

**Annual Assessment of the Internal Revenue
Service's Business Systems Modernization
Program**

September 2002

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DEPARTMENT OF THE TREASURY
WASHINGTON, D.C. 20220

INSPECTOR GENERAL
for TAX
ADMINISTRATION

September 27, 2002

MEMORANDUM FOR DEPUTY COMMISSIONER FOR MODERNIZATION &
CHIEF INFORMATION OFFICER

Michael R. Phillips

FROM: Michael R. Phillips
Acting Deputy Inspector General for Audit

SUBJECT: Final Audit Report - Annual Assessment of the Internal Revenue
Service's Business Systems Modernization Program
(Audit # 200220038)

This report provides our assessment of the progress of the Business Systems Modernization (BSM) program. The basis for our assessment is the audit work we have conducted during the past year, as well as reports issued by the General Accounting Office. This report also addresses the requirement in the Internal Revenue Service (IRS) Restructuring and Reform Act of 1998 (RRA 98)¹ that we annually evaluate the adequacy of information technology in the IRS.

In summary, the BSM program is the IRS' latest effort to upgrade and modernize its information technology and business systems. It is expected that BSM will take up to 15 years and cost at least \$5 billion to complete. To date, the IRS has received approximately \$1 billion for the BSM program.

The BSM program is an extremely complex effort, since much of the IRS' current business systems are a mixture of technology that dates back to the 1960s. While difficult, the BSM program must be successful if the IRS is to meet its goals and commitments of providing world-class customer service to taxpayers.

To help ensure the success of its modernization efforts, the IRS hired the Computer Sciences Corporation as the PRIME contractor and integrator for the BSM program. In addition, the IRS created the Business Systems Modernization Office (BSMO) to coordinate and oversee the work of the PRIME contractor. These two functions have

¹ IRS Restructuring and Reform Act of 1998 (RRA 98) § 1103, Pub. L. No. 105-206, 112 Stat. 685 (codified as amended in scattered sections of 2 U.S.C., 5 U.S.C., 5 U.S.C. app., 16 U.S.C., 19 U.S.C., 22 U.S.C., 23 U.S.C., 26 U.S.C., 31 U.S.C., 38 U.S.C., and 49 U.S.C.).

been working together to design and develop the BSM projects that will be the foundation for the modernized business systems.

Since 1999, the BSMO and PRIME contractor have made progress by developing and deploying several projects and creating an enterprise architecture that serves as the roadmap for the future. The projects that have been deployed include an upgraded toll-free telephone system that provides the capacity to route taxpayers' calls to the appropriate IRS employees, an Internet application that allows taxpayers to check the status of their returns and refunds, an IRS-wide secure technology environment, and a system designed to improve the availability and performance of modernized systems.

While the BSMO and PRIME contractor have delivered several important projects, the progress has been slower and more costly than expected. For the projects we reviewed, project dates were delayed from 4 to 9 months, while cost increases ranged from nearly \$700,000 to over \$13 million from original estimates included in the projections submitted to the Congress. We attribute the delays and cost increases to immature development processes, along with a steep learning curve caused by the complexity of the IRS' operations and environment.

Since the BSM effort began, the BSMO and PRIME contractor have struggled to implement defined and repeatable processes that are necessary for effective and efficient systems development. Because the needed maturity level has not yet been achieved, the BSMO and PRIME contractor have had to rely on the heroics of their dedicated employees to deliver the projects. While it is not unusual for systems development projects in the government and private sector to experience delays and cost increases, we believe that the BSMO and PRIME contractor could improve their performance by enhancing key development and management processes.

During 2002, the BSMO and PRIME contractor identified and are aggressively focusing on improving 12 key processes that will be needed to ensure future success. Although there will be many challenges ahead, we are guardedly optimistic about the future of the BSM program, assuming the BSMO and PRIME contractor effectively:

- Implement planned improvements in key management processes and commit necessary resources to enable success.
- Manage the increasing complexity and risks of the BSM program.
- Maintain the continuity of strategic direction with experienced leadership.

