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Report to Congressional Committees

May 2000

TAX SYSTEMS MODERNIZATION

Results of Review of IRS' March 7, 2000, Expenditure Plan

GAO

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Accounting and Information
Management Division

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The Honorable Ben Nighthorse Campbell
Chairman
The Honorable Byron L. Dorgan
Ranking Minority Member
Subcommittee on Treasury and
General Government
Committee on Appropriations
United States Senate

The Honorable Jim Kolbe
Chairman
The Honorable Steny H. Hoyer
Ranking Minority Member
Subcommittee on Treasury,
Postal Service, and General Government
Committee on Appropriations
House of Representatives

For over a decade, the Internal Revenue Service (IRS) has aimed to improve service to our nation's taxpayers by attempting to modernize its antiquated tax processing systems that IRS deems "fundamentally deficient." However, this program to modernize systems has been plagued by management and technical weaknesses that jeopardize its success. To correct these weaknesses, replace the systems, and ultimately improve service to the taxpayers, IRS requested, and the Congress established, a $506 million Information Technology Investments Account (ITIA) via the Department of the Treasury's fiscal year 1998 and 1999 appropriations acts.[1] The acts limit the obligation of ITIA funds until IRS submits to the Congress for approval, an expenditure plan that (1) implements the IRS

[1]The fiscal year 1998 Treasury and General Government Appropriations Act (Public Law 105-61) and the fiscal year 1999 Omnibus Consolidated and Emergency Supplemental Appropriations Act (Public Law 105-277).

Modernization Blueprint,[2] (2) meets Office of Management and Budget (OMB) investment guidelines for information systems, (3) is reviewed and approved by IRS' Investment Review Board,[3] OMB, and Treasury's IRS Management Board, and is reviewed by GAO, (4) meets the requirements of IRS' system life cycle management program,[4] and (5) complies with acquisition rules, requirements, guidelines, and system acquisition management practices of the federal government. These legislative conditions are consistent with systems modernization recommendations we have made to IRS but that IRS has not yet fully implemented.

Pursuant to the appropriation acts, this report provides the results of our review of IRS' second expenditure plan—entitled March 7, 2000, Information Technology Investment Account (ITIA) Spending Plan—that includes reporting on IRS progress against commitments made in its first expenditure plan submitted in May 1999. As agreed with your offices, we reviewed IRS' second plan to determine (1) what progress IRS has made in meeting the commitments in its first expenditure plan, (2) whether the plan satisfies the conditions specified in Treasury's fiscal year 1998 and 1999 appropriations acts, (3) whether the plan is consistent with our open recommendations on IRS' systems modernization, and (4) whether we have any other observations about IRS' systems modernization efforts. We briefed your respective offices on the results of our review on March 31, 2000, and, as agreed with your offices, are issuing this report on those results after finalizing our analysis. Prior to briefing your offices, we also briefed IRS on our results and incorporated their comments where

[2]In the conference report accompanying the fiscal year 1997 Omnibus Appropriations Act (Public Law 104-208), the Congress directed Treasury and IRS to develop a modernization blueprint. IRS submitted the IRS Modernization Blueprint to the Congress on May 15, 1997. It consisted of four principal components: (1) a systems life cycle, which defines the policies, processes, and products for managing information technology investments from conception, development, and deployment through maintenance and support, (2) business requirements, (3) functional and technical architectures, which define the critical attributes of an agency's collection of information systems in both business/functional and technical/physical terms, and (4) a sequencing plan that defines the actions that must be taken and their schedules and costs to cost effectively evolve from the current to the future systems operating environment.

[3]According to IRS, the Investment Review Board has been replaced by the Core Business Systems Executive Steering Committee, which is chaired by IRS' Commissioner.

[4]This program includes the policies, processes, and products for managing information technology investments from conception, development, and deployment through maintenance and support.

appropriate. IRS also provided us with oral comments on a draft of this report, which are in the “Agency Comments” section.

We performed our work from January through May 2000 in accordance with generally accepted government auditing standards. (See appendix I for details on our scope and methodology.)

Results in Brief

IRS met relatively few commitments in its $35 million first ITIA expenditure plan, even though the Service later received an additional $33 million and nearly 5 months of extra time to accomplish the goals set forth in the first plan. For example, the first plan stated that the systems life cycle management methodology, known as the Enterprise Life Cycle (ELC), was to be developed and implemented by October 31, 1999, at a cost of $8.22 million.[5] As of the end of February 2000 and after investing about $9 million, the ELC had not yet been fully defined, staff had not yet been trained on its use, and it was not being followed on most projects.

Notwithstanding IRS’ progress to date, we believe that its second expenditure plan satisfies the legislative conditions placed on the use of ITIA funds, and it is generally consistent with recommendations contained in our earlier reports[6] for strengthening its modernization management capability before building new systems. In particular, the second expenditure plan places appropriate emphasis and priority on implementing and updating the modernization blueprint (i.e., enterprise architecture and sequencing plan) in light of recent organizational restructuring and ongoing business process reengineering as well as technology advances. Also, the plan provides for fully implementing the ELC and related software acquisition and investment management processes and slowing investments in new systems until these management controls are established.

As was the case with the first plan, the key to IRS’ success will be whether it effectively implements the second expenditure plan. To improve on its

[5]See the background section of this report for a simplified diagram describing the major ELC phases and milestones.

