

**GAO**

**Testimony**

Before the Subcommittee on Treasury,  
Postal Service and General Government  
Committee on Appropriations  
House of Representatives

---

For Release  
on Delivery  
Expected at  
2:00 p.m. EST  
Tuesday,  
March 10, 1992

**TAX SYSTEMS  
MODERNIZATION**

**Factors Critical To Success**

Statement of  
Howard G. Rhile, Director  
General Government Information Systems  
Information Management and Technology Division



**TAX SYSTEMS MODERNIZATION:  
FACTORS CRITICAL TO SUCCESS**

Summary of Statement by Howard G. Rhile  
Director, General Government Information Systems  
Information Management and Technology Division

During the past 25 years, IRS has twice tried and failed to modernize its antiquated tax-processing systems. The Tax Systems Modernization program represents yet a third attempt. It is absolutely essential that this time it be completed and done right. A third failure would waste millions of dollars and continue to saddle IRS and taxpayers with systems that are cumbersome and unresponsive to their needs.

Although IRS has come a long way, this will not be easy. Were we appearing before this Subcommittee a few years ago, we would be painting a much less optimistic picture of IRS' chances of success. Today, however, the situation has changed for the better. IRS is now in its best position ever to modernize its antiquated systems and change the way it does business.

The basic planning is well underway, and now the challenge is to implement. In doing so, a number of factors remain that IRS needs to address to help assure the modernization's success. These factors are:

1. Development and integration of a vision of how IRS intends to do business in the future using the new technology.
2. Completion of key planning components.
3. Implementation of a project tracking mechanism.
4. Development of a strategy for dealing with technological readiness risks.
5. Improvement to the procurement process.
6. Better management of the systems development process.
7. Implementation of a strategy for hiring, training, and retaining managerial and technical expertise.
8. Paying greater attention to security and privacy issues.

Last year we testified that IRS had acknowledged it needed to address these factors and had initiated actions to do so.<sup>1</sup>

---

<sup>1</sup>Tax System Modernization: Attention to Critical Issues Can Bring Success (GAO/T-IMTEC-91-8, June 25, 1991).

Mr. Chairman and Members of the Subcommittee:

We are pleased to be here to discuss the Internal Revenue Service's Tax Systems Modernization program. Today we are providing an overview of the modernization and discussing eight critical factors IRS needs to address to help assure the program's success. These factors were derived from our work on the modernization over the past couple of years, and include: the need for a vision and complete plans to guide the modernization; a mechanism to track its progress; a strategy for dealing with technological risks; improved management of the procurement and systems development processes; a strategy for having the right personnel involved; and, greater attention to security and privacy issues.

IRS has acknowledged that it needs to address these factors and has initiated a number of actions to do so. The agency also acknowledges that the modernization offers it opportunities to change certain of its business functions, and last year testified that it had begun to examine these opportunities.

TAX SYSTEMS MODERNIZATION: AN OVERVIEW

Currently IRS processes about 1.7 billion pieces of paper each year, including over 200 million tax returns. Using

modified 1950s batch-based computer technology, IRS must process this enormous work load in a timely and accurate manner. In this way, it annually collects and accounts for over a trillion dollars in revenues, works on narrowing the \$100-billion tax gap (the estimated amount taxpayers will not pay in income taxes owed), and deals with an accounts receivable inventory that exceeds \$100 billion.

The existing processing system is unreliable and unresponsive to the needs of both IRS and the taxpaying public. Tax Systems Modernization is IRS' program for making a smooth transition to a new way of doing business using a modernized, electronically-based system for processing tax returns and instantly transferring taxpayer information to wherever within IRS it is needed.

Twice over the past quarter century IRS has unsuccessfully tried to modernize its tax processing system. An attempt in the 1970s was short-lived because of congressional concerns over the proposed system's cost and the system's apparent inability to assure the security of taxpayer information. An early-1980s endeavor was unsuccessful because of repeated management changes and insufficient technical and managerial expertise within IRS' executive ranks. The result of these failures is the current patchwork of inefficient systems for

tax processing--systems that are out-of-date, slow, error-prone, and unresponsive.