Our concern is that the BSMO and PRIME contractor are challenged with implementing and integrating mature processes, while facing increased expectations and scrutiny from the Congress and other stakeholders. In addition, BSM projects now being designed and developed will be significantly more complex as these process improvements are being made. This creates a significant risk that costs will continue to exceed estimates and benefits to taxpayers will be delayed.

Management's Response: The Deputy Commissioner for Modernization & Chief Information Officer agreed with our assessment and provided comments on how the

IRS is responding to ongoing systems modernization challenges. Management's complete response to the draft report is included as Appendix IV.

Copies of this report are also being sent to the IRS managers affected by the report. Please contact me at (202) 622-6510 if you have questions or Scott E. Wilson, Assistant Inspector General for Audit (Information Systems Programs), at (202) 622-8510.

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Background

In accordance with the Internal Revenue Service (IRS) Restructuring and Reform Act of 1998 (RRA 98),¹ the Treasury Inspector General for Tax Administration (TIGTA) is required to annually evaluate the adequacy and security of IRS technology. This report presents our assessment of the status of the IRS' Business Systems Modernization (BSM) program.

The BSM program is the IRS' latest effort to upgrade and modernize its information technology and business systems. It is expected that BSM will take up to 15 years and cost at least \$5 billion to complete. To date, the IRS has received approximately \$1 billion for the BSM program.

The BSM program is an extremely complex effort, since much of the IRS' current business systems are a mixture of technology that dates back to the 1960s. While difficult, the BSM program must be successful if the IRS is to meet its goals and commitments of providing world-class customer service to taxpayers.

To facilitate success of its modernization efforts, the IRS hired the Computer Sciences Corporation as the PRIME contractor and integrator for the BSM program. In addition, the IRS created the Business Systems Modernization Office (BSMO) to coordinate and oversee the work of the PRIME contractor. These two functions have been working together to design and develop the BSM projects that will be the foundation for the modernized business systems.

The majority of the information presented in this report is derived from TIGTA and General Accounting Office (GAO) audit reports issued during Fiscal Year 2002. Each of these audits was conducted in accordance with *Government Auditing Standards*. Detailed information on our audit objective, scope, and methodology, including a listing of previously issued reports, is presented in Appendix I. Major contributors to the report are listed in Appendix II.

¹ IRS Restructuring and Reform Act of 1998 § 1103, Pub. L. No. 105-206, 112 Stat. 685 (codified as amended in scattered sections of 2 U.S.C., 5 U.S.C., 5 U.S.C. app., 16 U.S.C., 19 U.S.C., 22 U.S.C., 23 U.S.C., 26 U.S.C., 31 U.S.C., 38 U.S.C., and 49 U.S.C.).

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Success of the Business Systems Modernization Program Requires Attention to Current and Future Risks

The BSM program is an extremely complex effort that is needed to provide top quality service to taxpayers. The BSMO and PRIME contractor have made significant progress by deploying several projects and creating a roadmap for the future; however, the progress has been slower and more costly than expected. Some of the early setbacks have been due to the steep learning curve that the BSMO and PRIME contractor have experienced in implementing processes to ensure the success of future modernization projects. The challenge for the future will be to improve, while moving forward in an increasingly complex environment.

The BSM program is essential to provide quality service to taxpayers

The IRS is burdened with computer systems that were developed over a 35-year period. The IRS has attempted to modernize its systems several times; however, these attempts have been viewed as unsuccessful. The last major modernization attempt, known as Tax Systems Modernization, cost over \$3 billion and resulted in minimal improvements and intense scrutiny from the Congress. The Commissioner recently stated that, although behind schedule, the current systems modernization effort is really about 25 years late because prior efforts were unsuccessful.