[6]For example, see *Tax Systems Modernization: Blueprint Is a Good Start But Not Yet Sufficiently Complete to Build or Acquire Systems* (GAO/AIMD/GGD-98-54, February 24, 1998) and *Tax Systems Modernization: Management and Technical Weaknesses Must Be Corrected If Modernization Is to Succeed* (GAO/AIMD-95-156, July 26, 1995).

performance in implementing the first plan and to establish the much needed management and technical foundation for modernizing its systems, IRS will need to adhere to its stated commitment of first establishing the institutional management and technical processes and the architecture artifacts that are absolute prerequisites to building a portfolio of interrelated systems that deliver promised functionality and performance on time and within budget.

To establish its modernization management and technical foundation capabilities and refrain from building systems until it does so, IRS has recently initiated actions, as described in the second expenditure plan, to redirect and restructure its modernization effort. Until it has completed these actions, it will continue to lack key modernization and technical controls, such as a complete and enforced architecture, fully implemented life cycle methodology, clearly defined contractor roles and responsibilities, and fully implemented investment management controls. Therefore, we reiterate our long-standing recommendations to the Commissioner of Internal Revenue for correcting the above-noted weaknesses and limiting IRS' investments in new systems until they are corrected. In commenting on a draft of this report, IRS concurred with our findings and conclusions and said that the initiatives in the second expenditure plan are intended to address the identified management and technical weaknesses.

Background

Over a decade ago, IRS began its systems modernization program, then called Tax Systems Modernization (TSM), to establish a virtually paper-free tax processing environment where taxpayer information would be readily available to IRS employees for updating taxpayer accounts and responding to taxpayer inquiries. In 1995, we identified serious management and technical weaknesses with TSM that jeopardized its successful completion.[7] Accordingly, we made over a dozen recommendations to fix the problems, such as formulating a comprehensive business strategy, establishing information technology (IT) investment management processes, and completing and enforcing an integrated enterprise architecture. In addition, because of the seriousness of the weaknesses, we designated TSM as a high-risk IT initiative, placed the modernization on our list of high-risk federal programs,[8] and have continued to monitor this program.

Since then, IRS has taken some actions aimed at implementing our recommendations. For example, in May 1997, IRS issued a modernization blueprint to define, direct, and control investments in modernized systems and related infrastructure. Also, in December 1998, IRS awarded its Prime Systems Integration Services (PRIME) contract for systems modernization.

[7]GAO/AIMD-95-156, July 26, 1995.

[8]*High-Risk Series: An Overview* (GAO/HR-95-1, February 1995), *High-Risk Series Information Management and Technology* (GAO/HR-97-9, February 1997), and *High-Risk Series: An Update* (GAO/HR-99-1, January 1999).

In 1998, the Congress established the ITIA and limited IRS' obligation of ITIA funds until IRS submits to the Congress for approval an expenditure plan that meets certain conditions.[9] As mentioned earlier, the conditions are that the plan should (1) implement the modernization blueprint, (2) meet OMB's IT investment guidelines, (3) be reviewed and approved by IRS' Investment Review Board, OMB, and Treasury's IRS Management Board and be reviewed by GAO, (4) meet the requirements of IRS' life cycle program, and (5) comply with acquisition rules, requirements, guidelines, and systems acquisitions management practices of the federal government. To date, the Congress has appropriated $506 million for the account via IRS' fiscal year 1998 and 1999 appropriations acts.[10]

In May 1999, IRS submitted its first or "initial" expenditure plan, requesting about $35 million for modernization initiatives and commitments to be delivered by October 31, 1999. As part of this plan, IRS also stated its intention to modernize its systems incrementally and submit incremental expenditure plans for release of ITIA funds. We reviewed the plan and reported in June 1999[11] that this incremental approach was an industry best practice, and if properly implemented, the plan was an appropriate first step. However, to measure IRS' modernization performance and accountability on this and future expenditure plans, we recommended that each plan fully disclose IRS' progress against incremental goals, deliverables, and benefits set forth in earlier plans. Based on our report, the House and Senate Appropriations Subcommittees approved IRS' $35 million expenditure plan in June 1999.

At that time, IRS planned to submit a second expenditure plan in October 1999. However, it was unable to do so on time, and in early December 1999, submitted to the House and Senate appropriations subcommittees a "stopgap" funding measure to obligate about $33 million from ITIA until the next plan was submitted. We reviewed the "stopgap" funding measure and raised concerns about projects that were scheduled to begin detailed design and software development before, among other things, the

[9]See footnote 1.

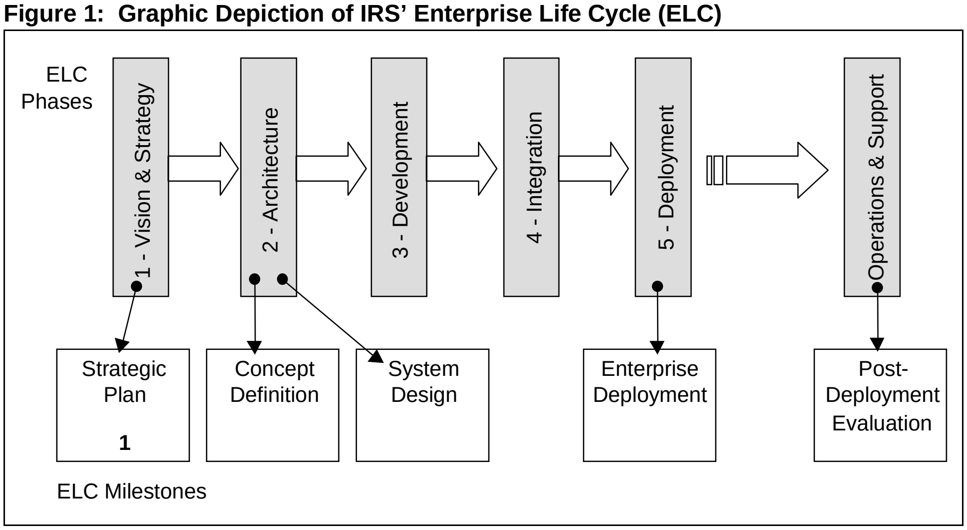
[10]The Congress appropriated $325 million in fiscal year 1998 with the funds set to expire on September 30, 2000. In May 1998, the Congress rescinded $30 million of this ITIA appropriation for urgent Year 2000 requirements. In fiscal year 1999, the Congress appropriated $211 million for ITIA with the funds set to expire on September 30, 2002.