The two charts before you, Mr. Chairman, graphically depict the main differences between IRS' existing tax processing system and the system IRS hopes to have when its modernization program is completed. Under the existing system, as shown in chart 1, returns processing is heavily centralized at the Martinsburg Computing Center in West Virginia, where IRS' master files on individuals and businesses are maintained. These files are contained on thousands of reels of magnetic tape. Each day, IRS' 10 service centers send tapes of updated taxpayer account information by air and by truck for posting to the master files. The Computing Center returns the tapes of updated taxpayer files to the originating service centers so the centers can perform any subsequent taxpayer account processing, such as notifying taxpayers of discrepancies on their tax returns.

# GAO Existing System

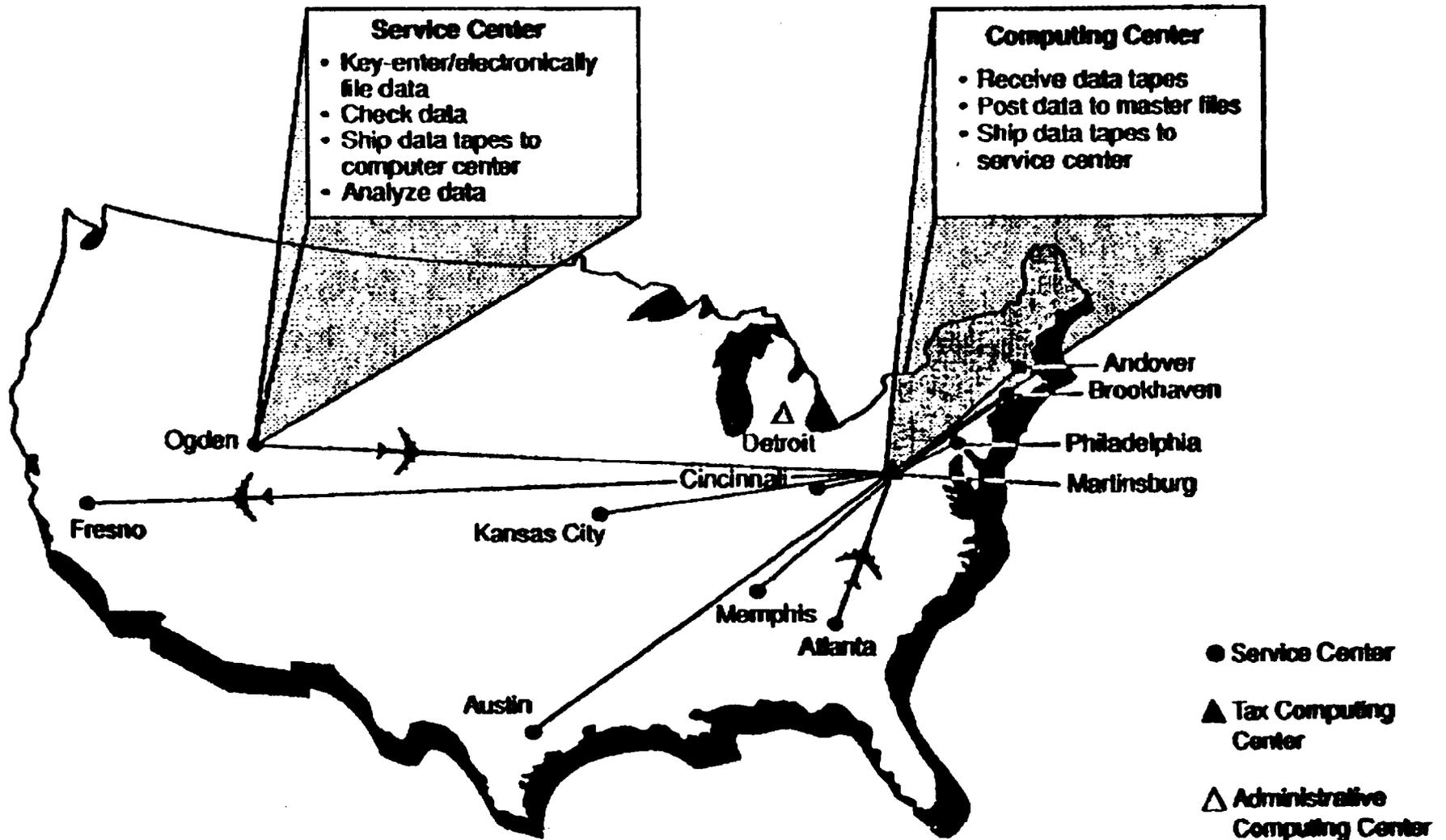


Chart I

Under the modernized system, depicted in chart 2, taxpayer account file maintenance resides at the 10 service centers. Moving the computing power to the service centers where it is needed provides advantages over the current system, such as improving taxpayer services while reducing costs by eliminating labor-intensive paper-handling functions. Each modernized center will use electronic data and document images in lieu of paper documents, an on-line data base of taxpayer accounts, and a network of electronic work stations to eliminate most paper-handling and quickly respond to taxpayer needs.