In the past, the IRS was heavily criticized for not providing top quality taxpayer service. To ensure that improvements were made, the Congress passed the RRA 98. In recent years, the IRS has worked hard to improve service to taxpayers by creating four operating divisions to serve taxpayers of similar interests and initiating the BSM program to modernize its systems and business processes. While the IRS has made progress in reorganizing its structure, the Commissioner has stated that wholesale improvements to taxpayer service will not be possible without the modernization of business systems.²

² *Prepared Testimony of Commissioner of Internal Revenue Charles O. Rossotti before the Congress on the IRS Restructuring and Reform Act of 1998 (dated May 14, 2002).*

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Slow but steady progress has been made

Since 1999, the BSMO and PRIME contractor have made steady progress in increasing service to taxpayers. The Commissioner identified 2002 as a critical year for providing taxpayer benefits through the BSM program. The two main initiatives were to 1) create an IRS-wide secure technology environment and 2) move a segment of individual taxpayer records from a 1960s tape-based system to a modern database.

The IRS and PRIME contractor have made improvements to create a secure environment. However, the initial migration of individual taxpayer records from an old system to a modern, reliable database has been postponed until 2003. The IRS is currently testing the application.

While progress has been slow, several modernization projects have delivered benefits to taxpayers and the IRS. One of these initiatives provided taxpayers access to refund and filing information via the Internet. The BSM program also improved customer service by increasing the capacity of the toll-free telephone system and providing the ability to route taxpayers' calls to the appropriate IRS employees. These improvements were deployed in time to assist the IRS in answering over 21.8 million phone calls during last year's advance tax refund period.³ The IRS and PRIME contractor have also deployed an IRS-wide secure technology environment and a system designed to improve the availability and performance of modernized systems.

In addition, the BSMO has defined and updated its enterprise architecture, a roadmap for the BSM program. This architecture provided details that should help guide current and future modernization initiatives. The Commissioner has stated that the architecture will drive the IRS' design and development of new business technology projects.

³ The Congress reduced the tax rates for 2001 and directed the IRS to provide an advance refund to taxpayers based on their specific filing status. The IRS mailed advance refund checks to taxpayers from July 2001 until December 2001.

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The modernization program is costing more and taking longer than expected

Despite the accomplishments by the BSMO and PRIME contractor, projects are costing more and taking longer to deliver less than originally anticipated. Some of the early projects experienced setbacks resulting in project delays of from 4 to 9 months, while cost increases ranged from nearly \$700,000 to over \$13 million from original estimates included in the BSM projections provided to the Congress.

The BSM program, like many systems development efforts in the government and private sector, has experienced setbacks and delays. The BSMO has experienced a steep learning curve in trying to implement the repeatable processes and management capabilities that are necessary for the success of the BSM program. The PRIME contractor was hired to compensate for the IRS' past management and technical weaknesses; however, it also has experienced a steep learning curve due to the complexity of the IRS' operations and environment.

Since the BSM effort began, the BSMO and PRIME contractor have struggled to implement defined and repeatable processes that are necessary for effective and efficient systems development. Because the needed maturity level has not yet been achieved, the BSMO and PRIME contractor have had to rely on the dedication and heroics of their employees to deliver the successes that have been achieved to date.

Plans for improving development processes are underway

During 2002, the BSMO and PRIME contractor identified and are aggressively focusing on improving 12 key processes that will be needed to ensure future success. We believe that improving these processes will lead to improved BSM performance.

To improve processes, the BSMO, PRIME contractor, and MITRE⁴ have formed a team to evaluate and monitor

⁴ The MITRE Corporation (MITRE) is under contract to assist the IRS with the systems modernization.

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selected processes, such as cost and schedule estimation, risk management, and compliance with the enterprise architecture. The team has identified process-related goals and milestones. For instance, the BSMO currently has a goal to be independently evaluated against best practice standards by December 2002.

To improve and fully implement process changes, the BSMO and PRIME contractor will have to establish accountability for results. The IRS Chief Information Officer recently stated that one of the biggest achievements within the BSM program has been establishing clearer roles and responsibilities between the IRS and the PRIME contractor. This should help establish greater accountability.