[11]*Tax Systems Modernization: Results of Review of IRS' Initial Expenditure Plan* (GAO/AIMD/GGD-99-206, June 15, 1999).

enterprise architecture was completed and the ELC was defined and implemented. Later that December, the appropriations subcommittees approved IRS' $33 million "stopgap" funding measure but in discussions and correspondence, directed IRS to (1) expedite completion of the architecture and implementation of the ELC and (2) explain in future expenditure plans how it plans to manage the risk of performing detailed design or development work if the architecture is not completed or the ELC is not implemented.

Subsequently, IRS reassessed its modernization program structure and plans and restructured the program by scaling back its system development efforts until it first put in place the requisite modernization management capability. For example, it has efforts underway to update its modernization blueprint and implement the ELC. The simplified diagram below graphically depicts the ELC processes and major milestones that IRS is working to implement.

Figure 1: Graphic Depiction of IRS' Enterprise Life Cycle (ELC)



On March 9, 2000, IRS submitted to the appropriations subcommittees its second expenditure plan that reflected these restructuring decisions and sought to obligate about $176 million from ITIA. Table 1 summarizes the expenditure plan, including each initiative's cost, ELC milestone, and milestone date.

Table 1: Summary of IRS' Second Expenditure Plan by Initiative, ELC Milestone, Milestone Date, and Amount Being Requested

Dollars in thousands

Proposed modernization initiatives	ELC milestone	Date to achieve milestone	Cost
Program-level activities (category total)			**$66,556**
Management Capabilities			
Program Management Office	N/A	9/30/2000	7,028
ELC Enhancements, Maintenance and Full Deployment	N/A	9/30/2000	5,113
Federally Funded Research and Development Contractor	N/A	9/30/2000	5,335
Management Reserve	N/A	N/A	10,507
Subtotal			**$27,983**
Architecture Engineering			
Enterprise Architecture and Blueprint 2000	N/A	9/30/2000	8,667
Configuration Management Policies and Procedures	N/A	9/30/2000	1,411
Business Integration	N/A	9/30/2000	4,012
Subtotal			**$14,090**
Strategic Project Planning			
Vision and Strategy, Tax Administration	2	12/31/2000	20,508
Vision and Strategy, Internal Management	2	11/30/2000	3,975
Subtotal			**$24,483**
Project-level activities (category total)			**$109,766**
2001 Release – Development			
Customer Communications	3	5/05/2000	2,721
Customer Relationship Management Exam	3	6/30/2000	1,359
Subtotal			**$4,080**
2001 Release – Implementation			
Customer Communications	4, 5	5/31/2001	38,389
Customer Relationship Management Exam	4, 5	6/30/2002	7,954
Management Reserve – Filing Season 2001 Release			2,604
Subtotal			**$48,947**
2002 Release – Design			
Customer Communications	3	9/30/2000	3,509
e-Services	3	9/30/2000	3,854
Subtotal			**$7,363**
Tax Account Replacement			
Customer Account Data Engine (CADE)	3	12/31/2000	15,312
Subtotal			**$15,312**

(Continued From Previous Page)

Dollars in thousands

Proposed modernization initiatives	ELC milestone	Date to achieve milestone	Cost
Integrated Financial System (IFS)			
IFS Revenue Accounting			
Tax Account Subledger	3	7/30/2000	1,175
Collections Subledger	3	7/30/2000	1,856
Subtotal			**$3,031**
Enabling Infrastructure			
Security and Technology Infrastructure Releases (STIR)	3	9/30/2000	8,549
Enterprise Systems Management (ESM)	3	9/30/2000	3,448
Telecommunications Enterprise Strategic Program (TESP)	2	9/30/2000	11,137
Solutions Demonstration Lab (SDL)	3	9/30/2000	2,650
Virtual Development Environment (VDE)	3	9/30/2000	4,400
Enterprise Integration and Test Environment (EITE)	3	9/30/2000	849
Subtotal			**$31,033**
Total			**$176,322**

IRS' Progress in Implementing Initial Expenditure Plan Fell Well Short of Expectations

For its first expenditure plan, IRS requested about $35 million to initiate selected modernization investments and produce specified deliverables by October 31, 1999. This plan provided for three categories of investments: (1) supporting business goals, (2) building management capability, and (3) planning a modern IT infrastructure. The "supporting business goals" initiatives included the early phases of selected systems acquisition projects that are intended to improve service to taxpayers by the year 2001 tax filing season. The "building management capability" initiatives provided for defining and beginning to institute at the program-level, mature modernization management and systems engineering processes that are to permit effective blueprint implementation. The "planning modern infrastructure" initiatives refer to the first steps in establishing the technology foundation–such as the networks, operating platforms, and security systems–upon which to build, interconnect, and operate modernized system applications.