# GAO Modernized System

9

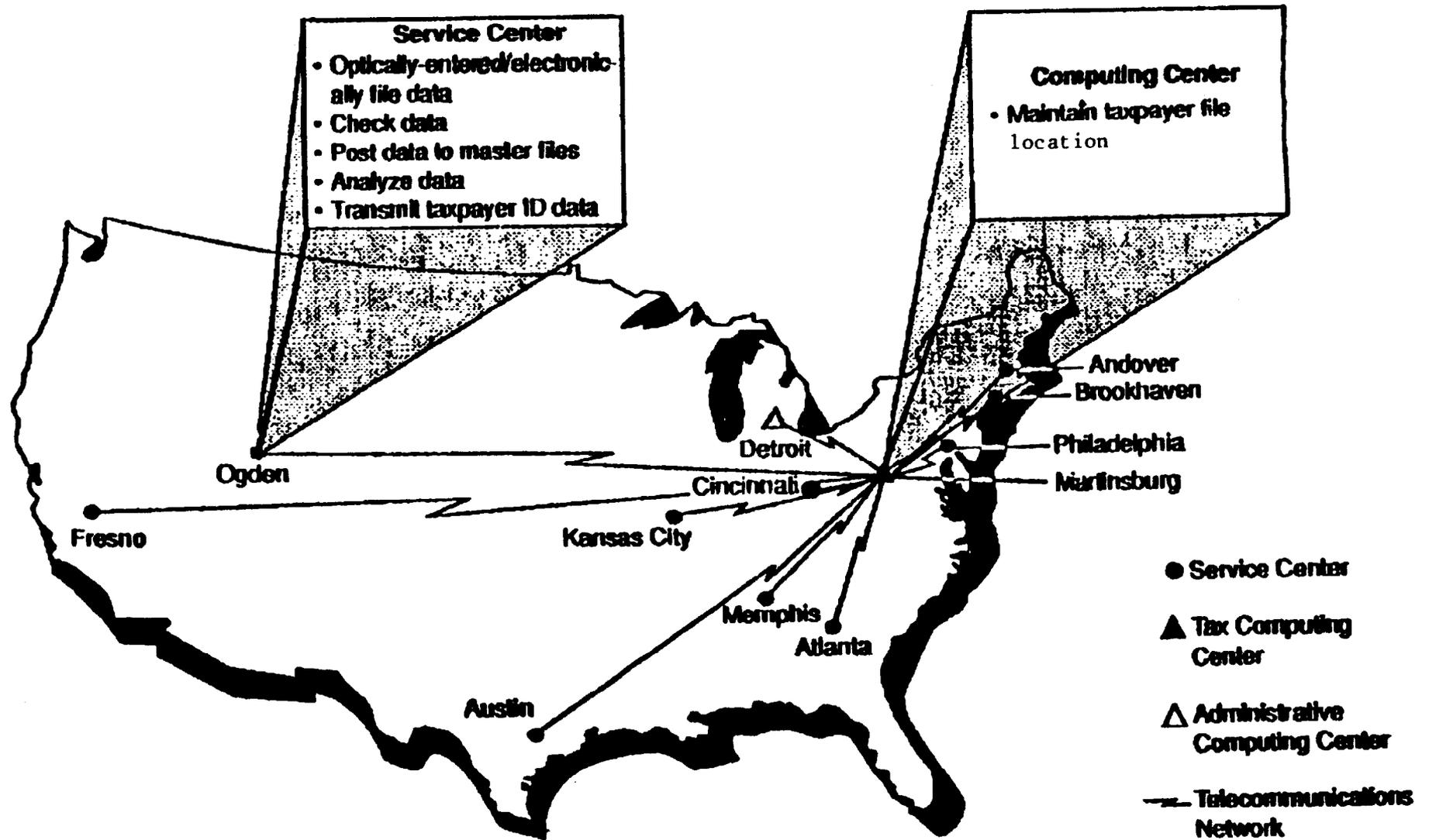
