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House of Representatives

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**TAX SYSTEMS  
MODERNIZATION:**

**Status of Planning and  
Technical Foundation**

Statement for the Record of  
Hazel E. Edwards, Director  
General Government Information Systems and  
Jennie. S. Stathis, Director  
Tax Policy and Administration Issues



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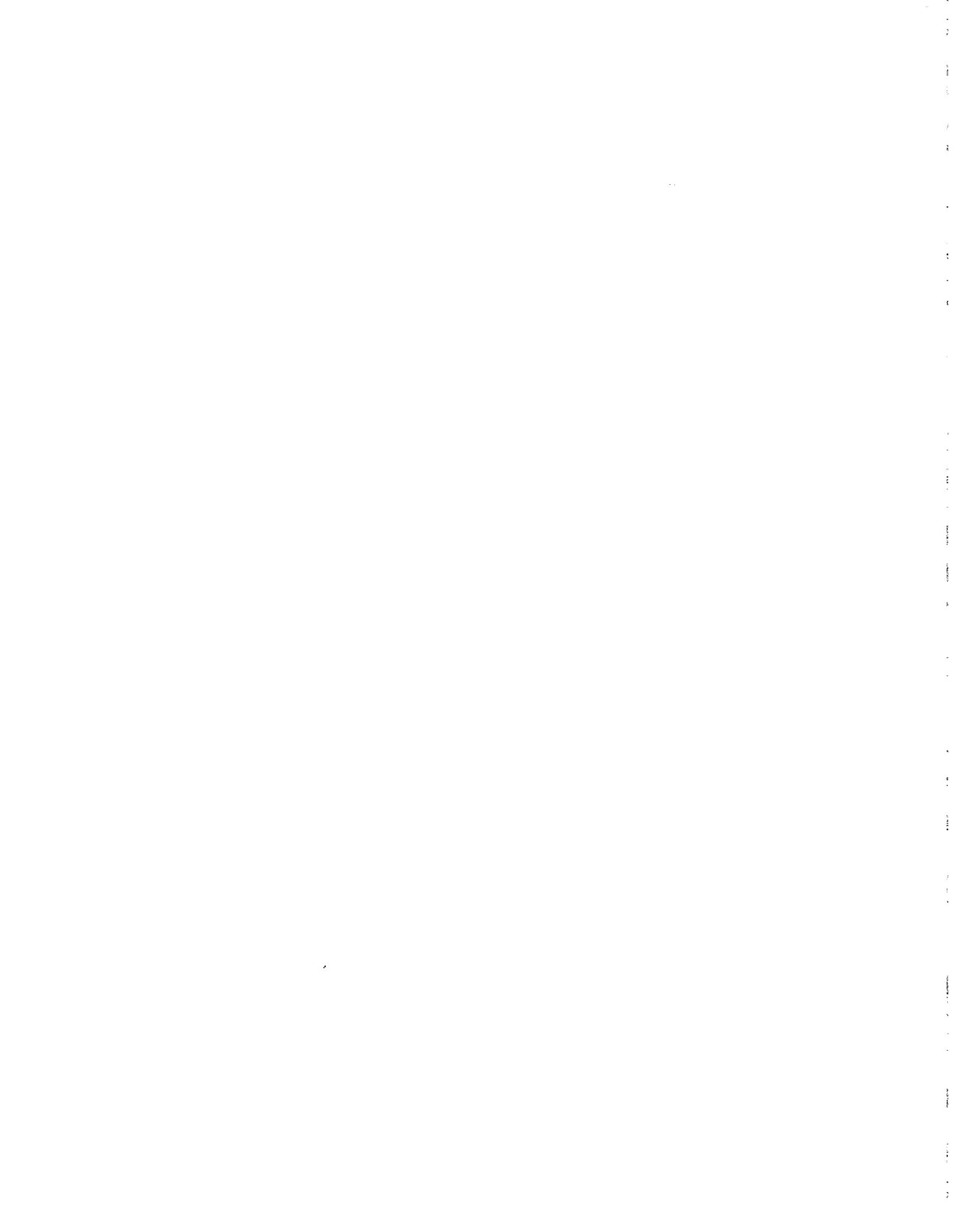
TAX SYSTEMS MODERNIZATION:  
STATUS OF PLANNING AND  
TECHNICAL FOUNDATION

SUMMARY STATEMENT OF  
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JENNIE S. STATHIS  
DIRECTOR, TAX POLICY AND ADMINISTRATION ISSUES

Last year the Subcommittee concluded that the Tax Systems Modernization effort was at risk and its successful completion required immediate action to make key decisions and establish an essential technical management infrastructure. Thus, IRS' fiscal year 1994 appropriation included a requirement that IRS report on three key issues--a business plan, a program management approach, and a systems architect's office. IRS supplied the required reports in September 1993. While they contained as much information as IRS was able to provide, the reports did not establish the essential infrastructure the Subcommittee sought. In order to establish this infrastructure, IRS must complete action on two fronts.