In December 1999, the appropriations subcommittees approved IRS' $33 million "stopgap" funding measure. In addition, by March 2000 when the second expenditure plan was submitted, IRS had five additional months to fulfill its incremental commitments in the first plan and to address three new commitments added during IRS' execution of the first plan. Despite the extra time and resources, IRS has not met, or does not know whether it has met, 17 of its 19 commitments. For example, in the plan, IRS committed to fully implementing the ELC by October 31, 1999. As noted earlier, the ELC is to provide IRS with a disciplined and institutional approach–that is, the policies, processes, and products–for managing IT investments throughout their life cycles. As of February 29, 2000, IRS reported that it had invested about $9 million in the ELC, but had not yet completely defined and fully implemented it. In fact, until only recently, none of the modernization initiatives were following the ELC because IRS and its contractor staff had not been trained in its use. This is important because failure to adhere to the management and engineering discipline embedded in the ELC seriously jeopardizes a project's ability to deliver promised capability on time and within budget.

As another example, IRS committed to defining the scope of its Customer Relationship Management-Exam (CRM-Exam) project, which under the initial plan, was to include redesigning IRS' examination processes and defining system requirements to, among other things, enable faster exam case resolution. By October 31, 1999, IRS had only begun to work on these tasks and under its second expenditure plan, had significantly reduced the scope of what the project would deliver in 2001, electing to postpone other parts of the project to 2002 and beyond. Similarly, on its security and technology infrastructure project, IRS committed to developing (1) requirements and design specifications for the hardware and software platforms and networks upon which its planned application projects (e.g., CRM-Exam) would operate, (2) a sequencing plan or "roadmap" for aligning the development and deployment of its security and technology infrastructure with these application projects, (3) a detailed "tactical" plan and schedule to guide the deployment of the infrastructure, and (4) the costs and benefits of the infrastructure releases for use by the other initiatives in developing their business case justifications. By October 31, 1999, IRS had not fully met these commitments. Table 2 summarizes IRS progress against each of its 19 commitments.

Table 2: IRS' Progress in Meeting Initial Expenditure Plan Commitments

Modernization initiative	IRS documents show whether initiative met commitments[a]		IRS is in the process of determining initiative status[b]
	Yes	No	
Business goals			
Business Systems Planning (BSP)	X		
Customer Account Data Engine (CADE)			X
Correspondence and Document on Demand Imaging (CADDI)			X
Customer Relationship Management (CRM) Exam		X	
Customer Relationship Management (CRM) Core			X
Customer Relationship Management (CRM) Collection			X
Customer Communications		X	
e-Services: Near Term		X	
Integrated HR System: Integrated Personnel System (IPS)			X
Integrated Financial System: Revenue Accounting			X
Enabling infrastructure			
Infrastructure Program Management and Integration Office (IPMO)			X
Security and Technology Infrastructure Releases (STIR)		X	
Enterprise Systems Management (ESM)			X
Telecommunications Enterprise Strategic Program (TESP)			X
Solution Demonstration Laboratory (SDL) and Virtual Development Environment (VDE)[c]			X
Management capabilities			
Enterprise Program Management Office (EPMO)		X	
Process Partnership Management Team (PPMT)		X	
Business Integration (BI)[c]	X		
Architecture Engineering[c]		X	
Total	**2**	**7**	**10**

[a]Meeting its commitments means that IRS met the deliverables indicated in the initial expenditure plan within 125 percent of estimates for time and cost.

[b]IRS has not yet conducted reviews of these initiatives and therefore cannot report at this time whether commitments were met.

[c]These projects were added after submission of the initial expenditure plan.

Second Expenditure Plan Satisfies Legislative Conditions

IRS' second expenditure plan satisfies the conditions that the Congress placed on the use of ITIA funds. Nonetheless, because the plan is to be executed over many months, it does not provide that the IRS life cycle program requirements, OMB investment guidelines, and federal acquisition rules and management practices will be employed and adhered to on all projects throughout the period covered by the plan because full implementation of these requirements will not occur until September 2000. Our assessment of the plan's satisfaction of each condition is detailed below.

Condition 1: Implements the Modernization Blueprint

IRS' second expenditure plan provides for implementation of the modernization blueprint, but the Service is still working to establish a reliable date for completing the planned update of the blueprint. Developed in May 1997, the blueprint includes, among other things, high-level functional and technical architectures and a general transition plan describing the timing of the introduction of new systems to establish the modernized systems environment. We reviewed the May 1997 blueprint, and in February 1998, reported that it was a good first step but that it lacked sufficient precision and detail upon which to build modernized systems. Accordingly, we made recommendations to complete the blueprint as part of a longer-term implementation strategy, and IRS agreed to implement them.[12]

In mid-1998, following the enactment of the IRS Restructuring and Reform Act[13] and the announcement of IRS' plans to restructure its organization, we told IRS' Chief Information Officer (CIO) that the blueprint still needed to be completed, including being updated to reflect the act's requirements, planned organizational changes and associated business process reengineering efforts, and advances in technology. The CIO agreed, stating that IRS already planned to do so. IRS' first expenditure plan reflected this commitment. Specifically, it included blueprint implementation initiatives aimed at updating the 1997 blueprint and beginning system acquisition projects that were discussed in general terms in the 1997 blueprint, such as establishing a modern corporate database for taxpayer accounts.