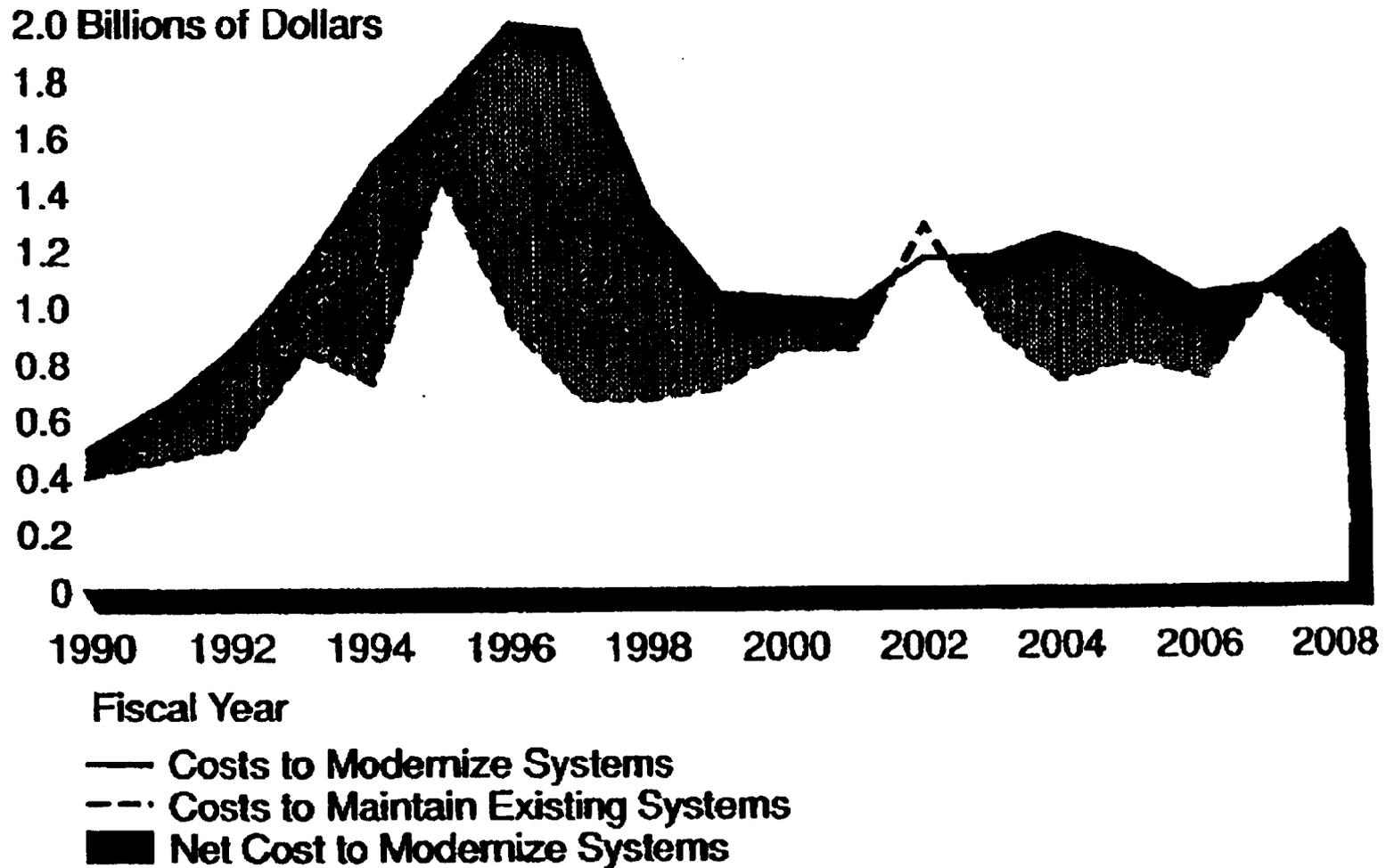