IRS must define its business requirements in detail. Without approved business requirements, which precisely define the operational capabilities needed from TSM, IRS is not in a position to develop the technical specifications that shape specific information systems development projects. IRS intends to document its business requirements by November 1994, but the November requirements are not expected to be detailed enough for technical specifications. The absence of complete and detailed TSM requirements puts ongoing systems development projects at risk since the resulting systems may not fit properly into the whole.

IRS must also fill gaps in its technical and management standards. Technical standards are key since they form a foundation that guides the technical development work and allows the many independently developed systems and subsystems of TSM to connect together and work cooperatively. Without a common data format for storing and transmitting information, for example, TSM systems will not be able to readily exchange information--a primary TSM goal. Similarly, management standards are key since they form a foundation for the overall management of TSM and the complex physical deployment of TSM systems for use by IRS employees nationwide. Both short-term and long-term investments are at risk because the technical and management standards are not in place. To minimize its risks, IRS should set aggressive schedules for completing these efforts and establish clear accountability for seeing them through to completion.



Mr. Chairman and Members of the Subcommittee:

We appreciate the opportunity to report on the status of Tax Systems Modernization (TSM). Last year, based in part on our testimony, the Subcommittee concluded that the modernization effort was at risk and its successful completion required immediate action to make key decisions and establish the essential technical management infrastructure.<sup>1</sup> Thus, IRS' fiscal year 1994 appropriation included a requirement that IRS report on three key issues--a business plan, a program management approach, and a systems architect's office. This statement describes our observations on IRS' progress in addressing the Subcommittee's concerns.

In September 1993, IRS supplied the required reports. While the reports contained as much information as IRS was able to provide, they did not establish the essential infrastructure the Subcommittee sought. IRS is working to provide the necessary foundation and is better off than last year, but IRS is not yet positioned to successfully build the TSM systems. We have two major points:

- IRS has not defined its business needs in detail, which hampers TSM projects; and
- Major gaps in technical and management standards put IRS at risk that (1) systems built today may not connect to systems developed in the future and (2) systems placed into operation may be plagued with logistical and operational problems.

A detailed status report is included in appendix I.

TSM VISION IS DEVELOPED, BUT BUSINESS REQUIREMENTS ARE INCOMPLETE

In 1993, IRS completed studies of a new business vision. In the fiscal year 1994 appropriation act, IRS was directed to present an approved business plan for implementing any needed changes resulting from those studies. IRS' plan emphasizes the need to transform IRS into a fast, accurate, virtually paperless, and less costly operation. To this end, IRS has announced significant organizational changes over the next several years in conjunction with the modernization effort (see app. II). We support IRS' business concepts. They hold promise for improved taxpayer service and more efficient and effective government.

For these concepts to become a reality, however, IRS must translate its business plan by defining its requirements for how

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<sup>1</sup>Tax Administration: Achieving Business and Technical Goals In Tax Systems Modernization (GAO/T-GGD-93-24, Apr. 27, 1993).  
Tax Systems Modernization: Comments on IRS' Fiscal Year 1994 Budget Request (GAO/T-IMTEC-93-6, Apr. 27, 1993).

it will operate in its new organization. These business requirements, which specify detailed operational capabilities, should then be used to develop the technical specifications for information systems development projects.

IRS' effort to document its business requirements is not scheduled for completion until November 1994. However, we were told by senior IRS technical staff that the November requirements will require further refinement before staff working on specific systems projects can begin to develop their specifications. Hence, even in November, IRS will not be in a position to begin the technical development of TSM systems.

