews.
F&PC release 1.2 milestone 4b	1/31/07 $10,000	1/19/07 $9,660	-8 days (-5.6%) -$340 (-3.4%)	Able to exit milestone 7 days early. Realigned $340,000 in excess funds from this milestone to release 1.2 milestone 5 of the project, as shown in next row.
F&PC release 1.2 milestone 5	9/30/07 $3,500	9/27/07 $3,840	-1 day (-0.6 %) +$340 (9.7%)	Able to exit milestone 1 day early. Realigned $340,000 in excess funds from release 1.2 milestone 4b to release 1.2 milestone 5 of the F&PC project.
Modernized e-File (MeF) release 4 milestone 4-5	3/31/07 $ 26,900	4/24/07 $ 27,650	16 days (+4.9%) + $ 750 (2.8%)	Modernized e-File release 4 supports unplanned hardware requirements. Also the milestone 5 exit decision was delayed to coincide with the next regularly scheduled Submission Processing Executive Steering Committee meeting.

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Appendix III

IRS Reported Cost/ Schedule for Projects Scheduled for Completion in Fiscal Year 2007

Project segment	Estimated completion date and funding (in thousands)	Milestone exit and cost (in thousands)	Change (%)	IRS explanation of change
MeF release 5 milestone 3	1/19/07 $ 5,000	3/05/07 $ 5,200	30 days (+41.1%) + $ 200 (4.0%)	Time required to achieve scope and funding approval delayed the ability to start contracting actions as previously planned. Additional funds required to implement ePostcard as mandated.
Customer Account Data Engine (CADE) release 2.2 milestone 4	12/31/06 $25,720	6/27/07 $29,497	123 days (65.8%) +$3,777 (14.7%)	Milestone 4 delayed due to delays in development and testing. Deployed in three builds. Most functions delivered on 5/6/07 but formal exit from milestone 4 on 6/27/07. Funding was transferred from release 1.3.2 to support acquiring additional disk space. Funds transferred from FY05/06/07 risk adjustment to support deployment.
CADE release 3 milestone 3	11/20/06 $16,373	9/26/07 $16,373	214 days (152.9%)	Milestone 3 was behind schedule due to the delay in CADE release 2.2 milestone 4. Specifically, release 3 experienced resource contention with release 2.2 and the changes in 2.2 resulted in the need to adjust the scope of the subsequent release.
CADE release 3.1 milestone 4	12/01/07 $19,000	11/20/07 $19,000	-7 days (-2.3%)	CADE release 3.1 was originally scheduled to exit milestone 4 on 8/31/07. Upon completion of milestone 3 the planned completion date was revised to 12/01/07. Actual completion occurred 7 days earlier on 11/20/07.
Accounts Management Services (AMS) release 1.1 milestone 2-3	1/31/07 $ 4,011	1/31/07 $ 4,011		
AMS release 1.1 milestone 4a	4/30/07 $1,421	5/03/07 $ 1,421	3 days (4.9%)	Variance is a result of the timing of the Executive Steering Committee meeting in which the milestone exit was presented.

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Project segment	Estimated completion date and funding (in thousands)	Milestone exit and cost (in thousands)	Change (%)	IRS explanation of change
AMS release 1.1 milestone 4b	9/27/07 $2,007	9/26/07 $ 2,007	-1 day (-1.0%)	Able to exit this milestone one day early.
AMS release 1.2 milestone 2-3	3/13/07 $ 3,489	3/13/07 $ 3,489		
AMS release 1.2 milestone 4a	7/26/07 $ 1,793	7/24/07 $ 1,793	-2 days (-2.1%)	Able to exit milestone 2 days early.
AMS release 1.3 milestone 2-3	7/24/07 $ 2,596	7/24/07 $ 2,596		

Source: GAO analysis of IRS data.

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Comments from the Internal Revenue Service

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

COMMISSIONER

February 22, 2008

Mr. David Powner
Director, Information Security Issues
U.S. General Accountability Office
441 G Street, NW
Washington, DC 20548

Dear Mr. Powner:

I have reviewed the Government Accountability Office (GAO) draft report titled "Business Systems Modernization (BSM): Internal Revenue Service's Fiscal Year 2008 Expenditure Plan," GAO-08-420 (Job Code No. 310871). We continue to appreciate the sound and balanced work of the GAO and are pleased that the GAO:

- Confirmed that our fiscal year 2008 expenditure plan satisfies the conditions specified in the law that 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 we have taken steps to address the GAO's prior recommendations to improve modernization management controls and capabilities that include adding a new focus area to our Modernization Vision and Strategy and defining an approach for developing a quantitative measure of progress in meeting project scope expectations, which we have begun implementing;

- Acknowledged our progress in implementing BSM projects and in meeting cost and schedule commitments for most deliverables;

- Validated our continued progress in addressing high-priority BSM program improvement initiatives and that our high-priority improvement initiatives continue to be an effective means of assessing, prioritizing, and incrementally addressing BSM issues and challenges; and

- Reported our current efforts to address human capital challenges such as the development of an IT human capital strategy that addresses hiring critical personnel, employee training, leadership development, and workforce retention.
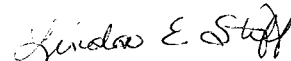
We agree with your report's recommendation as described in the enclosure, that we need to develop specific time frames for implementing our human capital initiatives and have begun that process. In FY 2007, the ACIO, Applications Development (AD), identified workforce retention and development as one of our most significant challenges. The ACIO, AD, developed a strategy to address this challenge and has taken aggressive steps to define the gaps and to minimize the impact.

We appreciate your continued support and the assistance and guidance from your staff. If you have any questions, or if you would like to discuss our response in more detail, please contact me or call Arthur L. Gonzalez, Chief Information Officer, at (202) 622-6800.

Sincerely,

Linda E. Stiff
Acting Commissioner of Internal Revenue

Enclosure

Enclosure

Draft Report – Business Systems Modernization Internal Revenue Service's Fiscal Year 2008 Expenditure Plan (Audit #310871, GAO-08-420)

RECOMMENDATION #1: 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 complete a plan with specific time frames for implementing the initiatives supporting its IT human capital strategy. Such a plan would help guide IRS's efforts and measure progress in implementing them.

CORRECTIVE ACTION: We agree with this recommendation. In FY 2007, the ACIO, Applications Development (AD), identified workforce retention and development as one of our most significant challenges. The ACIO, AD, developed a strategy to address this challenge and has taken aggressive steps to define the gaps and to minimize the impact.

The ACIO, Management, will coordinate with the ACIO, AD, to refine our Human Resources plan to include specific timeframes for implementing the human capital initiatives.

IMPLEMENTATION DATE: October 1, 2008

RESPONSIBLE OFFICIAL: ACIO, Management

CORRECTIVE ACTION MONITORING PLAN: We will monitor this corrective action as part of our internal management control system. We will enter accepted corrective actions into the Joint Audit Management Enterprise System (JAMES) and monitor them monthly until completion.

GAO Contact and Staff Acknowledgments

GAO Contact

David A. Powner, (202) 512-9286, or pownerd@gao.gov

Staff Acknowledgments

In addition to the individual named above, Sabine R. Paul, Assistant Director; Neil Doherty; Nancy Glover; Sairah R. Ijaz; Rebecca LaPaze; and Paul B. Middleton made key contributions to this report.