Chart II

Our next two charts depict IRS' estimated costs and benefits from the modernization through the year 2008, the life-cycle time frame for the modernization. As shown in chart 3, total modernization costs are estimated at \$23.1 billion through 2008. These costs include acquisitions, operation and maintenance, and the phasing out of existing systems. Also shown in the unshaded area are the costs to run the existing system through 2008, assuming no modernization program; these costs amount to about \$15.5 billion. IRS' estimated \$7.6 billion net cost for the life of the modernization, reflected by the shaded portion of the chart, consists of the difference between the \$23.1 billion life-cycle costs of the modernized system and the \$15.5 billion existing systems costs over the same period of time.

# GAO TSM Costs (1992) Dollars

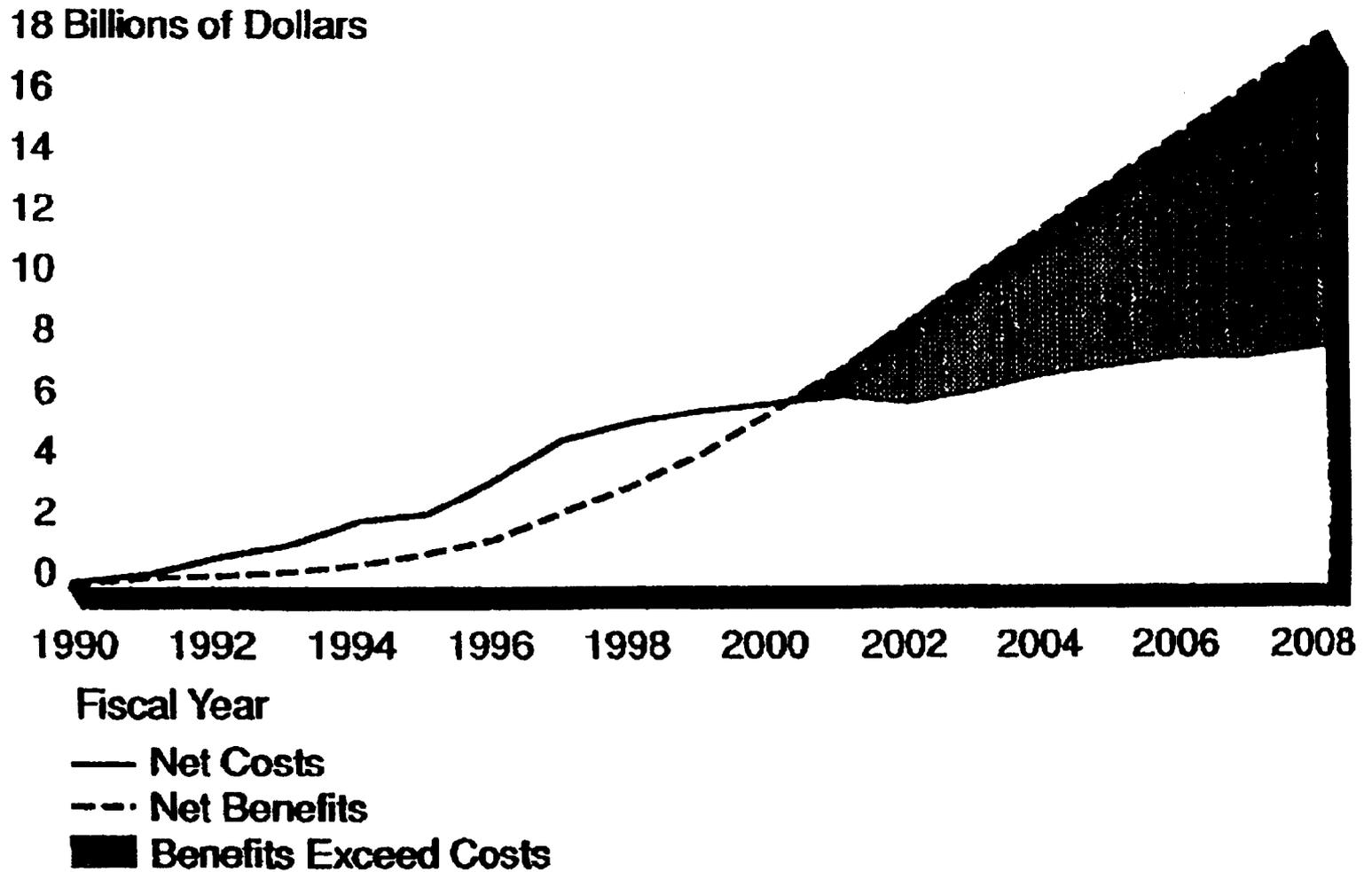


Source: IRS

Chart 4 shows that IRS' estimated net benefits from the modernization over the same period are \$17.6 billion: the sum of benefits accruing to IRS directly from \$8.6 billion in reduced and avoided costs, \$2.9 billion in interest savings, and \$0.2 billion in increased revenue--plus another \$5.9 billion that IRS estimates will accrue directly to taxpayers as a result of reduced filing burdens. As you will note from the chart, IRS figures suggest a break-even point in the year 2000, when the net costs for the modernization intersect with the net benefits accruing both to IRS and the taxpayers.

# GAO Net Cumulative Costs and Benefits of TSM (1992 Dollars)

6



Source: IRS

FACTORS CRITICAL TO THE MODERNIZATION'S SUCCESS

Mr. Chairman, since the beginning of IRS' current modernization activity, we have produced numerous reports and testimony on various aspects of the program. These reports and testimony have dealt with systems that did not work as intended, procurements that went awry, projects that experienced cost overruns and schedule delays, and a host of other problems. From this work we have identified eight factors that we believe IRS must address to better assure the program's successful design, development, and implementation. These factors are listed on chart 5 before you.

---

# **GAO Factors Critical to the Modernization's Success**

---

12

- **Vision**
- **Planning**
- **Tracking Mechanism**
- **Technological Readiness**
- **Procurement Management**
- **Systems Development**
- **Managerial and Technical Expertise**
- **Security and Privacy**

FACTOR 1: Vision

