Independent Analysis of
IRS Business Systems Modernization
**Special Report**

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# Introduction and Summary

The long-term health and viability of the nation's tax administration system rest upon the success of the IRS Business Systems Modernization program (BSM or Modernization). However, during this past summer, the BSM program suffered a serious setback. Virtually all of its ongoing projects experienced significant delays and budget overruns.

Particularly troubling were continuing and unresolved problems with the Customer Account Data Engine (CADE)—the so-called "crown jewel" of Modernization—that will move taxpayers from the current antiquated tape-based system to a modern reliable data base.

To his credit, IRS Commissioner Mark W. Everson quickly called for a number of separate independent reviews of not only CADE, but the entire BSM portfolio of projects. While the assessments' results are still preliminary, they make it clear that the IRS and its Prime contractor cannot continue to operate in a business-as-usual manner. The IRS Oversight Board believes that the stakes are too high and BSM's problems are too severe to be addressed with half-measures They must be squarely addressed in a rigorous and open fashion, and as soon as possible.

Based on the findings and recommendations of the BSM reviews, Commissioner Everson recently launched an aggressive "action plan" to remedy the problems plaguing Modernization. Through this report, the Board makes nine specific recommendations for turning around the critical BSM program.

They include having the IRS business units take greater leadership and ownership of BSM projects, enhancing the contracting processes, improving overall program management and focus, and reducing the number of BSM projects underway at the same time.

Of great significance, the Board also strongly recommends that the Prime's performance be closely monitored and, if significant improvements are not quickly demonstrated, a change should be made.

On balance, the IRS Oversight Board is convinced that the overall Modernization plan is sound and well-designed. No one believes that the IRS should start over from scratch; a firm foundation and architecture are in place. However, the challenge for the IRS and the Prime remains how to execute that plan and successfully implement the new systems and processes on schedule and within budget.

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# A Troubled History

The BSM program is crucial to delivering better service to taxpayers and increasing the Agency's efficiency and productivity. Over the past few years, some notable BSM projects and benefits were delivered. Indeed, tangible improvements in call routing, e-Filing and interactive services produced enhanced service for taxpayers and more efficient operations at the IRS.

However, last summer, the BSM program appeared at the point of unraveling. Virtually all of the projects with a major impact on improving customer service and IRS' internal operations and productivity were experiencing serious delays and cost overruns.

- The Customer Account Data Engine (CADE), which will replace the IRS Master Files with a modern database management system and provide the foundation for other modernized applications, missed its Release 1 August "go-live" date. As of this report's publication, a new target date was not finalized.

- Very little work was done to confirm that the "business rules engine," on which future CADE releases depend, will be able to handle the complexity and scale of the CADE data base.

- The October "go-live" target date for the Integrated Financial System (IFS), which will eventually replace IRS' old core financial systems, was missed. Release 1 was rescheduled for the spring of 2004 and work on Release 2 was deferred. Costs increased proportionately.

- Modernized e-File, the platform for all internet tax return forms, was also delayed, increasing project cost.

- The Custodial Accounting Project (CAP) project, which will provide the IRS with critical control and reporting capabilities, was also running significantly behind schedule and over budget.

- E-Services, which provides a suite of web-based products to third-party users, is basically on schedule, but significantly over budget.

Unfortunately, this was not the first time Modernization found itself in serious trouble. Cost overruns have become an all-too familiar story. Since its inception, BSM had, with few exceptions, a consistent track record of missed target dates and budget estimates. For example, the CADE project is now over two years behind schedule and has been re-scheduled four times. The only reason it is only $30 million over the original cost estimate is that the IRS converted CADE to a fixed-price contract shortly after the project first started to experience problems.

CADE is not the only BSM project that has a track record of failure. This is a shared BSM problem. Overall, the e-Services project is 28 months behind schedule and $72 million over the original budget, due to both scope growth and cost increases. The IFS project is almost $50 million over the original cost estimate and although it is only two months behind schedule at present, there is no current firm estimate of when it will be delivered. In fact, all seven major application projects the IRS has undertaken are both over cost and behind schedule. (See Attachment 1.)

# Getting Behind the Problems

Why did this happen? How did BSM end up with a consistent track record of overruns? Without making excuses, the Modernization program is extremely large and complex with numerous risks. Programs of this scale, and there are very few, are never completed without some level of cost and schedule overruns. However, looking back with 20/20 hindsight, BSM's problems are all too evident and severe. The following are some of the more prominent deficiencies.

- There was inadequate business unit ownership and sponsorship of projects. This resulted in unrealistic business cases and continuous project scope "creep".

- The much desired environment of trust, confidence and teamwork between the IRS business units, the BSM organization, the Information Technology Services (ITS) organization, and the Prime simply did not exist. In fact, the opposite was true, resulting in an inefficient working environment and, at times, finger pointing when problems arose.