The BSMO and PRIME contractor must improve current processes as the BSM program becomes more complex

The BSM program involves considerable risk. The BSMO and PRIME contractor must improve management processes, while the modernization effort becomes more complex. As stated by the Commissioner, "The fact that risk exists does not mean that the program will fail. It means that the program could fail if the risks are not adequately identified and appropriate action taken to address them on a timely basis."⁵

Significant future risks include committing resources, implementing process changes, managing program complexity, and maintaining a consistent strategic direction.

- **Committing Resources and Implementing Process Changes** - Success in modernizing the IRS depends to a great degree on resources. The BSMO and PRIME contractor have identified modernization processes that need to be improved. Plans to improve some of these processes have already been developed. However, resources will need to be committed to ensure that

⁵ *Prepared Testimony of Commissioner of Internal Revenue Charles O. Rossotti before the Congress on the IRS Restructuring and Reform Act of 1998 (dated May 14, 2002).*

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process changes are implemented, and the BSMO and PRIME contractor will need to establish and maintain accountability for results. Without effective process change and defined accountability, the BSM program could continue to experience cost increases and schedule delays, while delivering less than expected.

- **Managing Program Complexity** - Current and future modernization projects will be enormous in size and more complex than earlier efforts. Modernization projects will involve extensive programming and testing, and many projects will have to work together to achieve their goals. The need for projects to be integrated and work together will increase in the future, which will lead to a more complex development environment and increasing risks to the success of the BSM program.
- **Maintaining a Consistent Strategic Direction** - Success in modernizing the IRS depends upon consistent direction and building on past experience. Changes in the IRS' strategic direction could have a significant affect on the BSM program. The Commissioner, who will be completing his term in November 2002, has been a key player in the early development of the BSM program. The GAO recently reported that modernization benefits could be delayed if the new Commissioner does not stay on course.⁶ Changes in the executive leadership of the BSM program could also affect the success of the modernization efforts. It will be critical for the IRS to "stay the course" even in light of changes in the leadership of the organization. Any changes in strategic direction, such as the business vision or emphasis on modernization, could jeopardize the IRS' ability to provide needed improvements to customer service.

Both the GAO and TIGTA have recommended that the IRS slow the pace of the BSM program due to some of the risks that have surfaced. Once an appropriate scope and pace is

⁶ *Continued Progress Modernizing IRS Depends On Managing Risks* (GAO-02-715T, dated May 2002).

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determined that is commensurate with risk, the BSMO and PRIME contractor will have a better chance of attaining the goals and benefits of the BSM program.

Since BSMO executives have recognized current and future areas for improvement, we are guardedly optimistic that the BSMO will be able to effectively manage these risks. If the BSMO and PRIME contractor are successful in managing and controlling the risks, the BSM program should help deliver the improvements in taxpayer service that the IRS, the Congress, and the general public require.

Management's Response: The Deputy Commissioner for Modernization & Chief Information Officer agreed with our assessment and provided comments on how the IRS is responding to ongoing systems modernization challenges. Management's complete response to the draft report is included as Appendix IV.

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Appendix I

Detailed Objective, Scope, and Methodology

The overall objective of this review was to assess the progress of the Business Systems Modernization Office (BSMO) and the PRIME contractor¹ to modernize the Internal Revenue Service's (IRS) information technology. To accomplish our objective, we analyzed the following reports issued by the Treasury Inspector General for Tax Administration and the General Accounting Office (GAO):