The first of these essential factors is a clearly defined, well-communicated vision of how IRS intends to do business in the future. This is supplemented by a plan for using technology to make this vision a reality. Without a clear vision and support from the top, modernization programs tend to degenerate into loose collections of independent systems that are not integrated and do not meet the organization's or the public's needs.

As we testified last year,<sup>1</sup> IRS did not have such a vision. We pointed out that the Commissioner had indicated in many forums how he thought the IRS of the future should use technology to do business. We added, however, that a business vision needed to be written down to serve, among other purposes, as the foundation for the modernization program's Design Master Plan. We also suggested that IRS obtain the Congress' advice and concurrence in that vision, as a means of helping the program transcend organizational change. This is especially important today, as IRS has recently undergone yet another change at the top.

---

<sup>1</sup> Tax System Modernization: Attention to Critical Issues Can Bring Success (GAO/T-IMTEC-91-8, June 25, 1991).

## FACTOR 2: Planning

The second factor is the need to have key planning components in place to help ensure the successful development of systems under the modernization program, and that such systems function together as intended. IRS' Design Master Plan was to help serve this purpose. It was to be the road map for guiding the agency through the program's development and implementation, and for identifying the projects and schedules necessary to meet tax-processing needs.

As of last year, however, IRS did not have a final master plan; the draft plan it did have had several shortcomings.<sup>2</sup> It lacked a (1) complete strategy for how modernization projects were to be integrated; (2) transition plan describing how IRS' business functions would change from the current slow, manual process to the modernization's rapid, electronic methods; and (3) stable priorities for modernization projects. We pointed out that, with these shortcomings, IRS risks

-- acquiring and implementing information systems that would not effectively integrate with each other or with existing systems,

---

<sup>2</sup> Tax System Modernization: An Assessment of IRS' Design Master Plan (GAO/IMTEC-91-53BR, June 25, 1991).

- prematurely replacing existing systems before the modernization capabilities became fully operational, and
- inefficiently using scarce resources.