- The project life cycle methodology did not fully support the requirement to estimate future phases of the work. Moreover, the methodology was not always rigorously followed. At times, inappropriate shortcuts were taken in order to meet unrealistic target dates, further exacerbating problems.

- The contracting process was highly inefficient. This caused significant extra overhead for both the Prime and IRS and at times, resulted in work being done without a contract or inappropriate contracts being used.

- The BSM organization did not have the depth and breadth of skills and experience to adequately manage the Modernization program and the Prime contract.

- As the program ran into more and more problems, additional layers of review and auditing were put into place by OMB, the Treasury Department, the Treasury Inspector General for Tax Administration (TIGTA), GAO, and Congress. While this may be understandable, given BSM's history, it added significant overhead to program management.

- Computer Sciences Corporation (CSC), the Prime team's leader, did not demonstrate that it had the depth of leadership and experience to successfully carry out its responsibilities. The Prime team's track record was marred by continuous delays, missed target dates and budget overruns. CSC did not supply the important thought and program leadership it was engaged to deliver. Up until the last few months, CSC was unable to develop a strong working relationship with the IRS' executive leadership.

- Based on all of the above factors, program productivity levels were extremely low.

- The program schedule was too ambitious given the capabilities of both the IRS and the Prime. There were too many concurrent projects. More became less.

It should be understood that Commissioner Everson and his executive team are new to their responsibilities and to the direction of

the Modernization program. However, as soon as delays and overruns experienced this summer became apparent, the Commissioner launched a comprehensive review of Modernization.

The Board was impressed with the speed, thoroughness and openness of this endeavor. It should also be noted that CSC participated fully with this effort and in fact, hired an independent organization to assess its own work. The program of improvements identified by the review process recently began and while a number of difficult decisions must still be made, the Board believes that meaningful progress is being made. Commissioner Everson is to be commended for his swift response. However, more must be done.

# The Board's Recommendations

The problems outlined in this report do not yield to quick or easy solutions. However, this does not mean the IRS is confronting a hopeless situation. BSM's problems can be managed and solved. To this end, the Board makes the following nine recommendations which it believes will help set BSM back on the path to success. In most cases, they are consistent with those made by the independent experts engaged by the IRS and the Prime. In some cases, action has already started.

**Recommendation 1:** The IRS business units must take direct leadership and ownership of the Modernization program and each of its projects. In particular, this must include defining the scope of each project, preparing realistic and attainable business cases and controlling scope changes throughout each project's life cycle. The Deputy Commissioner for Operations Support assumed responsibility for this critical task and has already taken steps to insure that it is put into place.

**Recommendation 2:** Create an environment of trust, confidence and teamwork between the business units, the BSM and ITS organizations, and the Prime. This is a cultural issue and will take time. The Deputy Commissioner for Operations Support and the CIO have responsibility for this action. CSC is also actively involved.

**Recommendation 3:** Enhance the systems development life cycle methodology to support more accurate estimates of future work phases and put into place the necessary processes to insure that the methodology is followed religiously. Again, this work is under way.

**Recommendation 4:** Enhance the program's contracting process and capabilities.

**Recommendation 5:** Significantly strengthen the experience and capabilities of the BSM team. Its capabilities must be consistent with the scale and complexity of the Modernization program. This will require a meaningful number of outside hires from organizations, such as the Defense Department, that have experience with large, complex programs.

**Recommendation 6:** Try to rationalize the oversight of the program to streamline the process and eliminate duplication. This will require a joint effort of the IRS, Treasury, OMB, TIGTA, GAO, the Oversight Board and Congress.

**Recommendation 7:** The CADE project requires special attention. CADE is the foundation of Modernization. It is also by far the most costly, complex, largest and longest running project within the BSM portfolio. As part of the review program initiated by the Commissioner, the Software Engineering Institute (SEI) was engaged to review CADE, with special emphasis on the systems architecture, conversion approach and the planned use of a "business rules engine" to make the development and maintenance of the system more efficient.

SEI's findings were generally supportive of the system design and the use of the business rules engine. However, SEI could not be sure that the engine could handle the size and complexity of the CADE system until the rules were defined and modeled. It recommended that a project to define

and model the rules—a major effort—be conducted as soon as possible. The Board strongly supports this recommendation.

**Recommendation 8:** Reduce the number of projects being conducted at the same time. Modernization currently has five major projects underway. [1] As demonstrated by the BSM program's performance, neither the IRS nor the Prime has the capability to manage and conduct this many projects at the same time.

In addition, defining and modeling CADE's business rules (as recommended above) will be a significant additional effort. The Board believes that as current work phases are completed, the number of projects should be reduced. This must happen carefully and over time, so that current work efforts are not lost.

Admittedly, this will be a very difficult decision for the IRS to make. Each of the Modernization projects is important and brings significant business value. However, the Board strongly believes that such a step is absolutely necessary for the overall success of Modernization. As both the IRS and Prime demonstrate that they can strengthen their capabilities and improve their performance, the portfolio of concurrent projects can be increased.