Lacking detailed requirements for TSM as a whole, IRS has been defining requirements for individual projects as it undertakes them. This approach is risky because the resulting systems may be designed to specifications that turn out later to be inappropriate. Costly fixes may subsequently be necessary to fit these systems properly into the whole. In addition, without detailed requirements, managers of systems projects have no way of knowing exactly what they are trying to build. For example, IRS' Internal Audit Division cited the lack of a single set of TSM requirements as a major factor in IRS' lack of significant progress in developing two critical TSM systems--the Corporate Accounts Processing System and the Workload Management System.<sup>2</sup>

#### SOME PROGRESS ON TECHNICAL STANDARDS FOR TSM, BUT CRITICAL GAPS REMAIN

In the fiscal year 1994 appropriation, IRS was directed to establish a systems architect's office for the development of broad TSM technical standards. In September 1993, IRS established a systems architect's office as an executive office reporting to the Chief Information Officer, who serves as IRS' Chief Systems Architect. The office will be staffed by three associate architects (two positions are currently filled), who are expected to bring a range of applicable technical expertise and experience to IRS. According to IRS' plan, the systems architect's office is to be involved in the development of technical standards.

Technical standards are key because they form a foundation that will allow the many independently developed systems and subsystems of TSM to fit together. One problem IRS is experiencing with its current systems, for example, is that they

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<sup>2</sup>The Corporate Accounts Processing System is to provide TSM's database and account management capability. (A unified, coherent database is one of TSM's main goals.) The Workload Management System is to automate the assignment and management of employees' case work.

were designed without shared data standards--standards that set the format in which information will be stored and transmitted between systems. Without a common data format, systems cannot exchange information. To overcome this limitation in its current systems, IRS had to build additional systems to act as translators.

The need for technical standards can be thought of in terms of building a house. The architect who translates the owner's needs into specifications for the house has standards that allow independently produced components to fit together in the final construction. Similarly, the prime contractor has management standards for planning and managing the potentially hundreds of independent activities that must be carried out in the proper sequence at the proper time.

In TSM, standards are needed to ensure that systems will connect together, work smoothly, and readily exchange information. Standards are also needed to provide the policies and procedures necessary to plan and manage the varied activities necessary to deploy TSM systems nationwide so IRS employees can use them.

IRS is making progress on its technical standards, but many key efforts are incomplete. For example, IRS now has a draft security architecture document that is intended to provide standards for controlling access to systems and protecting data. This draft, however, has not been approved for use within IRS. Progress is being made in other areas, but these efforts are also incomplete. These efforts involve development of data standards; standards for a software development methodology to guide the work of the technical staff; telecommunications standards for interconnections between systems; and change management standards to control revisions to TSM plans, specifications, and software.

In addition to hampering systems development, incomplete technical standards also affect IRS' technical staff because standards dictate the skills needed to develop TSM systems. Generally, IRS' technical staff and managers have acquired their skills and expertise by working on the antiquated systems that IRS is trying to replace with TSM. This means that the 1,000 or more IRS technical staff expected to be involved in TSM's development will be challenged to overcome steep learning curves to update their skills to the level needed to build TSM's modern systems. This challenge may be greater yet because technical standards for TSM are likely to be new and unfamiliar--a new programming aid, for example, requires the acquisition of additional skills.

IRS has three efforts under way to provide management standards for TSM. These activities involve development of (1) an overall management approach to TSM, which establishes program accountability at the executive levels of IRS; (2) a business

master plan to manage the building of TSM; and (3) management procedures for tracking the projects, activities, and milestones defined in the business master plan. These efforts are scheduled for completion in April 1994 and should improve IRS' ability to manage TSM. We view their completion as a critical step toward the successful management of TSM.

### CONCLUSIONS

IRS is better off this year than last but is not yet positioned to successfully build TSM systems. There are two major issues at this point in time. First, the development of TSM systems has been hampered by the lack of approved business requirements. Although IRS is building TSM systems now, efforts to complete an initial set of TSM requirements in detail may require a year or more. In the meantime, IRS is at risk that the work it is doing today may not meet its needs later. To help manage this issue, IRS should set a specific time table for completing work on its requirements. It should also consider deferring work on any projects where there is a significant risk due to potential changes in requirements.

Second, the technical and management standards for TSM are crucial to success in the modernization effort and they should be completed on a priority basis. Both short-term and long-term investments are at risk because these standards are not in place. To minimize its risks, IRS should set aggressive schedules for completing these efforts and establish clear accountability for seeing them through to completion.