### FACTOR 3: Tracking Mechanism

The third factor is the need for a tracking mechanism. By this we mean a way to monitor what projects are actually costing, what benefits are being derived from them, and whether they are on schedule. A key component of this mechanism is the establishment of a baseline representing the projects' initially estimated costs, benefits, and schedules. This baseline is to facilitate comparisons to determine whether the projects are being carried out within acceptable parameters.

Last year IRS lacked such a tracking mechanism for its projects, and we questioned whether the agency could effectively manage the program without one. We noted that IRS had begun to develop such a mechanism and planned to have it in place by 1993 or 1994.

### FACTOR 4: Technological Readiness

The fourth factor relates to our concern that required technology may not be available when needed for the

modernization program. As a central part of the modernization, IRS hopes to eliminate paper files by using imaging technology to electronically capture and optically read the data on paper tax returns and other documents when they are received. IRS then intends to work with the information entirely in electronic form.

A modernization project, known as the "Document Processing System", will incorporate this advanced technology to carry the tax return input processing function into the next century. The project's objectives are to (1) create an electronic image of all paper returns and correspondence by optical scanning immediately upon their receipt in the service centers (the paper copy will be discarded after image quality is verified); (2) archive the electronic image, which will serve as the official record of taxpayer returns; and (3) capture all the data necessary for returns processing directly from electronic images, a technology known as "optical character recognition" (OCR).

Our work in this area indicates that to successfully implement the system, IRS must address two potential problem areas. First, the OCR systems used must be able to quickly and accurately read handwritten and machine printed characters on a variety of forms. This leading edge technology is just now being pilot-tested at several

organizations throughout the Nation. IRS' implementation, however, would be much larger and more complex than any use of OCR to date. Second, IRS needs a fallback position-- other than resorting to its outmoded ways of doing business--if this technology does not perform adequately. One alternative could be greater reliance on electronic filing of tax returns. But this alternative is not without its own limitations. Some taxpayers could be discouraged from using this filing medium due to the fees charged by tax preparers, which can amount to \$15 or more just to transmit a return electronically. In addition, there is no incentive to electronically file for those taxpayers who owe on their taxes at the end of the year.

#### FACTOR 5: Procurement Management

The fifth critical success factor is the need for IRS to dramatically improve its management of procurements. In recent years IRS has been criticized for its inability to adequately direct and control its procurement process and, as a result, IRS reported its procurement process as a material control weakness under the Federal Managers' Financial Integrity Act.

Properly directing and controlling procurement activities are absolutely crucial for the success of the modernization

program. According to IRS, planned acquisitions to support the modernization program during the next 5 years alone will total more than \$4 billion.

Planned Acquisitions: 1993 to 1997  
(1992 dollars, in millions)

<u>Fiscal Year</u>	<u>Acquisition Amount</u>
1993	\$ 500.0
1994	760.6
1995	869.8
1996	1,084.9
1997	<u>1,052.1</u>
Total	<u>\$4,267.4</u>

To ensure that IRS carries out and administers its procurements efficiently, effectively, and in compliance with applicable laws and regulations, it needs qualified contract personnel. IRS' goal has been to increase its procurement staff by about 81 percent to bring the total complement to 308 personnel by August 1992. The Assistant Commissioner for Procurement had stated that IRS' hiring strategy was to actively recruit seasoned contract specialists possessing extensive experience in automated data processing procurements. We pointed out, however, that IRS had attrition problems, which had tended to dilute any improvements made in hiring qualified procurement specialists.

## FACTOR 6: Systems Development

The sixth factor is a need for IRS to better manage its overall systems development process. Our reports in the past few years have criticized IRS' systems development policies and practices. These policies and practices did not always include the overall management controls needed to ensure that systems are developed in a disciplined fashion and are well documented. Without careful, disciplined development, systems are unlikely to meet agency needs and to be delivered within budgeted costs and on schedule, and are subject to: cancellation before completion; failure to satisfy user requirements; and, high maintenance costs. For example...

-- In 1989, we reported that a system intended to help IRS review income tax returns more efficiently was poorly designed, and as a result was years behind schedule and hundreds of millions of dollars over budget.<sup>3</sup>

---

<sup>3</sup> ADP Modernization: IRS' Automated Examination System -- Troubled Past, Uncertain Future (GAO/IMTEC-89-54, June 22, 1989).