[12] GAO/AIMD/GGD-98-54, February 24, 1998.

[13] Public Law 105-206, July 22, 1998.

IRS' blueprint implementation strategy, as described in the second expenditure plan, continues planning steps on various projects mentioned in the blueprint, such as the taxpayer account database project, which IRS calls the Customer Account Data Engine. The second expenditure plan also provides for planning (i.e., requirements definition and preliminary design) for certain new system investments cited in the 1997 blueprint. In addition, the plan provides for updating the 1997 blueprint. For example, the plan seeks about $8.7 million to develop an integrated set of about 50 architectural artifacts that are intended to describe in business and technical terms the nature and characteristics of IRS future mode of operations.

We reviewed the framework that IRS is using to construct this updated blueprint and found it to be consistent with published government and private-sector frameworks for enterprise architectures. We also found that IRS' stated approach for updating the blueprint provides for integration of efforts to reorganize, restructure, and reengineer IRS' business areas, with efforts to specify the technology framework within which to modernize the systems to support these business areas. Additionally, we found that IRS' stated approach also provides for addressing business areas not covered by the 1997 blueprint, such as IRS' internal management and administrative business functions.

The second expenditure plan commits to completing the revised blueprint by September 30, 2000. However, at the time of our review, IRS did not yet have the detailed work breakdown structures, including the resource needs and schedules, to support this milestone. IRS officials recognize the need to develop this support and told us they were in the process of doing so. Without this supporting analysis and decomposition of work steps, resource needs, and time frames, there is limited basis for confidence in the September 30, 2000, milestone.

Condition 2: Meets the Requirements of IRS' Life Cycle Program

IRS' second expenditure plan provides for meeting the requirements in IRS' life cycle management program, which IRS refers to as its ELC. According to the plan, the ELC is to be completed and implemented by September 30, 2000, at a cost of $5.1 million. As of March 2000, IRS had developed a work breakdown structure and supporting resource and schedule plans for accomplishing this. Among other things, these detailed plans called for creating a baseline version of the ELC that included such missing components as life cycle management requirements for system security accreditation. Additionally, the plans called for incorporating relevant components from ongoing IRS efforts to define and implement OMB-required processes for IT investment management (i.e., investment selection, control, and evaluation), such as its recently developed procedures for preparing business case justifications. The plans also called for ELC training for both IRS and PRIME contractor staff. However, because the second expenditure plan provides for investing in systems for several months before these planned ELC efforts are completed, it does not anticipate that life cycle requirements will be met on all projects during the period covered by the plan.

Condition 3: Meets OMB Information Systems Investment Guidelines

IRS' expenditure plan provides for meeting OMB investment guidelines by September 30, 2000.[14] OMB's guidelines call for agencies to adopt a data-driven, analytically based approach to selecting, controlling, and evaluating IT investments. The overriding objective is to ensure that investment decisions are made in a disciplined and rigorous manner based on established criteria, such as return-on-investment and architectural compliance, and to the extent possible, that system investments be broken into a series of increments.

To complement its ELC and support management of the modernization, IRS recently decided to incorporate its ongoing efforts to define and implement investment management processes, which IRS refers to as its Investment Decision Management (IDM) processes, into its ELC efforts. Thus far, IRS (1) has developed business case procedures that are intended to ensure that system investment decisions are based on compelling return-on-investment justifications and (2) is working on completing other IT investment management processes. IRS plans to complete and implement its IDM processes, including their integration with the ELC, by September 2000. Consequently, the second expenditure plan does not provide for adherence to OMB's guidance until September 2000, when IRS' IT investment processes are scheduled to be implemented.

[14] *Evaluating Information Technology Investments, A Practical Guide*, Version 1.0 (Executive Office of the President, OMB, November 1995) and OMB Memorandum M-97-02, *Funding Information Systems Investments* (October 1996).

Condition 4: Reviewed and Approved by IRS, Treasury's IRS Management Board, and OMB and Reviewed by GAO

IRS' Core Business Systems Executive Steering Committee (which replaced IRS' Investment Review Board), Treasury's IRS Management Board, and OMB approved the $176 million expenditure plan on March 9, 2000, and sent it to the Congress that day. With its March 14, 2000, letter to us, IRS enclosed a copy of the plan submitted to the Congress, and we reviewed it. We then briefed the staffs of the House and Senate Appropriations Subcommittees on our review, and the results are contained in this report.

Condition 5: Complies With Federal Acquisition Rules, Requirements, Guidelines, and Management Practices

IRS' second expenditure plan provides for complying with federal acquisition rules and management practices by September 30, 2000. According to federal acquisition laws, rules, and regulations,[15] agencies should, among other things, use disciplined decision-making processes for planning, selecting, managing, and controlling the acquisition of IT. By doing so, they mitigate the risks of acquiring systems that are not delivered on time and on budget and do not work as intended.

As mentioned earlier, IRS' expenditure plan calls for implementing the ELC, which is to include mature software acquisition management practices and IT investment management processes. In particular, IRS plans to implement mature software/systems acquisition management practices within its Business Systems Modernization Office, which is the IRS program office responsible for managing the PRIME contractor and other modernization contractors. In doing so, IRS intends to build the capability in accordance with the Software Engineering Institute's (SEI) software acquisition capability maturity model requirements.[16] Among the maturity model's requirements are disciplined and rigorous processes for acquisition planning, contractor solicitation, contractor tracking and oversight, and acquisition risk management.