**Recommendation 9:** The Board has significant concerns about CSC's ability to provide the necessary leadership for the Prime team. This conclusion was reached after observing its performance and results over the past three years. The Board met many times with CSC's senior executives, for whom we have great respect, and received constant commitments to enhance the capability of its team, improve management processes and deliver greater thought and management leadership.

Although the Board observed ongoing improvements in CSC's program management and some of its management processes, overall results did not change. Target dates and budgets continued to be consistently missed. In addition, CSC should have addressed much earlier many of the other issues previously discussed in this report.

The Board discussed this very serious concern with Commissioner Everson. While he also has misgivings about CSC's performance, he believes that he has established a strong working relationship with its executive management and has its complete commitment to work with the IRS to address previous shortfalls. While the Board accepts this conclusion, we believe that the Prime's performance must be monitored very closely and if significant improvements are not demonstrated quickly, a change should and must be made.

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[1] CADE, CAP, IFS, e-Services, and Modernized e-File

## Conclusion

The IRS Oversight Board firmly believes that the IRS Modernization program cannot be allowed to fail. The IRS cannot continue to operate with the outmoded and inefficient systems and processes it uses today. Over time, the existing systems will become impossible to maintain and at that point, the ability to administer our country's tax system will be in grave danger. Such a risk to our nation is unacceptable. We remain convinced that the overall Modernization plan is sound and well-designed. The challenge is executing that plan. The IRS and the Prime must get it right this time.

Meaningful recommendations were made by each of the groups involved in this recent reassessment to improve the management and execution of Modernization. In this same vein and spirit, the Board adds its constructive suggestions today.

The Commissioner and his management team are committed to a Modernization improvement program. The Oversight Board supports that plan and will continue to work with the IRS to make sure that this important effort succeeds.

**Attachment 1**

## History of Major IRS Modernization Application Projects

| Project | Project Start [2] (month/year) | Original IOC [3] (month/day/year) | Times Rescheduled | Current IOC (month/year) | Schedule Variance (in months) |
|---|---|---|---|---|---|
| CC01 | 05/99 | 02/10/01 | 3 | 07/01 | 6 |
| e-Services | 04/00 | 10/01/01 | 4 | 02/04 [5] | 28 |
| CAP Release 1 [11] | 07/00 | 01/1/03 | 2 | Under evaluation | 15 |
| CADE Release 1 | 09/00 | 01/01/02 | 4 | Under evaluation | 27 |
| CC02/IRFoF | 04/01 | 05/22/02 | 2 | 01/03 [6] | 7 |
| IFS Release 1 | 09/01 | 09/30/03 | 1 | 04/04 | 6+ |
| Modernized e-File Release 1 [11] | 09/02 | 01/02/04 | 1 | 03/04 | 1.5 |

| Project | Original Cost Estimate [4] (in millions) | Current Cost Estimate (in millions) | Cost Variance (in millions) |
|---|---|---|---|
| CC01 | $55.5 | $61.1 | $5.7 |
| e-Services | $62.6 | $134.6 | $72 [7] |
| CAP Release 1 | $50.7 | $112.2 | $61.5 |
| CADE Release 1 | $66.3 | $97.0 | $30.7 [8] |
| CC02/IRFoF | $23.7 [9] | $31.8 | $8.1 |
| IFS Release 1 | $115.2 | $155.9 | $49.7 |
| Modernized e-File Release 1 | $29.2 [10] | $46.3 | $17.1 |

**Legend:**
CC01: Customer Communications 2001
CAP: Custodial Accounting Project
CADE: Customer Account Data Engine
CC02: Customer Communications 2002
IRFoF: Internet Refund Fact of Filing
IFS: Integrated Financial Services

**Sources:** IRS Root Cause Analysis, dated October 9, 2003; Briefing to IRS Oversight Board, December 4, 2003.

[2] Start of Milestone 2.
[3] The date at which the first project achieved its Initial Operating Capability (IOC).
[4] The original estimate for all project phases from start of the project through the completion of Milestone 5.
[5] Four separate segments of partial functionality are being made, starting in 08/2003.
[6] Full production date; pilot available to the public 05/2002.
[7] Scope of e-Services has increased significantly from inception to present, so cost variance reflects both scope and cost increases.
[8] Cost variance contained by converting project to fixed price.
[9] Cost baseline established after original project re-planned to reduce scope.
[10] Start of Milestone 4 when Modernized e-File became a BSM project. Earlier it was a Tier B project under IRS management.
[11] CAP and Modernized e-File are not contracted to the Prime.

For more information, please contact:

IRS Oversight Board
Charles Lacijan, Staff Director
1500 Pennsylvania Avenue, NW
Washington, DC 20220
Ph: 202-622-2581
Fax: 202-622-7944

www.irsoversightboard.treas.gov