STATUS OF CONGRESSIONALLY DIRECTED  
TSM ACTIONS

In the Treasury, Postal Service, and General Government Appropriations Act, 1994 (P.L. 103-123, Oct. 28, 1993), Congress required that prior to obligation of TSM funds, IRS report to the Committees on Appropriations of the House and Senate on the implementation of TSM. Congress was specifically interested in a business plan for changes resulting from IRS studies of its service center and district office organizations, and implementation plans for (1) management of the TSM program, and (2) establishment of a systems architect's office for the development and implementation of technical standards and methodologies. Congress also wanted IRS to review the need for interim TSM systems.

On September 30, 1993, IRS supplied the required reports. While the reports contained as much information as IRS was able to provide, they did not establish the essential infrastructure for TSM that Congress was seeking. Our observations concerning IRS' progress in addressing the four issues follow.

ISSUE 1

A business plan to implement any needed changes as a result of IRS' 1993 service center and district office studies.

Status (Open)

In September 1993, IRS produced a Business Plan for reinventing IRS. This plan explains IRS' business vision for TSM as a result of last year's service center and district office organization studies. It also lays out a transition plan to establish a short-term operating environment by fiscal year 1997. This environment will use a combination of old and new systems to achieve some elements of the business vision in a much shorter time than would be required to design and develop the final TSM systems.

The Business Plan is useful in understanding IRS' general direction and approach to modernization as a result of the recent organization studies. However, as IRS acknowledges, the plan falls short of being a plan for implementing IRS' envisioned business changes because it does not specify and integrate key activities in the three major management areas of TSM--business, technical, and human resources. The complexity and interdependent nature of such activities is exemplified by the

deployment of IRS' Automated Underreporter System<sup>1</sup> to the Austin, Brookhaven, Ogden, and Philadelphia Service Centers between July and September 1993. This deployment required coordination of site preparation, computer equipment delivery, software installation, business procedure development, and employee relocation and training. Without integrated planning of such activities for all of TSM, IRS cannot realistically proceed to make the thousands of detailed decisions necessary for physical delivery of the vision's promise of more efficient and effective tax administration and improved service to taxpayers.

IRS is currently working on a Business Master Plan that is intended to replace the September plan and provide the integrated planning needed to direct TSM's implementation. For example, the master plan will show the business results that IRS wants to achieve under TSM--processing all single-sided returns using image technology, for example--and identify the key business, technical, and human resource activities and milestones necessary to achieve the desired result. The Business Master Plan is scheduled for publication in April 1994, but IRS officials told us that the April version may be incomplete in terms of business results and activity detail.

## ISSUE 2

A plan for implementing a program management approach for TSM business requirements, initiatives, and projects.

### Status (Open)

In October 1993, IRS issued a Program Management Plan for the technical development, management, and implementation of information systems to support TSM. This approach focuses on information systems development projects and addresses only one of the three major management areas covered by the Business Master Plan. Specifically, it does not cover the activities to define and refine IRS' business requirements for TSM nor the human resource activities to retrain and relocate the thousands of employees potentially affected by TSM.

IRS is developing (1) a management approach for TSM and (2) management procedures and tools for tracking, in an integrated fashion, the projects, activities, and milestones defined in the Business Master Plan. Both of these efforts are scheduled for completion in April 1994 and should improve IRS' ability to manage TSM.

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<sup>1</sup>The Automated Underreporter System automated the comparison of tax return information with information supplied by employers, financial institutions, and other third parties.

ISSUE 3

A plan for implementing a separate and distinct systems architect's office for the development and implementation of TSM technical standards and methodologies.

Status (Implemented)

In 1993, IRS established a Systems Architect's Office reporting directly to the Chief Information Officer (CIO), who serves as IRS' Chief Systems Architect. The office's technical staff will include three SES-level associate architects hired from outside IRS (two positions were filled and one was unfilled as of February 24, 1994), who are expected to provide a broad range of experience and expertise applicable to TSM. The office will also include a small number of IRS systems professionals to provide internal knowledge of IRS and TSM. In support of the CIO's role as Chief Architect, the associates and staff participate in providing executive direction for the technical activities related to TSM and assistance in the planning and design of the systems architecture for TSM. Their areas of expected involvement appear to be comprehensive and in line with our expectation that a systems architect be involved in key technical functions.<sup>2</sup> Therefore, we believe that this office should strengthen the technical oversight of TSM.