[15]For example, see the Clinger-Cohen Act of 1996, OMB Circular A-109, and the Federal Acquisition Regulation.

[16]A model developed by the SEI at Carnegie Mellon University to evaluate an organization's software acquisition capability.

While IRS' second expenditure plan provides for implementing these acquisition capabilities, it does not anticipate this being done until September 2000. Consequently, the second expenditure plan anticipates that these capabilities will not be implemented until after the first six months of plan execution. The absence of these capabilities, which we independently verified to be the case on two modernization projects under the first expenditure plan,[17] can greatly reduce the chances of the projects delivering promised system capabilities on time and within budget.

Second Expenditure Plan Is Generally Consistent With Our Past Recommendations

In 1995, we first made recommendations for correcting serious and pervasive modernization management and technical weaknesses. Since then, IRS has taken actions aimed at implementing our recommendations. We have been monitoring IRS' actions and have made follow-up recommendations that recognize IRS' progress and define residual steps that IRS needs to take to ensure that it is ready to and capable of modernizing its systems effectively.

Our open recommendations fall into three categories: (1) completing the modernization blueprint, (2) developing the management and engineering capability to modernize systems effectively, and (3) until the first two recommendations are implemented, limiting modernization spending to certain small, cost-effective, low-risk efforts. In addition, based on our review of IRS' first expenditure plan, we added the following two recommendations that also remain open: (1) ensure that future expenditure plans fully disclose IRS' progress against incremental goals, deliverables, and benefit expectations specified in preceding plans and (2) fully define and explain in the second expenditure plan the nature and functioning of IRS' "partnership" with its contractors, including the respective roles and responsibilities of IRS and its contractors.

IRS' second expenditure plan is generally consistent with these recommendations. For example, the plan provides for updating the

[17]We performed an SEI software acquisition capability maturity model evaluation on two projects contained in the first expenditure plan (Customer Communications and Electronic Services) and found that collectively IRS had many weaknesses in the following key process areas: acquisition risk management, contracting tracking and oversight, evaluation, project management, requirements development and management, and software acquisition planning. Because of the number and nature of weaknesses found, IRS' current acquisition capability is unlikely to result in quality software products being produced on time and within budget.

modernization blueprint. Further, the plan provides for detailing IRS/contractor roles and responsibilities and completing and implementing system life cycle and investment management controls, including mature software acquisition capabilities and other related controls. IRS plans to have all of these capabilities and controls implemented by September 30, 2000.

In addition, the plan does not prematurely seek funds to build systems (i.e., perform detailed system design and software development activities), with two exceptions—Customer Communications 2001 Release and CRM-Exam 2001 Release. The purpose of the Customer Communications project is to improve taxpayer telephone access to customer service representatives and other sources by introducing new call routing capabilities. The purpose of the CRM-Exam project is to provide revenue agents the tools needed to perform complex tax calculations quickly during audits. We reviewed the extent of detailed design and new software development associated with each of these near-term projects and found both were more akin to system maintenance projects than modernization projects, thus representing minimal technical risk. More specifically, the Customer Communications project primarily involves the purchase of more powerful and standard hardware and operating platforms and commercial off-the-shelf (COTS) software. Similarly, the CRM-Exam project is largely a COTS application software upgrade for agent laptop computers. Equally important to these projects' technical risk is whether they will produce a positive return on investment. While as of the time of our review, IRS had yet to prepare business case justifications for these projects to demonstrate that it had a cost-benefit basis for proceeding with development and implementation, IRS officials stated that such business cases, as specified in the ELC, are a prerequisite to proceeding.

Other Observations on IRS' Plan and Modernization Efforts

Our review disclosed three additional observations concerning IRS' second expenditure plan and management of the modernization. First, IRS is in the process of restructuring its modernization program management office, which it calls its Business Systems Modernization Office (BSMO). This restructuring is not included in IRS' second expenditure plan because the BSMO is not funded from ITIA, but rather out of IRS' Information Systems appropriation. Second, IRS is in the process of changing its approach to defining task orders for the PRIME contractor to improve IRS/PRIME risk allocation, leverage PRIME solution innovation, and clearly fix accountability for contract deliverables. Third, the cost estimates provided for most initiatives in the second expenditure plan were "rough estimates" provided by the PRIME contractor and were neither based on detailed cost analysis of initiatives' component tasks, deliverables, and time frames nor were they subjected to IRS' independent analysis and negotiation.

IRS Does Not Yet Have a Fully Operational Modernization Program Office

To effectively establish and implement the management and technical controls previously discussed, such as an enterprise architecture and mature acquisition processes, IRS must have a well-structured and fully operational BSMO. IRS currently lacks such a BSMO, although it has established certain immediate-need BSMO functions, and it is in the process of defining structures, plans, and schedules for making this office fully operational. For example, it has established a systems engineering and architecture office to update, implement, and enforce the modernization blueprint; created major project offices to manage and oversee PRIME contractor progress on the projects; and established a process management group to define and implement the ELC. However, it still needs, for example, to appoint a full-time manager to head the program office and incorporate other important functions essential to effectively managing the acquisition of software-intensive systems, such as quality assurance, risk management, and configuration management. IRS officials stated that they are in the process of operationalizing the BSMO and addressing each of these areas.