- In 1990, we reported that a system to identify taxpayers who underreport income was being developed using an incomplete design and poor development practices.<sup>4</sup>
  
- In 1991, we reported our concerns about shortcomings in plans to test an automated taxpayer service system at several sites, noting that the tests would be inconclusive.<sup>5</sup> The development of this system has since been canceled. Though the main reason for its cancellation was that the cost of the system outweighed its benefits, IRS also found that the test data were inconclusive for the same reasons that we identified.

IRS' top management must remain committed to ensuring that these controls are vigorously executed.

FACTOR 7: Managerial and Technical Expertise

The seventh factor is the need for IRS to have a well thought-out strategy for hiring, training, and retaining personnel possessing the managerial and technical expertise required for the modernization. This has been a problem for

---

<sup>4</sup> Tax System Modernization: Management Mistakes Caused Delays in Automated Underreporter System (GAO/IMTEC-90-51, July 10, 1990).

<sup>5</sup> Tax System Modernization: Further Testing of IRS' Automated Taxpayer Service Systems Is Needed (GAO/IMTEC-91-42, June 20, 1991).

IRS in the past. IRS needs the very best people to carry out the modernization program, both at the top to provide strategic direction and committed leadership, and in the ranks where individual projects are planned, designed, developed, and operated. We have previously reported that a lack of continuity and leadership led, at least in part, to the demise of one of IRS' earlier attempts at modernization, and noted that many project managers do not serve for the duration of a project's development.<sup>6</sup> We have also reported that past projects have been hampered by a lack of technical expertise. We noted one project, for example, where this resulted in incomplete system designs and poor development practices.<sup>7</sup>

Last year we reported that IRS' Design Master Plan for the modernization did not contain a strategy for hiring, training, and retaining the managerial and technical staff needed to carry out the modernization.<sup>8</sup> Such a strategy was critical in light of past problems and because the master plan called for significant increases in qualified staff. In this connection, the plan forecasted an increase in software development and maintenance staff from 1,800 in

---

<sup>6</sup> Tax System Modernization: IRS' Challenge for the 21st Century (GAO/IMTEC-90-13, Feb. 8, 1990).

<sup>7</sup> GAO/IMTEC-90-51, July 10, 1990.

<sup>8</sup> GAO/IMTEC-91-53BR, June 25, 1991.

1991 to 2,300 in 1994. The challenges of the modernization require that this staff include a high percentage of individuals with strong technical skills. Modernization projects will be at risk if IRS cannot obtain skilled individuals when needed.

FACTOR 8: Security and Privacy

The eighth factor, Mr. Chairman, relates to the need for IRS to comprehensively address privacy as well as security aspects of the modernization. We remain concerned that IRS may neglect this area while concentrating on other aspects of the modernization. It was IRS' lack of attention to this important area and concerns over the security of taxpayer information that contributed to failure of the agency's first modernization effort in the late 1970s.

IRS' new, modernized system will contain highly sensitive information. This information must be kept secure and taxpayers' privacy must be assured. When we testified last year, we pointed out that while IRS' Design Master Plan recognized the need for developing security features that should help protect taxpayers' privacy, the plan did not cover privacy as a discrete issue or show how it will be addressed.<sup>9</sup> This was a serious omission, especially in

---

<sup>9</sup> GAO/T-IMTEC-91-8, June 25, 1991.

view of the fact that the agency intends to allow public access, under certain circumstances, to some of its systems.

BUSINESS OPPORTUNITIES OFFERED BY THE MODERNIZATION

Before concluding, Mr. Chairman, let me just mention one other point as IRS begins to implement its modernization program. To take full advantage of the business opportunities offered by the program, we believe that IRS needs to engage in a comprehensive reexamination of the way it does business. Redundancy and inefficiencies are fostered by the longstanding organizational structure, work processes, and program strategies--all of which were constrained by the technology IRS adopted over 30 years ago.

IRS says that it has begun addressing changes in the way it does business, including reviewing the role of its service centers. We believe now is not only the opportune time to consider making any changes, but that it is essential if our collection of revenue is to be handled efficiently in the future with proper service to the American taxpayer.

- - - - -

This concludes my statement, Mr. Chairman. We will be happy to respond to any questions you or other members of the Subcommittee may have at this time.

(510818)