Our concern regarding IRS' implementation of this office is that IRS's plan for the office couches most responsibilities in terms of the office, indicating shared responsibility among the three associate architects as opposed to specific responsibilities assigned to individual associate architects. Shared responsibility tends to diffuse accountability and weaken authority and could reduce the office's overall effectiveness. Additionally, the associate architects appear to be advisors to the CIO and IRS staff, rather than the hands-on crafters of the TSM architecture and technical standards as we had envisioned them.

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<sup>2</sup>In a May 25, 1993, letter to the Commissioner of Internal Revenue, we discussed IRS's progress in completing steps critical to the long-term modernization. Enclosure II to that letter discusses the role, authority, and responsibilities of a chief systems architect.

ISSUE 4

Reviews of need for interim TSM systems.

Status (Implemented)

In 1993, IRS reviewed its stand-alone interim systems and made significant changes in their architectures, deployment plans, and implementation schedules. For example, the Totally Integrated Examination System--a system that we agree is needed in the short-term--will now be implemented on TSM-compatible computers to reduce overall equipment purchases and make the system more accessible from other software. Other projects have been either restricted in terms of further development work, redirected technically, or deferred. While we have not reviewed the justification for these changes, they appear to be prudent decisions and should smooth the technical transitions as TSM proceeds forward.

SUMMARY OF IRS' PROPOSED ORGANIZATIONAL CHANGES

IRS completed three studies of its organizational structure in 1993. Those studies dealt with (1) service centers, telephone call sites, and other field operations not involving face-to-face contact with taxpayers; (2) those face-to-face district office functions, like Examination and Collection, not covered by the first study; and (3) national and regional office operations.

IRS has announced various changes resulting from the studies. Some of those changes, like the planned dissolution of two regional offices and a downsizing of the remaining five regional offices and the National Office, should have little impact on IRS' modernization plans. The more significant changes derive from decisions to consolidate and organize various field office activities differently than was anticipated when IRS first developed its modernization plans. A brief description of those changes follows:

- IRS will be establishing a new organizational entity called submission processing centers. These centers will receive and scan or image all paper returns and correspondence, process the information, and store the data. IRS' modernization plans originally called for doing these things at each of IRS' 10 service centers, as is currently the case. Now, instead, IRS plans to have five submission processing centers. IRS intends to prototype the concept at the Austin Service Center beginning in August 1995, with the other four sites coming on line later in Covington, KY; Kansas City, MO; Memphis, TN; and Ogden, UT.
- A second new organizational entity, customer service sites, will be responsible for resolving taxpayer questions, problems, and issues that do not require face-to-face contact (face-to-face contacts will continue to take place in district offices). These activities are currently dispersed among more than 70 sites, each responsible for dealing with only certain matters. Under IRS' new plan, these activities will be consolidated in 23 customer service sites and taxpayers will be able to use one toll-free number to call IRS no matter what their question or problem.<sup>1</sup> This concept is being prototyped at the Fresno Service Center and the Nashville District Office.

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<sup>1</sup>The 23 customer service sites will be located at the 10 existing service centers (Andover, MA; Atlanta; Austin; Brookhaven, NY; Covington; Fresno; Kansas City; Memphis; Philadelphia; and Ogden) and in 13 other cities (Baltimore, MD; Buffalo, NY; Cleveland, OH; Dallas, TX; Denver, CO; Indianapolis, IN; Jacksonville, FL; Nashville, TN; Pittsburgh, PA; Portland, OR; Richmond, VA; St. Louis, MO; and Seattle, WA.)

-- IRS has also changed its thinking with respect to computing centers. IRS' modernization plans were originally developed based on the assumption that IRS would maintain computerized taxpayer account data at 10 service centers. After its organizational studies, IRS decided to centralize those activities in three computing centers to be located in Martinsburg, WV; Detroit, MI; and Memphis TN. Those centers will receive tax returns and other information transmitted electronically or via magnetic media, generate notices to taxpayers, update databases, and identify issues for analysis or taxpayer contact.

IRS has decided not to change the number and location of its 64 district offices, although the size and responsibilities of individual districts may change. For example, IRS has announced a reorganization of its criminal investigation function to be phased in during fiscal year 1994 that, among other things, will reduce to 34 the number of districts having a chief of criminal investigations.

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