IRS' plans for its BSMO are not discussed in its second expenditure plan because according to IRS, the expenditure plan only covers contractor costs and does not include IRS' internal costs of managing the modernization. That is, IRS is only funding PRIME and support contractors (e.g., the Federally Funded Research and Development Contractor) out of ITIA, and is funding internal management costs out of its Information Systems and other appropriations. For example, from October 1, 1998, through December 31, 1999, IRS reported that it spent about $17.0 million for internal modernization management related costs.

IRS Is Strengthening Its Approach to Defining Contract Taskings

Under IRS' contract with the PRIME contractor, IRS has been issuing task orders to that contractor specifying activities to be performed, support to be given, and difficult-to-measure deliverables to be produced. Further, these task orders were generally not definitized, meaning that IRS and the contractor never concluded negotiations to establish fixed prices and milestones for the work and products delivered. Instead, IRS was largely paying for the contractor's time and materials for work to be performed for as long as it took to complete the work.

According to IRS officials, they decided to change their approach to defining task orders because the current approach was not, among other things, bringing the PRIME contractor's innovative expertise to bear at the least possible cost and was not sharing modernization risks with the PRIME contractor. IRS is now in the process of implementing performance-based task orders. Under this approach, the contractor is given work objectives and the discretion on how to best meet them. Additionally, the contractor agrees to a fixed price cost for the work to be performed. To implement performance-based task orders, IRS recently canceled the majority of its existing task orders, trained its staff on performance-based contracting, defined new task orders, and scheduled reviews to begin in mid-May 2000 for task order approval and award.

Reliability of Funding Requests for Most Expenditure Plan Initiatives Is Unclear

IRS' second expenditure plan requests about $176 million to fund nine initiatives (see table 1 for each initiative's respective funding amount). While we did not independently validate the amounts requested for each initiative, we did determine the extent to which the amounts were based on verifiable analysis and rigorous estimation processes, and whether the amounts were subject to government assessment and negotiation. With the exception of three initiatives, we found that the reliability of the funding estimates in IRS' second plan is unclear. Specifically, the estimates for most of the planned initiatives were contractor-provided gross estimates that were not based on a rigorous decomposition of the steps needed to complete the initiatives (i.e., detailed work breakdown structures of tasks and deliverables), and were not subjected to an IRS independent cost assessment or negotiation with the PRIME contractor. This is not so much a concern for the two near-term release initiatives (Customer Communications 2001 Release and CRM-Exam 2001 Release) because the primary cost drivers for them are largely hardware and COTS software, the costs of which are easier to estimate reliably. However, it is a concern for the other initiatives because the cost driver for these is largely labor, which requires clear and complete decomposition of work tasks to predict reliably. Of these other initiatives, we found that only the Integrated Financial System initiative had a detailed work breakdown structure and schedule.

Conclusions

IRS' performance in implementing the first expenditure plan has not met expectations. A primary reason for this performance shortfall has been IRS' inability to define and implement requisite modernization management and technical controls, such as an enterprise architecture and a systems life cycle methodology that includes mature software acquisition capabilities and IT investment management processes. These control weaknesses are the same ones that led to over $3 billion in wasteful spending on IRS' prior attempt to modernize, and the same ones that our long-standing recommendations are designed to address.

Notwithstanding IRS' performance to date, its second expenditure plan includes initiatives that are intended to complete unfinished work started under the first plan, define and implement missing management and technical controls, and proceed in a manner that is generally in line with legislative mandates and our open recommendations. Equally important, the plan does not propose investing in new systems beyond ELC milestone 3, which is also consistent with our open recommendations for not building systems (i.e., developing detailed system design and writing software-intensive applications) until these controls are in place and functioning. In our view, before any investment initiative proceeds past this milestone, it is vital that it be justified by a thorough, compelling business case, and that it employ full ELC rigor and discipline, including mature acquisition processes and associated investment management processes. Additionally, for any initiative proceeding past this milestone in advance of completing IRS' enterprise architecture, it is critical that the technical risks of doing so be defined and mitigated.

Because of the comprehensive nature of our current set of open recommendations, we are not making additional recommendations at this time. However, we wish to emphasize to the Commissioner of Internal Revenue that these open recommendations remain operative and applicable, and they will remain so until IRS (1) addresses the modernization technical and management weaknesses discussed in this report by establishing the requisite controls, such as a complete and enforced enterprise architecture/blueprint and a complete and fully implemented ELC, and (2) does so before it begins building new, software-intensive systems.

Agency Comments

IRS provided oral comments on our briefing results and a draft of this report, and we incorporated its comments where appropriate. In commenting on the briefing and draft report, IRS concurred with our findings and conclusions and said that the initiatives in the second expenditure plan are intended to address the identified management and technical weaknesses.

We are sending copies of this report to Senator Max Baucus, Senator Robert C. Byrd, Senator Orrin G. Hatch, Senator Joseph I. Lieberman, Senator Daniel Patrick Moynihan, Senator William V. Roth, Jr., Senator Ted Stevens, and Senator Fred Thompson, and to Representative Bill Archer, Representative Dan Burton, Representative William J. Coyne, Representative Stephen Horn, Representative Amo Houghton, Representative David R. Obey, Representative Charles B. Rangel, Representative Jim Turner, Representative Henry A. Waxman, and Representative C.W. Bill Young, in their capacities as Chairmen or Ranking Minority Members of Senate and House Committees and Subcommittees. We are also sending copies to the Honorable Charles O. Rossotti, Commissioner of Internal Revenue; the Honorable Lawrence H. Summers, Secretary of the Treasury; and the Honorable Jacob J. Lew, Director of the Office of Management and Budget. Copies will also be made available to others upon request.