- *Modernization Project Teams Need to Follow Key Systems Development Processes* (Reference Number 2002-20-025, dated November 2001).
- *Business Systems Modernization: IRS Needs To Better Balance Management Capacity with System Acquisition Workload* (GAO-02-356, dated February 2002).
- *The Business Systems Modernization Office Needs to Strengthen Its Processes for Overseeing the Work of the PRIME Contractor* (Reference Number 2002-20-059, dated March 2002).
- *The Customer Communications Project 2001 Release Was Deployed, But Testing Processes Did Not Ensure All Applications Were Working As Intended* (Reference Number 2002-20-056, dated March 2002).
- *Critical Processes and Dependencies Need to Be Addressed to Avoid Further Delays in Deployment of the Enterprise Systems Management Project* (Reference Number 2002-20-084, dated May 2002).
- *Management Advisory Report: Progress Has Been Made in Establishing a Secure Modernization Infrastructure; However, Continuing Risks Could Impact Timely Deployment of Modernization Projects* (Reference Number 2002-20-112, dated June 2002).
- *Processes to Effectively Manage the Development of the Custodial Accounting Project Are Improving* (Reference Number 2002-20-121, dated June 2002).
- *Management Advisory Report: Comprehensive Measures for Interim Business Systems Modernization Status Reporting Are Needed* (Reference Number 2002-20-128, dated July 2002).
- *Management Advisory Report: Most Taxpayer Communication Enhancements Planned for 2002 Will Be Delivered, Although Some Are Later Than Originally Expected* (Reference Number 2002-20-122, dated July 2002).

¹ The IRS hired the Computer Sciences Corporation as the PRIME contractor and integrator for the BSM program.

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- *The Latest Update to the Enterprise Architecture Improves on Previous Versions, But Processes to Develop Future Updates Could Be Improved* (Reference Number 2002-20-124, dated July 2002).
- *Management Advisory Report: Progress Has Been Made in Developing Transition to Support Guidance For Modernization Projects* (Reference Number 2002-20-146, dated August 2002).
- *Additional Improvements Are Needed in the Application of Performance-Based Contracting to Business Systems Modernization Projects* (Reference Number 2002-20-170, dated September 13, 2002).
- *Management Advisory Report: Analysis of Business Systems Modernization Cost, Schedule, and Functionality Performance* (Audit Number 200220037, Draft Report).

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Appendix II

Major Contributors to This Report

Scott E. Wilson, Assistant Inspector General for Audit (Information Systems Programs)
Scott Macfarlane, Director
Troy Paterson, Audit Manager
Louis Zullo, Senior Auditor
Charlene Elliston, Auditor

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Appendix III

Report Distribution List

Commissioner N:C
Deputy Commissioner N:DC
Associate Commissioner, Business Systems Modernization M:B
Deputy Associate Commissioner, Program Management M:B:PM
Deputy Associate Commissioner, Systems Integration M:B:SI
Director, Budget Policy, Planning, and Programs M:BP
Chief Counsel CC
National Taxpayer Advocate TA
Director, Legislative Affairs CL:LA
Director, Office of Program Evaluation and Risk Analysis N:ADC:R:O
Office of Management Controls N:CFO:F:M
Audit Liaison:
 Associate Commissioner, Business Systems Modernization M:B

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Appendix IV


Management's Response to the Draft Report



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

September 23, 2002

MEMORANDUM FOR PAMELA J. GARDINER
DEPUTY INSPECTOR GENERAL FOR AUDIT

FROM: 
John C. Reece
Deputy Commissioner for Modernization &
Chief Information Officer

SUBJECT: Draft Audit Report – Annual Assessment of the Internal
Revenue Service's Business Systems Modernization
Program (Audit No. 200220038)

The Business Systems Modernization (BSM) program will fundamentally transform the way the IRS manages information and delivers service. The program is one of the largest and most complex modernization efforts ever undertaken.

BSM has already implemented new systems that provide taxpayers with more convenient and secure access to information and more efficient service. Last year, we improved the efficiency and effectiveness of our systems for responding to taxpayer calls through our Customer Communications 2001 (CC01) project. Revenue agents are using new software (the Customer Relationship Management Exam project) that quickly and accurately calculates the tax computation in complex tax compliance cases. This year, we continue to deliver the critical infrastructure for modernized systems and improved service to taxpayers, such as:

- The Internet Refund/Fact of Filing (IR/FoF) project that allows taxpayers to use the internet to check on the status of their refunds
- The first release of the Security and Technology Infrastructure Release (STIR) project to support and enable the secure delivery of modernized business systems
- A pilot of the Customer Account Data Engine (CADE) project that allows us to begin replacing our old returns processing system and database of taxpayer records. CADE will eventually lead to faster processing of tax returns and refunds.