If you or your staffs have any questions about this report please contact us at (202) 512-6240 or by e-mail at hiter.aimd@gao.gov or rhodesk.aimd@gao.gov. Key contributors to this report are listed in appendix II.

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Objectives, Scope, and Methodology

Pursuant to the Department of the Treasury's fiscal year 1998 and 1999 appropriations acts, the Congress limited IRS' obligation of ITIA funds until IRS and Treasury submitted for its approval an expenditure plan that per the acts, (1) implements the IRS Modernization Blueprint, (2) meets OMB's investment guidelines for information systems, (3) is reviewed and approved by IRS' Investment Review Board,[1] OMB, and Treasury's IRS Management Board and is reviewed by GAO, (4) meets the requirements of IRS' system life cycle management program, and (5) is in compliance with acquisition rules, requirements, guidelines, and system acquisition management practices of the federal government. To satisfy this legislative mandate, we reviewed IRS' March 7, 2000, expenditure plan. This was IRS' second such plan submitted to the Congress. As agreed with the Senate and House Appropriations Subcommittees, our objectives were to determine (1) what progress IRS has made in meeting the commitments in its previous expenditure plan, (2) whether the plan satisfies the conditions specified in IRS' fiscal year 1998 and 1999 appropriations acts, (3) whether the plan is consistent with our open recommendations on IRS' systems modernization, and (4) whether we have any other observations about IRS' systems modernization efforts.

To determine IRS' reported progress in implementing its first expenditure plan, we identified in the initial plan the tasks and deliverables that IRS had committed to deliver by October 31, 1999, with the $35 million approved by the Congress as well as initiatives added during the execution of the plan. We then compared this with IRS' progress as reported via its second expenditure plan, management readiness reviews, and other progress tracking documents. We also interviewed IRS and contractor officials responsible for tracking modernization program progress.

To determine whether IRS' expenditure plan satisfied the conditions specified in appropriations acts,[2] we first identified and reviewed the relevant IRS and federal documents referenced in the statutory conditions, such as the modernization blueprint, OMB information systems investment guidelines (e.g., Raines Rules), and the Federal Acquisition Regulation. We then documented IRS' completed, ongoing, and planned modernization

[1]According to IRS, the Investment Review Board has been replaced by the Core Business Systems Executive Steering Committee, which is chaired by IRS' Commissioner.

[2]Public Law 105-61, Treasury and General Government Appropriations Act, 1998, and Public Law 105-277, Omnibus Consolidated and Emergency Supplemental Appropriations Act, 1999.

initiatives. To do this, we reviewed IRS' March 7, 2000, second expenditure plan, entitled the Information Technology Investment Account Spending Plan, and other supporting documentation, such as the individual initiatives' project plans and descriptions, briefings, the PRIME contract and associated task orders, and Executive Steering Committee agendas and decision papers proposing courses of action. We also interviewed IRS' Chief Information Officer, other IRS officials, and PRIME contractor officials working on the modernization program to gain an understanding of what IRS is doing to satisfy the legislative conditions. This included receiving weekly briefings and reports on how IRS and contractor teams were progressing on ongoing initiatives, such as efforts to improve customer service, update the modernization blueprint, build the capability to acquire systems effectively, establish a new system development life cycle methodology (i.e., ELC), define IRS and contractor roles and responsibilities, and establish the systems modernization program office. We also reviewed the business and systems development life cycle methodology that IRS is modifying to develop its ELC and were briefed by IRS and its contractors involved in this effort. We also attended IRS' Executive Steering Committee meetings to determine how the modernization program was being managed, including IRS' strategic modernization approach and progress. Last, we analyzed each of IRS' modernization initiatives vis-à-vis the statutory conditions to identify any variances or inconsistencies.

To determine whether IRS' second expenditure plan is consistent with our past systems modernization recommendations, we extracted from our inventory of open recommendations those pertaining to IRS' modernization and grouped them into the following three categories: (1) completing the modernization blueprint, (2) developing the management and engineering capability to modernize systems effectively, and (3) limiting modernization spending to certain small, cost-effective, low-risk efforts until the first two recommendations are implemented. We added to these categories our recent recommendations based on our review of IRS' first expenditure plan. We then compared IRS' efforts on its completed, ongoing, and planned initiatives with the intent of our open recommendations to identify any variances or inconsistencies.

To determine other observations on IRS' management of the systems modernization program and the second expenditure plan, we attended Executive Steering Committee meetings to ascertain relevant program issues, such as IRS' decision to redirect and restructure the program and the impetus for this mid-course correction. To learn more about the underlying causes for and IRS' progress in redirecting the program, we met with and interviewed the Chief Information Officer and IRS program officials responsible for the day-to-day management and control of the modernization. To assess the readiness of the BSMO, we met with the Business Systems Modernization Executive and other BSMO officials to understand IRS' plans and the steps it is taking to make this office operational. In addition, to assess the reliability of the cost estimates provided in IRS' second expenditure plan, we reviewed the estimates and supporting documents provided by the contractor and IRS for each of the initiatives in the plan to determine whether there was an objective basis for each. We also interviewed IRS and contractor officials to understand the processes that they followed in developing the estimates used in the plan.

We performed our work at IRS headquarters in Washington, D.C., and its facility in Lanham, Maryland, from January 2000 through May 2000 in accordance with generally accepted government auditing standards.

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