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Without exception, we agree with TIGTA's concerns about sustaining our commitment to the strategic course of modernization and to the implementation of key management processes. To address these concerns, we took steps during FY 2002 to balance the pace of the program with the management capacity of the IRS and the PRIME contractor. Our plan for FY 2003 remains challenging, but we have great confidence in the practicality of our modernization plan now that we have delivered some key building blocks for the future.

We are also making important strides in developing our management capabilities in the BSM program. On August 23, 2002, an independent audit led by the Software Engineering Institute of Carnegie Mellon University rated the IRS's PRIME contractor, Computer Sciences Corporation (CSC), at Software Acquisition – Capability Maturity Model Level 3. As such, CSC became the first organization in the world to reach a Level 3 rating in software acquisition management capabilities. Furthermore, CSC now requires that all its software development partners have at least a Level 3 rating in Software – Capability Maturity Model (SW-CMM).

An early internal assessment of the BSMO's acquisition management capability should major progress toward achieving an SA-CMM Level 2 rating for which we will be evaluated in December 2002. More importantly, these evaluations mark a level of program management maturity that reduces the overall risk of program.

We are also looking at more than just those management capabilities identified in the SA-CMM standard. Our focus includes additional management processes such as: governance, human capital management, and cost and schedule estimating. This broader focus will help reduce the risks of program delivery even more than via SA-CMM discipline. We monitor our progress monthly, and we have seen improvement in all areas. In fact, TIGTA recently noted improvement in our cost and schedule estimating processes.

Nevertheless, the scale and complexity of this program will still result in ongoing schedule and cost adjustments, as is typical with all large and complex systems programs. However, the frequency and magnitude of the adjustments should be reduced over time, if we are able to discover problems early and react quickly.

We agree that integrating the new applications and infrastructure with the current processing environment (CPE) will be challenging. As we create the new application and new infrastructure at the same time, many types of integration issues are normal, though we are taking steps to minimize them. Indeed, this was one of the primary reasons that we wanted to deploy IR/FoF, so we would have a relatively simple application riding on the new infrastructure. To address integration issues between the modernized applications and the CPE, we instituted a number of steps. One step is to work more closely across all of MITS Services, such as by instituting a single MITIS Services Change Control Board, and by ensuring our projects and management processes include strong

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representatives from all of the affected entities in MITS Services. We also launched the Modernized Data Access project to focus on data integration between the modernized data stores and the CPE data stores.

We agree that we need more resources in BSMO to achieve and maintain the management processes and to oversee the PRIME's work. This is especially challenging in light of severe IRS staffing restrictions at this time and for the foreseeable future. However, the IRS executive leadership team has approved a significant expansion of BSMO, though it will take some time to fill all our positions with qualified individuals.

Finally, we have taken some steps to slow the pace of the BSM program to match management capacity and capability as recommended by the GAO and directed by the Congress. To ensure we successfully implement modernized systems, we have slowed down some projects and deferred others, while maintaining those critical projects underway. For example, we have delayed starting the reporting compliance projects, dropped plans to start a new e-Services project in FY 2003, and delayed the Enterprise Data Warehouse project until at least FY 2004.

We continue to strictly adhere to the Enterprise Life Cycle (ELC) methodology, and we have a strong internal governance process. These things ensure that the BSM program is driven by business priorities and that we proceed in measured steps.

Even with all these improvements and adjustments, our ambitious modernization plan for FY 2003 and beyond is risky. It will require all our commitment, dedication, and requested funding to continue to deliver the modernized systems of the future.

If you have any questions or comments, please call me at (202) 622-6800 or Fred Forman, Associate Commissioner for Business Systems Modernization at (202) 622-2475.